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The Evaluation of the Expanded EBT Demonstration in Maryland

**Volume 2:
System Impacts on Program
Costs and Integrity**

May 1994

**THE EVALUATION OF THE
EXPANDED EBT DEMONSTRATION
IN MARYLAND**

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Project Director

CHAPTER ONE

INTRODUCTION

This is the second volume of a three-volume final report presenting the results of the evaluation of the expanded EBT demonstration in Maryland. Volume 1 describes the process followed by the system vendor and by federal, state, and local officials as they endeavored to convert to a new processing environment and expand the Maryland EBT system statewide.¹ Volume 3 describes the impacts of the demonstration EBT system on program recipients, food retailers, check cashing organizations, and financial institutions.²

A summary of the major findings presented in the three-volume final report is available as a separate document.³

1.1 PROJECT OVERVIEW

Over the past ten years, the Food and Nutrition Service (FNS) of the U.S. Department of Agriculture has been investigating an alternative method of issuing and redeeming benefits in the Food Stamp Program. This method, called electronic benefits transfer (EBT), eliminates the use of paper food stamp coupons and implements a computer system, together with a point-of-sale (POS) terminal network and plastic magnetic-stripe EBT cards, to handle benefit issuance and redemption.

The technical feasibility of EBT was demonstrated when the first EBT system became operational in February 1985, serving approximately 3,400 food stamp recipients.⁴ An evaluation of that demonstration concluded that recipients, food retailers, and financial institutions preferred the EBT system to the use of food stamp coupons, and that their costs of

1. Margaret Hargreaves and Paul Elwood, *The Evaluation of the Expanded EBT Demonstration in Maryland, Volume 1: System Startup, Conversion and Expansion*. Cambridge, MA: Abt Associates Inc., May 1994.

2. Erik Beecroft *et al.*, *The Evaluation of the Expanded EBT Demonstration in Maryland, Volume 3: System Impacts on Demonstration Stakeholders*. Cambridge, MA: Abt Associates Inc., May 1994.

3. John Kirlin, *The Evaluation of the Expanded EBT Demonstration in Maryland: Summary of Findings*. Cambridge, MA: Abt Associates Inc., May 1994.

4. John A. Kirlin, *Developing an Electronic Benefit Transfer System for the Food Stamp Program*. Cambridge, MA: Abt Associates Inc., August 1985.

participating in the Food Stamp Program were lower under EBT. Administrative costs of the EBT system, however, were much higher than those of the coupon issuance system it replaced.⁵ Subsequent system changes lowered costs somewhat, but they were still more than triple the paper costs.⁶

In 1988, FNS enlisted state and local governments to conduct additional EBT demonstrations. The new "state-initiated" demonstrations were intended to serve as more realistic models for future EBT initiatives. It was also expected that EBT's administrative costs within the Food Stamp Program would be lower due to cost-sharing with other public assistance programs and with commercial electronic funds transfer networks.⁷ Successful demonstrations were implemented in Ramsey County, Minnesota and in New Mexico, where EBT systems combining food stamp and cash assistance benefits became operational in 1992. An evaluation of these systems confirmed that EBT can be cost-competitive with coupon issuance systems, at least in a relatively small-scale demonstration environment.⁸

The Maryland EBT demonstration was initiated, with the encouragement of the U.S. Office of Management and Budget, to test whether EBT could be technically feasible and cost-competitive on a large-scale. In November 1989, a pilot project was implemented by TransFirst Corporation, under contract to the Maryland Department of Human Resources (DHR), in the Park Circle District of Baltimore. The system served six assistance programs: the Food Stamp Program, Aid to Families with Dependent Children (AFDC), Bonus Child Support (BCS), Non-Public Assistance (NPA) Child Support, Public Assistance for Adults (PAA), and the Disability

Under the terms of the contract, the pilot project could be expanded statewide after it reached a steady state of operation in Park Circle and after DHR received approval for expansion from FNS and the U.S. Department of Health and Human Services' Family Support Administration (later renamed the Administration for Children and Families, or ACF, and hereafter referred to as ACF). Federal approval would be contingent on the project's cost-effectiveness.

The pilot EBT system was fully implemented in 1990, serving about 5,000 recipients. Preliminary cost analysis findings, issued in October 1990, suggested that although the pilot program was cost-effective overall and had the potential to reduce food stamp issuance costs if implemented statewide, the system would not be cost-effective for AFDC issuance. As a result, a new cost-sharing agreement, the Single Administrative Grant (SAG), was negotiated in August 1991 between DHR, FNS and ACF. This agreement capped federal reimbursements per case to their level under paper issuance, making the project cost-neutral to both federal agencies. Simultaneously, the EBT contract was transferred to Deluxe Data Systems. TransFirst continued as a subcontractor to Deluxe, processing EBT transactions and adding recipients until Deluxe developed its own EBT system. TransFirst's obligations ended with the conversion of the Maryland EBT caseload to the Deluxe EBT system in July 1992. By July 1993 the system was fully implemented statewide, serving nearly 168,000 households.¹⁰

1.2 OBJECTIVES OF THE EVALUATION AND THIS REPORT

The evaluation of the expanded Maryland EBT demonstration has four major objectives:

- (1) Describe the process by which the expanded Maryland EBT system was designed, developed and implemented statewide.
- (2) Determine whether it is possible to design and operate a large-scale, multi-program EBT system that costs no more than current benefit issuance systems, yet is secure and acceptable to participants.
- (3) Assess the impact of the Maryland EBT system on agency loss within the food stamp and cash assistance programs and on benefit diversion within the Food Stamp Program.

10. Further details on aspects of the Deluxe system design and the process of system conversion and expansion are provided in Volume 1 of the report, Hargreaves and Elwood, *op. cit.*

- (4) Assess the impact of the Maryland EBT system on stakeholders (recipients, retailers, and financial institutions), with a focus on the costs these groups incur to participate in the food stamp and cash assistance programs.

This report addresses the second and third objectives. Volume 1 of the evaluation's final report addresses the first objective, and Volume 3 addresses the fourth objective.

The Maryland EBT demonstration is the first test of a *statewide* EBT system. Statewide expansion greatly increases the scale of the demonstration, which is important for the analysis of system impacts on administrative costs because the increased scale may lead to cost efficiencies that could not be realized in previous, smaller EBT demonstrations. The Maryland demonstration also represents the first time an EBT system has been implemented in rural areas of a state as well as in urbanized areas. One of the goals of the evaluation is to determine whether such expansion affects impacts on administrative costs.

This is also the first evaluation to assess the impacts of a large-scale EBT system on issuance costs within cash assistance programs. An evaluation of the Maryland EBT pilot in the Park Circle district of Baltimore concluded that, while the pilot system was cost-effective overall and for the Food Stamp Program, EBT issuance costs were higher than check issuance in cash assistance programs like AFDC. A major objective of the evaluation is to determine whether this pattern of cost reductions in the Food Stamp Program and cost increases in the cash assistance programs continues with a statewide system.

This report also addresses a factor affecting costs that has not been evaluated in previous demonstrations. In all benefit programs, a lag exists between the time that benefits are made available to recipients and when the federal or state government needs to release funds to cover the benefit obligations. During this period the governments enjoy a gain in float on the obligated funds, i.e., interest on these funds continues to accrue to the government, or the costs of borrowing funds are reduced. The evaluation estimates the impact of the EBT system on this float gain.

Finally, as in previous EBT evaluations, this report examines the one-time costs of developing and implementing the Maryland EBT system. It also estimates the impacts of the Maryland system on levels of benefit loss and diversion during the issuance and redemption process. Benefit loss is defined to include both agency losses that increase benefit outlays (arising, e.g., from lost or stolen benefits that are reissued to program recipients) and losses that

are not replaced, and thus add to recipients', retailers', or financial institutions' costs of participation. Benefit diversions are defined as Food Stamp Program benefits that are not used for their intended purpose of purchasing eligible food items for needy households. By definition, benefit diversions do not exist within cash assistance programs because these programs' benefits carry no restrictions on use.

1.3 RESEARCH DESIGN AND DATA COLLECTION

The analysis of EBT system impacts on administrative costs and benefit loss and diversion employs a pre/post research design. The administrative costs of issuing program benefits and the levels of benefit loss and diversion were measured before and after implementation of the expanded EBT demonstration in Maryland. The pre-implementation measures reflect the State's experience in issuing paper-based benefits, i.e., food stamp coupons and government assistance checks. The post-implementation measures reflect the costs and benefit losses and diversions experienced with the EBT system. Estimated system impacts are the difference in pre/post measures.

A general weakness of a pre/post research design is that factors other than the intervening treatment (here, the EBT system) also can cause pre/post differences in outcome measures. Research designs can often be strengthened by randomly assigning subjects to treatment and control groups or by using a comparison group, and then comparing the pre/post differences in the control or comparison group with the differences in the treatment group. Random assignment, however, was not operationally feasible for the Maryland EBT demonstration. Similarly, selecting a comparison state for data collection was not considered feasible due to the difficulty of finding a fully comparable state and the constraints on evaluation resources. Where possible, the evaluation's pre/post design has been strengthened by taking into account non-EBT factors that might have caused pre/post differences. For instance, certain measured costs of coupon and check issuance were adjusted to reflect the rate of inflation between the pre- and post-implementation time periods. In addition, fringe and overhead rates on administrative costs were adjusted to be constant between the two periods, inasmuch as the introduction of EBT could have no impact on these rates.

The analyses within this report rest on many different types of data and data collection methods. Wherever possible, extant data reports (e.g., DHR cost reports, quarterly EBT cost

and progress reports, system reports on levels of EBT activity) were used to estimate administrative costs. State-issued reports on check and coupon loss rates were used in the analysis of system impacts on benefit loss and diversion.

These extant data were supplemented with many pre- and post-implementation interviews with local, state and federal program officials. The purpose of these interviews was to clarify extant data or to collect cost data not available through other sources. To collect information on likely system impacts on rates of benefit loss and diversion, we interviewed a number of program officials and systems experts who were familiar with security issues and controls in the paper-based and EBT issuance systems.

To collect detailed information on how the EBT system was affecting issuance costs at local Department of Social Services (DSS) offices and other administrative units, we conducted month-long time studies at a sample of offices in the pre- and post-implementation periods.

Finally, the analyses in this report make use of evaluation findings reported in Volume 3 of the final report. Those findings are generally based on pre- and post-implementation surveys of recipients, food retailers and financial institutions participating in the demonstration.

The pre-implementation data collection and analysis period roughly corresponds to the State of Maryland's 1991 fiscal year (July 1990 through June 1991), except that the pre-implementation time studies were conducted between November 1991 and March 1992. The post-implementation period generally covers the four-month interval from June through September 1993. This schedule was largely driven by the time needed to expand the EBT system to statewide operations. Expansion activities began in January 1992. The Maryland DHR implemented the EBT system in the last portions of the state in April 1993, 16 months later. To give the system time to settle into routine operations after expansion was completed, most of the EBT administrative cost data used in the analysis are from June or later. To prevent contamination from unrelated administrative changes, some local office time studies took place before statewide expansion was complete, but only in counties that had converted to EBT many months previously.

1.4 ORGANIZATION OF THE REPORT

This report consists of seven chapters, including this Introduction. Chapter Two addresses the impact of the EBT system on the administrative costs of ongoing issuance-related activities. Chapter Three delves more deeply into one component of these costs—labor costs at the local DSS offices; and at the Baltimore City Office of Child Support Enforcement (BCOCSE), the office responsible for issuing NPA Child Support payments.

Chapter Four examines EBT system impacts on the gain in float experienced by the state and federal governments. Estimated levels of benefit loss and diversion under the paper-based and EBT issuance systems are presented in Chapter Five. Chapter Six presents the evaluation estimates of the resources required to convert and expand the Maryland EBT system. Chapter Seven assembles the main findings from the previous chapters to provide a broader perspective of the impacts of the EBT system on program costs and integrity.

A "highlights" section in each chapter's introduction summarizes major findings. A number of technical appendices provide additional information on research methods, data collection efforts, and supplementary analyses.

CHAPTER TWO

EBT SYSTEM IMPACTS ON ADMINISTRATIVE COSTS

Since the Food and Nutrition Service (FNS) sponsored the first EBT demonstration in Reading, Pennsylvania, a fundamental question has been whether such systems could be a cost-neutral means of issuing and redeeming Food Stamp Program (FSP) benefits. The early demonstration systems were not cost-neutral—that is, the EBT systems cost more to operate than the paper systems they replaced. More recent demonstrations in New Mexico and in Ramsey County, Minnesota, showed for the first time that EBT systems could have lower operating costs than their counterpart coupon systems.¹ However, the analysis of these demonstrations examined costs only for the FSP, and left open the question of whether an EBT system could still have lower administrative costs when the costs of cash assistance programs as well as the FSP are considered.

Given this background, perhaps the most important question surrounding the Maryland EBT demonstration is how its administrative costs compare with those of issuing paper food stamp coupons and government checks. That the Maryland demonstration was expanded to a statewide scope increases the policy relevance of this question. Statewide operations may give an EBT system the opportunity to take advantage of scale economies in operations, especially in data processing tasks. At the same time, statewide operations require including rural areas where EBT systems might arguably be less cost-efficient. Resolving these issues about a statewide system is particularly important because most states contemplating the use of EBT (and federal oversight agencies) hope to implement the system statewide to avoid simultaneously operating both electronic and paper systems.

1. Results of evaluations of these EBT demonstrations are presented in: William L. Hamilton *et al.*, *The Impact of an Electronic Benefit Transfer System in the Food Stamp Program*, Cambridge, MA: Abt Associates Inc., May 1987; John A. Kirlin *et al.*, *The Impacts of the State-Operated Electronic Benefit Transfer System in Reading, Pennsylvania*. Abt Associates Inc., February 1990; and John A. Kirlin *et al.*, *The Impacts of the State-Initiated EBT Demonstrations on the Food Stamp Program*, Abt Associates Inc., June 1993.

2.1 INTRODUCTION

Prior to the expansion of the Maryland EBT system, the Maryland Department of Human Resources (DHR) was issuing food stamp or cash assistance benefits to about 153,000 households each month. All recipients in the AFDC, Bonus Child Support (BCS) DALP, PAA and NPA Child Support (NPACS) programs received government-issued checks. In the FSP, DHR used three different methods to issue food stamp coupons:

- **ATP Issuance:** Authorization-to-Participate (ATP) cards with recipients' benefit amounts were mailed to about 67 percent of the state's food stamp caseload. Recipients' exchanged their ATPs for coupons at local Department of Social Services (DSS) offices or at private coupon issuance sites (usually check cashing organizations). Before EBT system implementation, this method was used in Baltimore City, Baltimore County, and Prince George's County.
- **ATI-Mail:** Authorization-to-Issue (ATI) cards showing recipients' benefit amounts were shipped to local DSS offices, where fiscal workers counted and stuffed the coupons and mailed them with the ATIs to the recipients. This method was used in eighteen counties, serving about 22 percent of the state's total food stamp caseload.
- **ATI-Over the Counter (OTC):** Instead of mailing the ATIs and coupons, the local fiscal workers held them for recipients to pick them up on designated days. This method was used in three counties, representing about 11 percent of the statewide caseload.

The EBT demonstration in Maryland has nearly eliminated the use of paper food stamp coupons and assistance checks. Recipients' benefits are now posted to a computer file maintained by the EBT system vendor, Deluxe Data Systems. Food stamp benefits can be accessed at special point-of-sale (POS) terminals deployed at checkout counters in program-authorized food stores. Benefits from cash assistance programs and NPACS funds can be accessed at these POS terminals or at automatic teller machines (ATMs) linked to the MOST network. Recipients access their benefits by using their "Independence card" and personal identification number (PIN). As in bank debit card systems, the Independence card and PIN verify the identity of the cardholder and identify the account from which requested benefits are to be drawn.

Implementation of the EBT system in Maryland was almost universal among the programs placed on the system, but not quite. In some instances, food stamp recipients residing

in group homes were not converted to EBT because the managers of these facilities needed access to the benefits of numerous residents. In addition, some cash assistance program recipients with bank accounts (some 2,500 cases, or about 2.2 percent of the total cash assistance caseload) opted for direct deposit of their cash benefits into their bank accounts rather than access through the EBT system. For the NPACS program, the system was designed to include only those cases served by the Baltimore City Office of Child Support Enforcement (BCOCSE),² and participation was voluntary for these cases. About 25 percent of the BCOCSE caseload that regularly receives payments chose to participate in the EBT demonstration, including the 4 percent that opted for direct deposit. Finally, only a few local DSS offices in Maryland placed their PAA caseloads on EBT. Even with these exceptions, a very high percentage (90 percent) of the state caseload eligible for participation in the demonstration (including BCOCSE cases) was receiving benefits through the EBT system by the summer of 1993.

Research Questions

The major question addressed in this chapter is whether the administrative costs of issuing and redeeming benefits are higher or lower under the Maryland EBT system than under the previous food stamp coupon and check systems. Specific research questions include:

- How much does it cost to issue and redeem benefits and to perform ancillary administrative functions in the steady-state EBT system? What are the analogous costs in the paper issuance systems? Which system is more costly, and by how much?
- What are the administrative costs of EBT and paper issuance for each of the programs served by the EBT system? On a program-by-program basis, by how much does EBT increase or decrease administrative costs? How do these impacts differ when different methods are used to allocate EBT system costs to specific programs?
- How do EBT and paper issuance costs break out by functions and tasks associated with benefit issuance, redemption and reconciliation?

2. The current Baltimore City Office of Child Support Enforcement was formerly the Baltimore Office of Support Enforcement (BOSE).

- Under each issuance system, how are incurred costs distributed across local, state and federal agencies? What is the distribution of costs borne by each level of government once cost reimbursement practices are considered?
- Does EBT affect the costs of managing benefit funds, and by how much? Does the system change the costs of investigating and prosecuting issuance fraud?

A final question planned for this analysis was, "What is the administrative cost impact of the changes in program participation (if any) attributable to EBT, overall, by program, and by agency?" A parallel research effort has concluded that the EBT system has had no systematic impact on the size of program caseloads in Maryland,³ so this research question has been dropped.

Research Approach

The measurement of administrative costs in the paper-based and EBT issuance systems is based on a *resource inventory* approach, which includes certain costs that are not captured by agency accounting conventions and excludes costs that are not part of issuing benefits. For each issuance-related task under the EBT and paper-based issuance systems, the evaluation identified the resources needed to accomplish the task (labor, supplies, equipment, services, etc.). The price or value of each resource was then measured or otherwise estimated, and total costs were built up from these resource-level costs. Costs were assigned to the agency (federal, state or local office) that incurred them, regardless of its accounting practices or the terms of cost sharing across agencies.

The resource inventory approach was modified in measuring vendor costs. Confidential cost data were obtained from the vendor detailing the labor and non-labor inputs applied to the Maryland project during system conversion, expansion and a 3-month period of "steady-state" operations (June through August 1993). To protect the confidentiality of these data, they are not reported in the text, but they are used to determine allocation factors for distributing billed costs among programs and across functional categories. The vendor costs reported in this chapter are those costs actually billed to the state for the EBT system; any difference between

3. Beecroft *et al.*, *Evaluation of the Expanded EBT Demonstration, Volume 3.*

total billed and resource costs to the vendor represents a gain or loss to the vendor (potentially offsetting unbilled startup costs), but has no impact on the cost to taxpayers.⁴

DHR compensates the vendor for EBT services through a set of per-case-month fees, which vary by program and issuance method (standard EBT versus direct deposit).⁵ For this analysis, the average monthly total of these fees was distributed across issuance tasks in proportion to the distribution of the vendor resource costs among those tasks. Within tasks, the billed cost was further disaggregated by cost object (labor, ATM fees, POS terminal depreciation, etc.), again in proportion to the distribution of resource costs. This resource-based allocation of the billed costs ensured that the overall cost for each task would reflect the resource cost to taxpayers. In addition, this approach enabled a task-by-task allocation of costs by program that closely mirrors the actual use of resources by participants in the different programs served by the EBT system. (This "resource allocation" method for determining the costs by program is discussed in Section 2.2.)

The EBT system operating costs presented in this study differ in three important ways from the costs recognized by DHR and federal agencies for reimbursement purposes. First, direct federal agency costs for operation oversight and other activities are included in this study; because they are direct federal costs, DHR does not consider these expenses. Second, the application of the resource inventory approach to DHR costs means that certain costs not recognized as EBT-related by DHR are included, and that some EBT system costs which DHR does recognize are measured differently. In particular, DHR's accounting does not differentiate between startup and ongoing costs, which were separated for this evaluation. Finally, unlike the evaluation, DHR follows rules set out in the EBTSAG agreement in allocating EBT system costs the food stamp, AFDC and BCS programs.⁶ Differences between the evaluation's resource-based cost allocation method and the EBTSAG method are discussed in Section 2.4.

4. The operation resource costs reported by the Maryland vendor were higher than the billed costs for the same time period, but the resource costs included an unknown profit margin.

5. The fee structure is described in Appendix A.

6. The EBTSAG, which does not affect funding for DALP, PAA or NPACS costs, also caps federal reimbursement for state EBT costs on the basis of 1990 reported paper issuance costs, adjusted for inflation and changes in caseload. See Appendix A for an explanation of this funding mechanism.

measures have been adjusted to better reflect what costs would have been in 1993 without EBT.

The adjustment process involved the following steps:

- **Federal Costs:** Costs incurred by federal agencies were updated using Fiscal Year 1993 cost data and caseloads.
- **State Costs:** All measured non-labor costs were inflated by the index used in setting the amount of the EBTSAG.⁷ Labor costs were not inflated inasmuch as there were no changes in wage rates at the Maryland DHR during the period in question.
- **Local Costs:** The same adjustments were made to measured issuance costs at local DSS offices and BCOCSE as at the state level: non-labor costs were inflated, labor costs were not.

All cost elements are converted to a *cost per case month*, using the appropriate caseload in the denominator. For instance, costs pertaining to a specific time period are divided by the average monthly caseload for that period. Similarly, costs within a specific program are divided by that program's caseload. The individual estimates are then summed to yield an overall estimate of administrative costs per case month. The process is repeated for both paper-based and EBT issuance costs on a program-by-program basis. Total costs per case month for each system are calculated as the weighted average of program-specific costs per case month, with each program's caseload used as the weighting factor.

Standardizing costs on a per-case-month basis allows valid comparison of costs in the pre-implementation and post-implementation periods. Between these two periods, the total caseload in Maryland increased by about 7 percent, from about 240,000 to 256,000 cases. These counts represent *duplicated* case counts, i.e., households receiving benefits from multiple programs are counted as multiple cases. In calculating impacts on annual costs, we used the average monthly caseload for each program between May and September 1993.

Estimates of EBT issuance costs in this chapter actually represent a weighted average of "pure" EBT costs per case month and the per-case-month costs of direct deposit. As noted earlier, about 2.2 percent of the caseload receiving cash benefits opted for direct delivery of benefits into their bank accounts. While the percentage choosing direct deposit did not vary much among AFDC, BCS and DALP cases, 15.5 percent of NPACS cases on EBT (4 percent

7. The annual change in the GNP price for labor was used as the measure of inflation.

of the total NPACS caseload) opted for direct deposit. (This substantial difference had little impact on the overall rate of direct deposit participation because of the small size of the NPACS EBT caseload.) Any account maintenance charges or transaction fees borne by recipients in conjunction with payments made via direct deposit are considered stakeholder costs and are not reflected in this analysis. The administrative cost analysis does, however, reflect the differences in vendor fees between direct deposit and "standard" EBT cases⁸

Finally, because only a very limited number of PAA cases were placed on the EBT system, the analyses in this chapter combine the costs of issuing benefits in the DALP and PAA programs. Both programs are state-administered and funded. The combined costs are divided by the combined program caseloads to yield estimates of average combined administrative costs per case month, in both the paper and EBT issuance systems.

Data Sources

A variety of data sources and data collection techniques underlie the analyses in this chapter. Many costs or other relevant data were available from extant reports, including: the Maryland DHR's EBT cost reports, which include the EBT vendor's monthly billings; accounting data maintained by state and federal agencies; and state and system data on program caseloads, issuances, and EBT transactions.

The extant data could not always identify resources specific to issuance-related functions or tasks. In these instances, interviews were conducted with federal and state officials to determine resources actually employed in the issuance process.

The last main area of data collection included time studies of local office operations. These time studies were needed because local office staff perform both issuance- and non-issuance-related activities, and existing accounting systems do not separately identify how labor resources are split across these activities. We conducted two sets of time studies, each lasting one month in each sampled office. The first set of time studies measured time spent issuing food stamp coupons and assistance checks; the second set measured time spent on EBT-related

8. See Appendix A for the vendor fee schedule.

issuance activities, including client training and issuance of the demonstration's Independence cards.⁹

Highlights

Issuing benefits with the Maryland EBT system costs the state and federal governments slightly less than the paper-based issuance system. The overall EBT cost per case month is \$3.85, compared with \$3.89 for the paper system. Significant savings under EBT in the cost of issuing food stamps—\$0.79 per case month—were largely offset by an increases of \$0.55 to \$1.45 per case month in the cost of issuing cash benefits.

EBT costs do not vary greatly among most programs, except for somewhat lower than average costs for the BCS program and substantially higher costs for NPACS food stamps cost less to issue via EBT because of savings in local labor costs, coupon production and supply, and the processing of coupons by the Federal Reserve Bank system. AFDC and other cash programs cost more with EBT than with paper because issuing benefits by check is relatively inexpensive. In particular, the cost of ATM fees makes the issuance of cash benefits in Maryland more expensive than the paper-based issuance system.

The estimate of EBT savings for each program—especially food stamps and AFDC—is highly sensitive to the method used to allocate common costs across programs. Some alternative methods actually reverse the estimated EBT impacts, showing a cost increase for food stamps and savings for cash programs. The evaluation relies on a resource-based allocation method that, though cumbersome, most closely approximates the true, underlying resource use by each program.

2.2 ADMINISTRATIVE COSTS UNDER THE PAPER-BASED AND EBT ISSUANCE SYSTEMS

Exhibit 2.1 presents the evaluation estimates of the resources used to issue benefits under the paper-based and EBT issuance systems, broken out by issuance function and program.¹⁰ Overall, there is virtually no difference in estimated costs between the two systems. The estimated total cost of issuing and redeeming benefits through EBT, as shown at

9. The time studies are described in more detail in Chapter Three and Appendix C.

10. Detailed EBT and paper costs are provided in Appendix B.

EXHIBIT 2.1

ADMINISTRATIVE COSTS BY ISSUANCE SYSTEM AND PROGRAM
(dollars per case month)

	Total Caseload	Food Stamps	AFDC	Bonus Child Support	DALP/ PAA	NPA Child Support
<i>Authorize benefits</i>						
EBT	\$0.767	\$0.755	\$0.751	\$0.698	\$0.800	\$1.583
Paper	1.729	1.571	2.008	1.159	2.202	1.421
Difference	-0.962	-0.816	-1.257	-0.461	-1.402	0.162
<i>Deliver benefits</i>						
EBT	2.513	2.516	2.632	1.658	2.243	4.378
Paper	1.812	2.575	0.767	0.930	0.698	3.304
Difference	0.701	-0.059	1.865	0.728	1.545	1.074
<i>Redeem and reconcile benefits</i>						
EBT	0.495	0.534	0.455	0.437	0.442	0.388
Paper	0.308	0.487	0.087	0.077	0.063	0.171
Difference	0.187	0.047	0.368	0.360	0.379	0.217
<i>Investigate and prosecute fraud</i> (costs affected by EBT only)						
EBT	0.041	0.072	0.002	0.002	0.002	0.000
Paper	0.039	0.070	0.000	0.000	0.000	0.000
Difference	0.002	0.002	0.002	0.002	0.002	0.000
<i>Manage benefit funds</i> (costs affected by EBT only)						
EBT	0.033	0.039	0.025	0.025	0.025	0.000
Paper	0.001	0.002	0.000	0.000	0.000	0.000
Difference	0.032	0.037	0.025	0.025	0.025	0.000
<i>Total</i>						
EBT	\$3.849	\$3.916	\$3.865	\$2.820	\$3.513	\$6.348
Paper	3.888	4.705	2.861	2.166	2.963	4.896
Difference	-0.039	-0.789	1.004	0.654	0.550	1.452

the bottom of the exhibit, is \$3.849 per case month, about one percent lower (\$0.039 per case month) than the estimated cost of issuing and redeeming food stamp coupons and government checks.

However, EBT and paper system costs differ substantially within each program. When EBT costs are allocated across programs so that they match, as closely as possible, actual resources used, substantial savings of \$0.789 per case month are realized in the FSP.¹¹ The EBT system has the opposite effect in the cash benefit programs; however, issuance costs under EBT rise anywhere from \$0.550 per case month for the DALP/PAA programs to \$1.452 for the NPACS program. The switch in effects does not arise because of variations in the EBT cost across programs: in fact, the EBT cost for the FSP differs by only a few cents per case month from the cost for AFDC. Rather, the differing impacts result from differences in the paper system costs. The administrative costs of issuing government checks were generally lower than the costs of issuing food stamp coupons, making it harder for EBT to be cost-neutral in the cash programs.

As can be seen in the "difference" rows of the exhibit, the EBT system changes the distribution of costs across issuance functions, even though it has little effect on total costs. Substantial savings are gained in authorizing benefits, but these savings are largely offset by higher EBT costs pertaining to delivering, redeeming and reconciling benefits. The EBT system also has higher costs for investigating and prosecuting fraud, and for managing benefit funds; although these functions add very little to total administrative costs in either EBT or the paper

11. Many of the costs required to operate the EBT issuance system are not directly assignable to individual programs. The cost estimates presented in this section allocate individual cost elements across programs by one of five different methods, depending on which most closely matches the real resource burden. Some of the EBT costs, such as ACH fees for direct deposit or labor recorded in the time studies as applying to only one program, can be assigned directly. When it was not possible to assign costs directly to a program, we used one of the four remaining methods. That is, costs were allocated across programs based on either (1) *each program's share of the total duplicated caseload* served by the EBT system, (2) *each program's share of total transactions processed by the system*, (3) *each program's share of POS transactions*, or (4) *each program's share of cash assistance transactions*. While this approach most closely matches costs to resource usage (and is hereafter referred to as the "resource allocation method"), other allocation schemes are possible and may be more appropriate for cost reimbursement purposes by federal agencies, due to their ease of interpretation and application. For instance, all EBT costs could be allocated across programs only on the basis of caseload. Section 2.4 of this chapter examines the impacts on each program's administrative costs of using different allocation methods for EBT costs.

systems. The following sections provide detail on the tasks that contribute to costs within each function and indicate how EBT affects costs within each task.

Authorizing Benefits

The first task under authorizing benefits is *issuing, updating and replacing identification cards*. Prior to the implementation of the EBT system, the Maryland DHR issued photo identification cards to recipients of all of the programs except NPACS. This task was carried out at the local DSS offices by eligibility workers and income maintenance clerks. Recipients presented the identification cards when they picked up their coupons (in the ATP and ATI-OTC counties) or cashed their checks.

Under the EBT system, DHR discontinued the practice of issuing photo identification cards; recipients are now issued Independence cards. Before the Independence cards are issued, recipients participate in a short training program on how to use the card. Each local DSS and the BCOCSE has one or more EBT trainers who conduct the training sessions and issue cards. To establish a new Independence card, local office staff must create a case record on the EBT system (using an administrative terminal connected to the vendor's EBT computer) and link the card to the recipient's case number on the state's automated income maintenance system (AIMS). In addition, each recipient must select a PIN number and enter it into the system.

As shown in Exhibit 2.2, costs of issuing identification cards rise under EBT, from \$0.173 per case month to \$0.519 per case month. Local labor costs, which were \$0.319 per case month higher under EBT, account for most of this increase. Non-labor costs also increase, from \$0.064 per case month under the paper system to \$0.091 per case month under EBT.

The second task within this function is *creating and posting benefit records*. This task was relatively costly under the paper system (\$1.556 per case month). A large part of this task is done by local DSS staff who authorize one-time-only benefits, provide information on issuance dates and amounts, and resolve issuance problems. For food stamps, this task also involved the centralized printing and distribution of ATPs and ATIs.

Creating benefit records is an area where savings under EBT are substantial: costs per case month go down to \$0.248 per case month under EBT. Under the paper system, the task includes a substantial amount of local labor (\$0.799 per case month for food stamps and \$0.514 for AFDC) and state data processing (\$0.380 per case month for food stamps and \$1.054 for

EXHIBIT 2.2
AUTHORIZING BENEFITS
(dollars per case month)

	Total Caseload	Food Stamps	AFDC	Bonus Child Support	DALP/PAA	NPA Child Support
<i>Issue/update/replace ID</i>						
EBT	0.519	0.522	0.507	0.440	0.580	0.597
Paper	0.173	0.099	0.277	0.120	0.358	0.000
Difference	0.346	0.423	0.230	0.320	0.222	0.597
<i>Create and post benefit records</i>						
EBT	0.248	0.234	0.245	0.258	0.220	0.986
Paper	1.556	1.472	1.731	1.039	1.844	1.421
Difference	-1.308	-1.238	-1.486	-0.781	-1.624	-0.435
<i>Total</i>						
EBT	0.767	0.755	0.751	0.698	0.800	1.583
Paper	1.729	1.571	2.008	1.159	2.202	1.421
Difference	-0.962	-0.816	-1.257	-0.461	-1.402	0.162

AFDC). With EBT, local labor for creating benefit records is reduced to \$0.158 for food stamps and \$0.169 for AFDC. State data processing costs are \$0.039 per case month for both food stamps and AFDC under EBT.

For the entire function of authorizing benefits, the introduction of EBT yields overall savings of \$0.962 per case month, with savings occurring in all programs except NPACS. Unlike the other programs, NPACS had no ID issuance costs under the paper system; in contrast, NPACS has the highest EBT cost per case month for ID issuance. The greatest savings occur in DALP/PAA, where paper costs to create and post benefit records were relatively high, probably because of the high mobility and turnover rates in this population.

Delivering Benefits

There are three tasks associated with delivering benefits: maintaining the benefit delivery system, processing transactions, and resolving transaction problems. Each of these tasks is described below.

Under the paper system, *maintaining the benefit delivery system* consisted of the production and distribution of food stamp coupons. There were no analogous cash program

expenses. The FNS manages contracts with vendors who print, store, and ship coupons to state or local distribution centers. In Maryland, local DSS staff maintained inventories of coupons and ensured that they were stored securely.

For the EBT system, this task mainly refers to installing and supporting the POS terminals at the roughly 3,000 retailers on the Maryland system. The system vendor purchased and installed the POS terminals. The vendor provides supplies for the POS terminals and manages contractors who provide repair and replacement services 24 hours a day, seven days a week. The major expenses in this task are nonlabor costs, including depreciation on the POS terminals and charges for the local telephone service linking retailers to the system's in-state telecommunications hubs. (Fees for long-distance telecommunications between these subs and the Deluxe processing center in Wisconsin are included in the transaction processing cost.)

The vendor's shared POS terminal network also supports commercial credit and debit transactions. This "piggybacking" affects EBT system costs in two ways. First, the sharing of POS network costs was factored into the vendor's per-case-month fees. Second, the vendor credits DHR \$0.0075 per commercial transaction. This credit, less the vendor's cost for overdispensing of cash by ATMs,¹² reduces the billed cost by about \$1,000 a month (\$0.004 per case month during the study period). Since the net billed vendor cost incorporates the credit for commercial POS transactions, this small reduction is spread across all EBT system tasks.

Total EBT costs for maintaining the benefit delivery system are \$0.255 higher per case month than equivalent paper costs. These costs are allocated across programs by total POS transactions, which assigns relatively more cost per case to the FSP because food stamp recipients initiate more POS transactions than cash recipients.¹³ Food stamp recipients can use their benefits only at POS terminals, whereas cash recipients can also make withdrawals at ATMs. Moreover, each purchase with food stamp benefits requires an EBT transaction, while cash recipients can make multiple purchases with the cash from a single withdrawal.

The second task is *processing transactions*, which refers to the actual delivery of benefits to recipients. For the paper-based issuance systems, this entailed mailing checks and

12. The vendor absorbs ATM overdispense costs if they exceed the commercial transaction credits for the month.

13. The FSP average is 9.6 POS transactions per case month, compared to an AFDC program average of 2.0 POS transactions per case month.

issuing food stamp coupons by mail, OTC, or through ATP redemption agents. Central DHR staff initiated the printing of checks; state staff at the AIMS mail room stuffed the checks into envelopes and mailed them to recipients. In the ATI-mail counties, local staff assembled mailings and sent food stamp coupons to recipients; in the OTC counties, local fiscal workers staffed the pick-up windows. In addition to labor costs, this task includes ATP fees to agents issuing food stamp coupons and checking account fees paid to the state's fiscal agent, Signet Bank.

Under the EBT system, processing transactions includes two basic activities: authorizing purchases or withdrawals and responding to balance inquiries. These are initiated either by clerks operating POS terminals or by cash benefit recipients at ATMs.¹⁴ For a given transaction, the system is fully automated. A transaction request message is sent over the MOST network or the POS network and switched to the Deluxe computer dedicated to EBT authorization processing in Wisconsin. An authorization message is then returned to the transaction originator. The human and hardware infrastructure that supports the transaction processing is extensive, including two mainframe computers in Wisconsin, 24-hour monitoring and problem-solving by Deluxe operations staff, and long-distance telecommunications to carry the transactions between the Maryland hubs and Deluxe.

Costs for EBT transaction processing are higher for the cash benefit programs than for food stamps. While the vendor's data processing charges are allocated by total transactions (and therefore weighted towards food stamps), this impact is overwhelmed by the high cost of ATM fees (\$1.302 per case month for AFDC), which are incurred only for cash program transactions. The magnitude of the ATM fee cost is not the result of exceptionally high fees, since the cost reported here (based on allocated vendor billing, not the actual fees) translates into about \$0.48 per ATM withdrawal, which is less than the average "foreign" ATM fee of \$1.¹⁵ Rather, it is the number of ATM transactions (overall, about 2.36 per cash case) that drives this cost.

The third task under delivering benefits is *resolving transaction problems*, which is primarily the responsibility at Deluxe's customer service and the DHR help desk in the EBT

14. Costs for balance inquiries made through the Automated Response Unit are included in the task, "resolving transaction problems."

15. David B. Humphrey, *Payment System Costs and Trends: Implications for EBT*. Cambridge, MA: Abt Associates Inc. (forthcoming).

system. Recipients make over 30,000 calls a month on the Deluxe toll-free number, with questions about their account balance and authorizations and reports of lost, damaged or stolen Independence cards. Retailers call when there are problems with an individual transaction, when there are system problems, and when they need supplies or repairs for the POS terminals. Deluxe customer service staff field calls 24-hours a day, seven days a week. State staff who encounter problems call the DHR help desk. The total cost per case for this task is \$0.615, with no comparable expenses listed under the paper system.¹⁶

EXHIBIT 2.3
DELIVERING BENEFITS
(dollars per case month)

	Total Caseload	Food Stamps	AFDC	Bonus Child Support	DALP/PAA	NPA Child Support
<i>Maintain benefit delivery system</i>						
EBT	0.656	1.026	0.209	0.119	0.172	0.319
Paper	0.401	0.722	0.000	0.000	0.000	0.000
Difference	0.255	0.304	0.209	0.119	0.172	0.319
<i>Process transactions</i>						
EBT	1.241	0.873	1.822	0.954	1.453	3.129
Paper ^a	1.411	1.853	0.767	0.930	0.698	3.304
Difference	-0.170	-0.980	1.055	0.024	0.755	-0.175
<i>Resolve transaction problems</i>						
EBT	0.615	0.617	0.601	0.586	0.618	0.930
Paper ^a	0.000	0.000	0.000	0.000	0.000	0.000
Paper ^a	0.615	0.617	0.601	0.586	0.618	0.930
Difference						
<i>Total</i>						
EBT	2.513	2.516	2.632	1.658	2.243	4.378
Paper	1.812	2.575	0.767	0.930	0.698	3.304
Difference	0.701	-0.059	1.865	0.728	1.545	1.074

^a Paper costs for "process transactions" task include resolving benefit delivery.

Combining the above three tasks, delivering benefits is more expensive under EBT by \$0.701, as shown in Exhibit 2.3. The higher EBT cost comes from the increase in the overall cost of delivering cash benefits and from the cost of resolving FSP transaction problems. The

16. Paper system costs for dealing with lost or stolen benefits have been included under task, "process transactions."

EBT system produces a small savings in delivering food stamp benefits because of the higher paper costs for maintaining the benefit delivery system and processing transactions. The FSP savings, however, are more than offset by the higher EBT cost of processing cash transactions. Despite the higher FSP cost per case month of maintaining the benefit delivery system, the overall benefit delivery cost per case month is higher for AFDC than for food stamps, because of the major contribution of ATM fees to the transaction processing cost.

The NPACS program merits special attention, because this program has the highest cost of benefit authorization and delivery under EBT. (NPACS also has the highest paper system cost for benefit delivery, but this cost would be substantially lower without the adjustments made for comparison to EBT costs.) NPACS has higher local labor costs than the other programs. Enforcement agents spend more time dealing with issuance problems, fiscal workers spend more time giving balance information to recipients, and both types of workers spend more time dealing with direct deposit problems. An even more powerful influence on NPACS costs is the higher number of transactions per NPACS case. NPACS participants on the Maryland EBT system receive an average of 2.4 issuances per case month;¹⁷ as a result, NPACS participants make more withdrawals per case month than recipients of other cash programs. Furthermore, issuances depend on the receipt of child support payments from absent parents; NPACS participants are often uncertain about when and how much money they will receive, so they make an extraordinary number of balance inquiries. Overall, the total number of transactions per case month (including POS, ATM and ARU usage) is 14.5 for NPACS, compared with 12.1 food stamp transactions per case month and 12.9 AFDC transactions per case month. These factors result in an allocated cost for vendor data processing that is slightly higher than the food stamp cost on a per case month basis, and a much higher cost for ATM fees (\$2.221 per case month) than the other cash programs.

17. An NPACS participant gets an issuance each time a collection is made from the absent parent, sometimes weekly. For the purposes of this study, the NPACS caseload is the number of households receiving issuances in a given month. NPACS paper costs have been adjusted for differences in the number of issuances per case between EBT and paper cases, as explained in Appendix C.

Redeeming and Reconciling Benefits

This section reports on costs of redeeming and reconciling benefits, which are divided into four tasks. The first task is *retailer settlement*. Each day, the system produces a file with the net credits for all the retailers and ATM owners who have acquired EBT transactions during the day. Deluxe sends the file to its automated clearinghouse (ACH) origination bank, Norwest, which prepares and sends an ACH file to the Minneapolis Federal Reserve Bank. Overnight, the Federal Reserve distributes net credits and debits among its member banks, who in turn credit the banks and retailers who have provided cash or food to Independence cardholders that day. Settlement is a highly automated process, costing only \$0.021 per case month as shown in Exhibit 2.4.18.

EXHIBIT 2.4
REDEEMING AND RECONCILING BENEFITS
(dollars per case month)

	Total Caseload	Food Stamps	AFDC	Bonus Child Support	DALP/ PAA	NPA Child Support
<i>Retailer settlement</i>						
EBT	0.021	0.024	0.019	0.010	0.015	0.033
Paper	0.000	0.000	0.000	0.000	0.000	0.000
Difference	0.021	0.024	0.019	0.010	0.015	0.033
<i>Authorize retailers and monitor redemption activity</i>						
EBT	0.048	0.081	0.009	0.000	0.000	0.000
Paper	0.192	0.341	0.009	0.000	0.000	0.000
Difference	-0.144	-0.260	0.000	0.000	0.000	0.000
<i>Reconcile issuances and report losses</i>						
EBT	0.023	0.024	0.024	0.024	0.024	0.000
Paper	0.076	0.074	0.078	0.077	0.063	0.171
Difference	-0.053	-0.050	-0.054	-0.053	-0.039	-0.171
<i>Management and oversight</i>						
EBT	0.403	0.405	0.403	0.403	0.403	0.355
Paper	0.040	0.072	0.000	0.000	0.000	0.000
Difference	0.364	0.333	0.403	0.403	0.403	0.355
<i>Total</i>						
EBT	0.495	0.534	0.455	0.437	0.442	0.388
Paper	0.308	0.487	0.087	0.077	0.063	0.171
Difference	0.187	0.047	0.368	0.360	0.379	0.217

FSP) FNS regional and national office staff. Under EBT, reconciliation consists of a batch file process performed daily by both the vendor and the State. The FNS Mid-Atlantic Regional Office and the national FNS office review the FSP reconciliations and monitor reports prepared by the state on lost benefits.

The final task under this function is *management and oversight*. The resource cost for management and oversight of the issuance system increases ten-fold under the EBT system. Under the paper system, the only directly-measured issuance system management expenses were

incurred by FNS staff, mostly at the Mid-Atlantic Regional Office.¹⁹ While the FNS oversight continues under the EBT system, there are now EBT system managers at Deluxe's Wisconsin headquarters and at its Maryland field office, plus technical support staff in Wisconsin. The state system management and technical support staff are also included here, although they represent a cost of only \$0.075 per case month, compared to \$0.275 in vendor management costs.

Considering all programs together, the redemption and reconciliation of benefits is \$0.187 per case month more expensive under EBT than under the paper system. Exhibit 2.4 presents the component costs of redeeming and reconciling benefits under both systems. The EBT-paper cost difference is far greater in the cash programs than in the FSP, which has by far the largest paper costs for this function.

Investigating and Prosecuting Fraud

State and federal agencies incur costs investigating and prosecuting issuance-related fraud. Three entities investigate fraud: the DHR OIG, Division of Special Investigations; the FNS Compliance Branch; and the USDA OIG. The FNS Compliance Branch investigates cases of non-criminal violations of FNS regulations, primarily sale of unauthorized (non-food) items for food stamp benefits. The USDA OIG investigates possible criminal activity, such as trafficking in food stamp benefits. The FNS field offices receive information about potential fraud and notify the appropriate USDA investigation agency. While the field offices do not investigate fraud, they track cases of alleged fraud and implement sanctions against retailers. At the national level, FNS' Administrative Review Branch is responsible for hearing appeals of sanctions against retailers that result from Compliance Branch investigations.

The introduction of EBT may be having some impact on the cost and productivity of fraud investigations, but the impact at this point seems to be very minor. *The figures presented in Exhibit 2.5 do not, for the most part, reflect the full cost of investigating fraud, only those cost elements that vary between the two systems.* The one exception to this approach is in the

19. Management and oversight tasks for the paper system are also included in other tasks and in the overhead rate applied to labor costs. EBT management costs are probably higher in any case because of the novelty and visibility of the demonstration, compared with the more mature paper system.

treatment of FNS costs to investigate fraud and sanction retailers, where the full cost is presented for comparability to previous EBT evaluations.

EXHIBIT 2.5
INVESTIGATING AND PROSECUTING FRAUD
(dollars per case month)

	Total Caseload	Food Stamps	AFDC	Bonus Child Support	DALP/-PAA	NPA Child Support
<i>Investigate fraud</i>						
EBT	0.035	0.061	0.002	0.002	0.002	0.000
Paper	0.033	0.059	0.000	0.000	0.000	0.000
Difference	0.002	0.002	0.002	0.002	0.002	0.000
<i>Sanction retailers</i>						
EBT	0.005	0.008	NA	NA	NA	NA
Paper	0.005	0.008	NA	NA	NA	NA
Difference	0.000	0.000	NA	NA	NA	NA
<i>Recovery of benefit funds</i>						
EBT	0.002	0.003	NA	NA	NA	NA
Paper	0.002	0.003	NA	NA	NA	NA
Difference	0.000	0.000	NA	NA	NA	NA
<i>Total</i>						
EBT	0.041	0.072	0.002	0.002	0.002	0.000
Paper	0.039	0.070	0.000	0.000	0.000	0.000
Difference	0.002	0.002	0.002	0.002	0.002	0.000

Note: For cash programs, these costs represent only those activities affected by the implementation of the EBT system. Food Stamp Program costs include some items that are identical under the EBT and paper systems (see text).

The USDA OIG reports that EBT has changed the way that fraud cases are investigated and prosecuted. They see some increases in expenses per investigation because of the additional information available to investigators from the EBT system. They also expect, however, to eventually see an increase in productivity, as measured in conviction rates. As yet, there is no strong evidence of a net cost or savings from the introduction of EBT. The costs of fraud investigation by USDA OIG are therefore not included in the analysis. Based on the lack of a measurable impact on USDA OIG costs, we did not attempt to obtain cost data from the Secret Service (which investigates food stamp counterfeiting) or other agencies (such as the State Attorney's office) with smaller roles in food stamp fraud investigations. The U.S. Postal Service investigates thefts of food stamp coupons and benefit checks from the mail, but the costs of these

investigations are offset by the postage paid by the state and therefore were not separately estimated.

The FNS Compliance Branch reports no impact on their investigation of food stamp fraud under EBT. Nevertheless, to facilitate a later comparison with the costs of other EBT demonstrations, Compliance Branch expenses are reported under the task, "Investigate fraud," for both paper and EBT.

At the state level, the DHR OIG does not do a significant amount of investigation and prosecution of issuance-related fraud. That office concentrates its efforts on eligibility-related fraud, which is assumed to be independent of the benefit issuance system. The net result of the implementation of EBT, therefore, is a very minor increase (\$0.002 per case month for all programs) in the cost of investigating fraud due to extra effort by the AIMS fiscal staff to cooperate with the USDA OIG's and other investigations.

The cost for sanctioning retailers remains unchanged under the EBT system. These activities are undertaken by FNS' Administrative Review Branch, which tracks sanctions and appeals of sanctions against retailers found to have violated FNS regulations. The sanctioning process is unchanged by the EBT system. Similarly, recovery of benefit funds is undertaken by FNS' Retailer Monitoring Section, which reports no change in its efforts due to the implementation of EBT in Maryland.

Managing Benefit Funds

In the EBT system, managing benefit funds is the process of transferring federal and state funds to the system vendor, reimbursing Deluxe or its settlement agents for credits to retailers initiating POS transactions and banks acquiring ATM transactions. The state plays a role in this process for the cash programs. Acting on the clearing statement file prepared by Deluxe, AIMS fiscal staff transfer funds to Deluxe's concentrator bank with two daily wire transfers, one for ATM transactions and the other for POS transactions. The AIMS fiscal staff then notify DHR's federal grants management office of the amount of AFDC benefit funds authorized. That office informs the State Treasurer's Office, which requests reimbursement for AFDC benefit disbursements from the federal government via the DHHS Payment Management System (PMS), operated by the Division of Federal Assistance Financing (DFAF). The PMS generates an ACH transaction, drawn on a Treasury account at the Federal Reserve Bank of

New York, to credit the Maryland State DHR's account at Signet Bank. The State Treasurer's Office, DFAF and U. S. Treasury perform the same roles in AFDC funds management under the paper system, so that funds management costs are the same for the two systems.

Deluxe contacts the PMS directly for reimbursement of food stamp funds equal to the amount credited retailers the previous day. A less automated process is used to generate a same-day credit to Deluxe, rather than the overnight ACH process used to credit the state. DFAF staff extract the reimbursement request from the PMS and manually forward it to the Treasury's Washington Financial Office (WFO). WFO sends an authorization to the Federal Reserve Bank to wire funds to Deluxe and debit the FSP account established for this purpose. The wire transfers and associated staff time cost much more than the ACH transfers, although the total federal EBT system cost for the FSP is just over \$0.022 per case month.

EXHIBIT 2.6
MANAGING BENEFIT FUNDS
(dollars per case month)

	Total Caseload	Food Stamps	AFDC	Bonus Child Support	DALP/-PAA	NPA Child Support
<i>Manage benefit funds</i>						
EBT	0.033	0.039	0.025	0.025	0.025	0.000
Paper	0.001	0.002	0.000	0.000	0.000	0.000
Difference	0.032	0.037	0.025	0.025	0.025	0.000

Note: These costs represent only those activities affected by the implementation of the EBT system.

As in the discussion of fraud investigation, the funds management cost information in Exhibit 2.6 includes only costs that were affected by the implementation of EBT.²⁰ There was a small increase in the cost of managing benefit funds, \$0.037 for food stamps and \$0.025 for AFDC, BCS, and DALP/PAA. The higher FSP cost mainly reflects the difference in scale between the Maryland EBT system and the nationwide paper system, which has a single redemption account that costs \$0.002 per case month to maintain. The EBT cost for AFDC, BCS, and DALP/PAA is only the incremental cost of AIMS Fiscal Unit activity. All other

20. Costs for managing cash benefit funds were difficult to disentangle from the costs of managing administrative funds, and there was little apparent impact on these costs. To avoid including costs that were not part of benefit issuance, we adopted the strategy of reporting only cost differences, rather than total costs, for funds management in most cases.

funds management costs for these programs are the same, so these costs are not included in either the EBT or paper system estimates. Funds management for the NPACS program is part of the collections process, and no EBT impact on this activity could be identified.

Total Costs

Exhibit 2.7 presents the estimates of annualized savings achieved by the EBT system, using 1993 caseload levels. The estimated annual savings for all programs combined are about \$120,000. Substantial savings of \$1.35 million per year in the FSP are offset by cost increases of about \$920,000 in AFDC, \$138,000 in DALP/PAA, and a combined \$171,000 in the two child support programs.

EXHIBIT 2.7

TOTAL EBT AND PAPER ADMINISTRATIVE COSTS
(dollars per case month)

Program	Total Caseload	Food Stamps	AFDC	Bonus Child Support	DALP/PAA	NPA Child Support
EBT	3.849	3.916	3.865	2.820	3.513	6.348
Paper	3.888	4.705	2.861	2.166	2.963	4.896
Difference	-0.039	-0.789	1.004	0.654	0.550	1.452
Annual savings/ (increase)	120,369	1,348,982	-919,874	-103,327	-137,642	-67,771
Monthly caseload	256,758	142,509	76,347	13,154	20,859	3,889

2.3 INCIDENCE OF ADMINISTRATIVE COSTS BY LEVEL OF GOVERNMENT

The distribution of administrative costs among local, state and federal governments can be viewed in two ways: where costs are *incurred* or where they are *borne*. An agency *incurs* the costs of an issuance task when it performs the task, but another agency may *bear* all or part of the cost of the task if it reimburses the agency that incurs the cost. Thus, the distribution of costs as incurred reflects the roles of the different levels of government in EBT and paper issuance systems; the distribution of costs borne represents the eventual financial responsibility of each level.

This section considers the incidence of costs incurred and costs borne by level of government, using the evaluation's estimates of paper and EBT system costs. For the reasons indicated earlier, these estimates differ from the figures actually used by DHR and the federal agencies in cost accounting and reimbursement under the EBTSAG. For a discussion of cost accounting under the EBTSAG, see Appendix A.

Administrative costs in both the paper and EBT issuance systems are incurred at the federal, state, and local levels. As shown in Exhibit 2.8, the introduction of the EBT system in Maryland substantially changes the distribution of costs across these levels of government. (Costs billed by the EBT system vendor are included under state costs.)

EXHIBIT 2.8
ADMINISTRATIVE COSTS INCURRED
BY LEVEL OF GOVERNMENT
(dollars per case month)

	Total Caseload	Food Stamps	AFDC	Bonus Child Support ^a	DALP/ PAA ^b	NPA Child Support ^a
<i>Federal</i>						
EBT	0.113	0.198	0.009	0.000	0.000	0.000
Paper	0.484	0.868	0.009	0.000	0.000	0.000
Difference	-0.371	-0.670	0.000	0.000	0.000	0.000
Annual savings	1,145,265	1,145,267	0	0	0	0
<i>State</i>						
EBT	3.067	3.055	3.207	2.354	2.796	4.626
DHR	0.275	0.259	0.283	0.398	0.283	0.246
Vendor	2.792	2.796	2.924	1.956	2.513	4.380
Paper	1.321	0.952	1.908	1.558	1.795	0.000
Difference	1.746	2.103	1.299	0.796	1.001	4.626
Annual savings	-5,378,728	-3,595,929	-1,190,389	-125,684	-250,558	-215,909
<i>Local</i>						
EBT	0.669	0.663	0.649	0.466	0.716	1.722
Paper	2.082	2.885	0.945	0.608	1.169	4.896
Difference	-1.413	-2.222	-0.296	-0.142	-0.453	-3.174
Annual savings	4,353,832	3,799,647	270,515	22,357	113,176	148,138

^a No direct federal issuance costs were identified for BCS and NPACS.

^b DALP and PAA are not federally funded programs. Their caseloads, however, are used in calculating federal costs per case month for the "total caseload" column to permit addition of impacts across levels of government.

Issuance costs incurred by FNS fall by \$0.670 per case month under EBT, largely due to the elimination of the need to print and distribute food stamp coupons. No change in federal costs is estimated for AFDC, and the remaining programs entail no direct federal issuance costs. Therefore, the estimated annual savings of \$1.15 million experienced by FNS equals the estimate of total savings across all federal agencies.

Issuance costs incurred at the state level (representing DHR costs and EBT vendor billings, but excluding local office costs) increase dramatically with EBT. On a per-case-month basis, incurred costs increase by \$1.746 across all programs. Annually, DHR's costs (including vendor billings) increase an estimated \$5.39 million, with most of the increase (\$3.60 million) allocated to the FSP. If vendor billings totaling \$2.792 per case month are excluded, costs incurred *within* DHR actually decline by \$1.046 per case month, or about \$3.22 million per year.

The EBT system reduces costs within local offices by \$1.413 per case month, or \$4.35 million annually. Despite the fact that local offices take on new responsibilities with EBT (card issuance and recipient training), the shift in benefit delivery activities from the local offices to DHR and the vendor lead to substantial cost savings at the local level.

Recognizing that the local DSS offices and the BCOSE are administrative units within the Maryland DHR, the net EBT impact within the state (including vendor billings) is an additional issuance cost of \$0.333 per case month, or \$1.03 million annually. Thus, in terms of where costs are incurred, the Maryland EBT demonstration increased state costs by about \$1.03 million annually and decreased federal costs by a slightly greater amount, yielding the overall estimated cost savings of \$120,000 per year.

Federal agencies, however, reimburse state governments for a portion of the costs they incur to administer the food stamp, AFDC, and child support programs. In Maryland, the federal reimbursement rate is 50 percent for both AFDC and the FSP. The normal reimbursement rate for administrative costs in the BCS and NPACS programs is 66 percent. Under the EBTSAG, however, the federal reimbursement rate for the BCS program has been set to 50 percent, to be consistent with the other programs funded by the EBTSAG.

Based on the reimbursement rates in effect under the EBT demonstration, Exhibit 2.9 compares the costs *borne* by the federal and state governments under EBT and paper issuance. (This table has no separate local costs, because all local costs are borne by the state and federal

governments.) There is still a shift in costs from federal agencies to the state with EBT, but the system's impact on costs borne is less than the impact on costs incurred. Rather than federal EBT savings of \$1.15 million (as was shown in Exhibit 2.8), federal savings drop to about \$690,000 annually. The state's additional costs arising from EBT decrease from about \$1.03 million to about \$570,000.

EXHIBIT 2.9
ADMINISTRATIVE COSTS BORNE
BY LEVEL OF GOVERNMENT
(dollars per case month)

	Total Caseload	Food Stamps	AFDC	Bonus Child Support	DALP/PAA ^a	NPA Child Support
<i>Federal</i>						
EBT	1.854	2.057	1.937	1.410	0.000	4.232
Paper	2.078	2.787	1.435	1.082	0.000	3.264
Difference	-0.224	-0.730	0.502	0.328	0.000	0.968
Annual savings	690,343	1,247,121	-459,934	-51,664	0.000	-45,181
<i>State</i>						
EBT	1.995	1.859	1.928	1.410	3.513	2.116
Paper	1.810	1.919	1.426	1.082	2.963	1.632
Difference	0.185	-0.060	0.502	0.328	0.550	0.484
Annual savings	-569,974	101,859	-459,937	-51,664	-137,642	-22,590

^a DALP and PAA are not federally funded programs. Their caseloads, however, are used in calculating federal costs per cash month for the "total caseload" column to permit addition of impacts across levels of government.

2.4 ALLOCATING EBT COSTS BY PROGRAM

To this point in the chapter, all program-specific cost estimates for the EBT system (and all estimates of savings or losses arising from EBT) have been based on the evaluation's resource allocation method of assigning costs to each program. As discussed in Appendix A, the EBTSAG agreement provides for a very different allocation method to be used for actual federal reimbursements. Other cost allocation methods, based on caseload or transaction costs, are also possible. As discussed below, the estimated impacts of EBT on administrative costs within distinct programs are highly sensitive to the allocation method used to distribute system costs across programs.

We view the evaluation's resource allocation method used in Sections 2.2 and 2.3 as an accurate method for estimating an EBT system's impacts on administrative resource costs on a program-by-program basis. That is not to say that it would be an easy method to apply in an administrative setting, e.g., as a method for allocating costs across programs for federal reimbursement of administrative costs.²¹ The resource allocation method breaks all EBT costs down to the individual task level (and sometimes in finer detail), then allocates them across programs on the basis of different rules. Some costs are allocated directly to a specific program; other costs are allocated on the basis of caseload counts, total transaction counts, transaction counts at POS terminals, or transaction counts at ATMs. In an administrative setting, simpler allocation rules based on a single factor (such as caseloads or transaction counts) would be less costly to implement and monitor than the mixture of rules used in this analysis.

To show how different allocation methods affect estimates of EBT savings on a program-by-program basis, Exhibit 2.10 compares three alternative allocation approaches to the resource allocation method we have used. The total EBT cost per case month and the total annual savings remain the same under all three alternative methods, as do the paper system costs for each program (which are, for the most part, directly assigned to individual programs on the basis of actual resource use).

If all EBT costs are allocated across programs on the basis of each program's total caseload (counting multi-program cases once for each program), the EBT cost per case month is the same for each program, \$3.849. This approach reduces the EBT cost per case month for the FSP, AFDC and NPACS, because participants in these programs use EBT system resources more intensively (on a per-case-month basis) than BCS and DALP/PAA recipients. The NPACS program actually shows savings of \$48,858 per year under the caseload method, compared with an increased cost of \$67,771 under the resource method.

Food stamp EBT costs exceed paper costs by \$163,673 per year if EBT costs are allocated in proportion to each program's total number of POS, ATM, ARU and ACH (direct deposit) transactions (the "total transaction method"). In contrast, all cash programs except NPACS show savings from EBT under this allocation method. Food stamp recipients have the

21. Federal and state agencies reach agreement each year on how reimbursable administrative costs in welfare programs are to be allocated across programs. This is needed because different federal agencies reimburse portions of state-incurred costs for different programs.

This result highlights the differences between the paper costs used to establish the EBTSAG allocation percentages and the evaluation's paper cost estimates. Under the EBTSAG method, the FSP bears 85 percent of EBT costs for the SAG programs (FSP, AFDC and BCS). The evaluation estimates, however, indicate that food stamp paper costs were 73 percent of total paper costs for the SAG programs. Thus, the EBTSAG method allocates a disproportionate share of EBTSAG costs to the FSP, when judged in relation to the evaluation estimates of paper costs. If EBT costs were allocated in proportion to the evaluation estimates of paper costs, the estimated per-case-month savings for each program would be the same (\$0.039 per case month), achieving the EBTSAG's goal of equalizing savings across federal programs.

The preceding analysis clearly shows how sensitive the program-level EBT cost and savings estimates are to the method by which common costs are allocated across programs. The EBTSAG allocation method diverges most from the resource allocation method, while the transaction allocation method diverges least. Other methods (such as using unduplicated caseloads) might yield different distributions of costs and savings by program. The reasonable approximation of actual resource use is desirable in choosing the method for allocating EBT costs, but is not the sole criterion. Given the asymmetry of paper issuance costs across programs and the need to assure some savings to all programs, variations on the EBTSAG allocation method are likely to have considerable appeal as the basis for cost reimbursement in a multi-program EBT system. From the taxpayers' perspective, the allocation method is not significant, because no change in the allocation of costs across programs would alter the modest but real overall savings in ongoing issuance costs attributed to EBT.

2.5 COMPARISON OF MARYLAND FINDINGS TO THE STATE-INITIATED DEMONSTRATIONS

It is informative to compare the administrative cost of the EBT system in Maryland with previous estimates of the costs of the EBT demonstration systems in Albuquerque, New Mexico, and Ramsey County, Minnesota. Comprehensive estimates of EBT administrative costs in these two earlier demonstrations were made only for the FSP.²² As shown in Exhibit 2.11, food

22. The administrative costs of the New Mexico and Ramsey County EBT systems are reported in Kirlin *et al.*, *The Impacts of the State-Initiated EBT Demonstrations*. These costs are in 1992 dollars, as originally reported. The state-initiated EBT demonstrations included food stamps, AFDC and (in Ramsey County) other cash programs, but the only EBT costs measured for these programs were those that were shared with the FSP.

stamp issuance in the Maryland EBT system costs more than food stamp issuance in the New Mexico system, but less than in the Ramsey County system. As in this evaluation, New Mexico and Ramsey County vendor costs were based on billed costs. Both sites had transaction-based vendor fees, rather than the flat per-case-month fee used in Maryland. Shared costs in the previous evaluation also were allocated by a combination of direct assignment, caseload percentages, and transaction percentages.

EXHIBIT 2.11

**ADMINISTRATIVE COSTS FOR ISSUING FOOD STAMP BENEFITS VIA EBT
(dollars per case month)**

	Maryland	Ramsey County	New Mexico
Authorize benefits			
Issue/update/replace ID	0.522	0.317	0.592
Create and post benefit records	0.234	0.262	0.157
Total	0.755	0.579	0.749
Deliver benefits			
Maintain benefit delivery system	1.026	1.409	0.058
Process transactions	0.873	1.022	1.423
Resolve transaction problems	0.617	0.274	0.322
Total	2.516	2.705	1.802
Redeem and reconcile benefits			
Retailer food stamp settlement	0.024	0.041	0.025
Authorize and train retailers	0.062	0.084	0.056
Monitor redemption activity	0.018	0.023	0.023
Redemption policy/oversight	0.002	0.012	0.006
Reconcile issuances and report	0.024	0.012	0.030
Reconcile EBT system	0.000	0.306	0.037
Management and oversight	0.405	0.556	0.263
Total	0.534	1.034	0.440
Investigate and prosecute fraud			
Investigate fraud	0.061		
Sanction retailers	0.008		
Recovery of benefit funds	0.003		
Total	0.072	0.067	0.078
Manage benefit funds			
Manage food stamp benefit funds	0.039		
Manage cash benefit funds	0.000		
Total	0.039	0.000	0.000
Grand total	3.916	4.385	3.069

The New Mexico EBT system was less expensive because the costs of maintaining the benefit delivery system (i.e., the POS terminal network) were much less than in the other EBT systems. Much of the cost of the POS network in New Mexico was borne by retailers and third-party processors. Processing transactions was actually more expensive in New Mexico than in the other systems, but not enough so to offset the savings in maintaining the benefit delivery system. (Transaction processing costs in New Mexico included the vendor's management and technical support.) Both Ramsey County and New Mexico had lower costs for resolving transaction problems than Maryland, in part because only Maryland had an out-of-state hotline for recipients and retailers.

Ramsey County's higher EBT costs were largely the result of the higher cost of redeeming and reconciling benefits, especially for EBT system reconciliation and for project management and support. Ramsey County's system was less costly than the other systems in one area in particular: the issuing, updating and replacement of EBT cards cost only \$0.317 per case month in Ramsey County, compared to \$0.522 in Maryland and \$0.592 in New Mexico, largely due to very efficient use of recipient training staff in Ramsey County. Ramsey County's cost for maintaining the benefit delivery system was higher than Maryland's, perhaps because of the greater integration with commercial POS applications in Maryland.

2.6 POLICY IMPLICATIONS

Several important policy implications emerge from the analysis of administrative costs of the Maryland EBT system. First, the larger scale of the Maryland project apparently did not generate savings relative to the smaller state-initiated demonstrations. The dominant influences on costs are variable costs, such as data processing, ATM fees, the POS equipment, and local telecommunications. Terms of cost-sharing with retailers and banks also appear to be potentially more influential than scale, as evidenced by the New Mexico example. On the other hand, Maryland's EBT costs are comparable to those of the state-initiated demonstrations despite the inclusion of non-metropolitan areas in Maryland. (The state-initiated demonstrations were confined to metropolitan areas.) Local EBT labor costs per case month are higher in the non-metropolitan portion of Maryland, but not by a great deal (as discussed in Chapter Three).

In considering the significance of scale economies in the Maryland EBT system, it is important to note that their full potential is not reflected in the costs for the study period. Since

then, billed costs have been reduced by \$0.15 per food stamp case and \$0.20 per standard case²³ for AFDC and DALP. If the current vendor fees had been in effect during the study period, the overall billed vendor cost would have been \$0.22 per case month lower (\$2.55 per case month instead of the \$2.79 per case month included in the analysis), reducing total vendor costs by \$750,324 per year. While the savings in vendor costs from recent fee reductions can be estimated, it is not possible to estimate the actual total cost of EBT system operations after the study period, because the data collected exclusively for the evaluation are not available for more recent months. Therefore, we have reported the costs and savings as of the study period.

The second key lesson for policy makers is that, although issuing cash benefits via EBT costs less than issuing food stamps via EBT, the potential for savings is far less because of the low cost of issuing benefits via checks mailed to recipients. In Maryland, benefit issuance for all the cash programs was more expensive under EBT than under the paper-based system, even in the program with the most expensive check issuance system, NPACS.

A third important finding is that, with the mix of programs represented in the Maryland system, EBT causes a net shift of costs from the federal government to the state. Some of the larger costs eliminated by the EBT system are currently paid entirely by the federal government, including coupon printing, shipping and storage, and the cost of Federal Reserve Bank processing of redeemed coupons. (The savings estimates assume that there is not enough of a fixed component in FNS coupon issuance costs that average costs for the rest of the nation were materially increased.) Under the EBT system, the analogous benefit delivery and redemption functions are performed by the system vendor, but the federal government reimburses the state for only 50 percent of the vendor's bill. Addressing this asymmetry of costs and savings, which reduces states' incentives to implement EBT systems, is a significant challenge for FNS officials as they seek to promote EBT.

Finally, the differential savings among programs and the shifting of costs between the federal and state government point to the importance of cost allocation in distributing the costs and benefits of the EBT system. Future EBT initiatives will require sensitivity to the ways in

23. A standard case is one that has an account on the EBT system, as opposed to a direct deposit case that has an account at a local bank.

which costs are distributed in order to meet the needs of the various agencies that can jointly gain from a multi-program issuance system.

CHAPTER THREE

EBT IMPACTS ON LOCAL OFFICE LABOR COSTS

While local office labor costs are just one component of the EBT and paper system costs presented in Chapter Two, the impacts of the expanded Maryland EBT system on local office labor costs deserve close attention for several reasons.

- Local office labor is the largest single component of the overall cost of administering food stamps, AFDC, and state cash assistance programs (including certification and other non-issuance activities). Thus, the changes in the use of this resource are important from both cost and management perspectives.
- EBT eliminates or reduces some local issuance activities, adds new ones, and can either increase or decrease others. A detailed examination of EBT cost impacts on each worker group and task is needed to separate these effects.
- Unlike previous EBT evaluations, this study collected data from both metropolitan and non-metropolitan offices, and three different coupon issuance systems were represented in the baseline data. This diversity of data permits analysis of EBT impacts within sub-groups of local offices along these dimensions.

As discussed in Chapter Two, the expansion of the EBT system in Maryland reduced total issuance costs at the local level by \$1.413 per case month. This chapter examines the labor cost component of this impact overall by worker group. Since this is the first EBT demonstration to incorporate multiple coupon issuance systems, the impacts on local labor costs for the Food Stamp Program are presented for the ATI-mail, ATP and ATI-OTC issuance systems. For all programs, separate local labor cost impacts are presented for metropolitan and non-metropolitan areas; this analysis, too, takes advantage of the diversity of local offices in the study to break new ground in the understanding of EBT costs. Finally, the chapter presents separate results for the NPA Child Support (NPACS) program, which is administered separately at the local level.

3.1 INTRODUCTION

The Maryland DHR administers the food stamp, AFDC, DALP, PAA, and Bonus Child Support (BCS) programs through 24 local Departments of Social Services (DSS), with a total of 49 local offices. Each DSS has at least one office; if the DSS has several offices, there is

usually one office (which we term the "main" office) that performs both income maintenance and fiscal functions, and one or more satellite offices that perform only income maintenance functions. By this categorization, the 49 local offices include 24 main DSS offices and 25 satellite offices.

Three types of DSS workers perform issuance-related activities: eligibility workers, income maintenance clerks, and fiscal workers. Eligibility workers spend some time answering recipients' questions about issuance or addressing issuance-related problems, though most of their time is spent on certification activities, which were not affected by the introduction of EBT.¹ Income maintenance clerks perform a variety of data entry, retrieval and other tasks in support of eligibility workers. Under the paper system, fiscal workers issued coupons, managed coupon inventory, and monitored issuance sites under the paper systems; now these workers do much of the training of clients on EBT.

The NPACS program has a somewhat different administrative structure. The demonstration involved only the Baltimore City Office of Child Support Enforcement (BCOCSE). Fiscal workers and enforcement agents at BCOCSE performed similar EBT activities as their counterparts at the DSS offices: issuing Independence cards, training clients, handling card problems, and responding to client inquiries on payments through the EBT system. EBT participation was not mandatory for NPACS participants, so BCOCSE staff also continued to perform tasks related to check issuance during the demonstration.

Research Approach

Worker time usage was measured through time studies administered to eligibility workers, income maintenance clerks, and fiscal workers in DSS offices. The studies were designed to capture all time spent on issuance-related activities by local staff in a typical month (22 working days). Issuance functions include authorizing access to benefits, delivering benefits to recipients, and reconciling benefits authorized to benefits issued. The first two of these functions are by far the most important in terms of the amount of staff time involved.

1. As discussed in Beecroft *et al.*, *Evaluation of the Expanded EBT Demonstration, Volume 3*, there is no consistent evidence that program participation rates changed under EBT. Thus, EBT should not have affected levels of certification activity.

The evaluation used a longitudinal sample, in which offices sampled for pre-implementation data collection were revisited for the post-implementation wave of data collection. We estimate the effect of EBT by comparing statewide estimates of pre- and post-implementation labor costs.² The pre-implementation time studies were conducted between November 1991 and April 1992, and the post-implementation time studies were conducted between February and September 1993.

The DSS time studies were conducted at 27 locations in 17 counties and Baltimore City. This gave us data on a broad cross-section of offices. All three paper issuance systems for the FSP were represented: ATI-Mail, ATP, and ATI-OTC. Six counties were included which are not in metropolitan areas. Further details on the DSS sample and other methodological notes are provided in Appendix C.

Pre- and post-implementation data collection at BCOCSE included time studies of fiscal workers and surveys of BCOCSE enforcement agents. Unlike the time studies, which asked workers to record issuance activities as they happened, the surveys asked workers to recall the amount of time spent on particular issuance activities over the last four months. These surveys may be subject to more measurement error than the time studies: different types of recall error could bias the survey estimates up or down. One study of certification costs found that survey-based estimates of time per task tended to be higher than time study estimates.³ Even if the worker survey estimates are biased, the basis should be the same for both paper and EBT system costs, and the estimates of cost differences between the two systems should be unbiased and sufficiently reliable.

As noted in Chapter Two, the BCOCSE labor costs for the paper system represent an average of the pre- and post-implementation estimates, adjusted for the difference in issuances per case between the EBT and paper caseloads.

2. The analysis does not attempt to estimate EBT impacts at the level of specific sampled offices.

3. William L. Hamilton *et al.*, *Factors Affecting Food Stamp Certification Cost, Volume III*. Cambridge, MA: Abt Associates Inc., November 1989, pp. 1C-3 - 1C-4.

Highlights

Local DSS labor costs for the FSP fell by more than half, \$0.958 per case month, after EBT implementation. (As indicated in Chapter Two, the total reduction in local FSP costs was \$2.179 per case month.) The savings were concentrated among local fiscal workers; the greatest impact was on the benefit delivery function. Smaller reductions were seen for the cash assistance programs: \$0.190 per case month for AFDC, \$0.142 per case month for BCS, and \$0.347 for DALP/PAA.

In non-metropolitan offices, EBT brought labor cost increases for AFDC, BCS, and DALP/PAA; these offices did have labor cost savings for the FSP, but the savings were noticeably smaller than in metropolitan offices. FSP labor cost savings with EBT were substantially larger in offices that used the ATI-OTC coupon issuance method, primarily because this method had the highest local labor cost under the paper system.

A reduction of \$0.352 in overall labor costs per case month is estimated for workers in the BCOCSE. Fairly substantial savings occurred for enforcement agents, but there was a small increase for fiscal workers.

3.2 EBT IMPACTS ON LOCAL DSS LABOR

The EBT system changed the issuance-related activities of three types of DSS workers: fiscal workers, eligibility workers, and income maintenance clerks. Exhibit 3.1 compares the primary issuance activities of DSS workers under paper and EBT. The functions of authorizing and delivering benefits are the only ones that consume much DSS staff time. For this analysis, we disaggregate the function of authorizing benefits into those tasks associated with issuing and replacing identification cards and those related to posting benefit records.

The task of issuing, updating, and replacing IDs is more complicated with EBT. Local staff have to explain EBT to clients, train new clients on how to use their cards, and issue new and replacement cards to clients. (In the paper system, workers simply issued a photo ID card or, for some food stamp-only clients, a paper ID. Some offices continued to issue photo IDs under the EBT system, primarily as a means of positive identification for EBT card issuance and replacement.) However, the task of creating and posting benefit records has been made simpler under EBT. The time spent processing ATIs and ATPs has been eliminated, along with much of the questions, problems, and manual intervention associated with this task.

EXHIBIT 3.1

PRIMARY IMA WORKER ISSUANCE ACTIVITIES BY FUNCTION

Function	System	
	Paper	EBT
<i>Authorize benefits</i>		
Issue/update/replace ID	Issue paper or photo ID (IMC, FW, EW)	Issue EBT card and train client (FW) Card replacement and maintenance (FW) Manage EBT card supply (FW) Provide EBT information (EW) Issue photo ID (IMC) ^a Enter/change client information on AIMS (IMC)
Create and post benefit records	Check issuance questions (IMC, FW) Manual issuance (IMC, FW, EW) Ship redeemed ATPs (FW) Process ATIs/ATPs (FW)	Authorize one-time issuances (EW) Resolve issuance problems (FW, EW, IMC)
<i>Deliver benefits</i>		
	Issue coupons (FW) Monitor issuance sites (FW) Count and manage inventory, prepare FNS-250 (FW) Count and stuff FS coupons (FW) Handle delayed/lost/undelivered issuances (EW) Check issuance activities (IMC)	Give balance information (FW, IMC) Handle account problem calls (EW)

^a As noted in the text, some offices issued photo IDs to EBT recipients as a means of positive identification for card issuance and replacement.

Legend: FW = fiscal workers; EW = eligibility workers; IMC = income maintenance clerks

Delivering benefits has also been made much simpler at the local level under EBT. Fiscal workers in the FSP, in particular, have fewer benefit delivery responsibilities. Under the paper system, coupon issuance was done at the local level, with fiscal workers having the primary responsibility. This was not true for the cash programs, where check issuance was done by staff at the state level.

EXHIBIT 3.2
LOCAL DSS LABOR COSTS
(dollars per case month)

	Food Stamps	AFDC	Bonus Child Support	DALP/ PAA
<i>Authorize Benefits</i>				
Issue/update/replace ID				
EBT	0.432	0.417	0.326	0.490
Paper	0.057	0.171	0.120	0.252
Difference	0.375	0.246	0.206	0.238
Create and post benefit records				
EBT	0.158	0.169	0.091	0.144
Paper	0.779	0.514	0.350	0.665
Difference	-0.621	-0.345	-0.259	-0.521
Total				
EBT	0.590	0.585	0.417	0.635
Paper	0.836	0.685	0.470	0.917
Difference	-0.246	-0.100	-0.053	-0.283
<i>Deliver Benefits</i>				
EBT	0.072	0.062	0.047	0.080
Paper	0.785	0.154	0.137	0.146
Difference	-0.713	-0.092	-0.090	-0.066
<i>Grand Total^a</i>				
EBT	0.663	0.649	0.466	0.716
Paper	1.621	0.839	0.608	1.063
Difference	-0.958	-0.190	-0.142	-0.347

^a The EBT Grand Total does not include \$0.002 in costs for Redeeming and Reconciling Benefits.

Exhibit 3.2 quantifies the impact of EBT on local DSS labor costs. For the FSP, it costs \$0.375 more per case month to issue, update, and replace IDs (Independence cards and,

where applicable, photo IDs) under EBT, but \$0.621 less per case month to create and post benefit records. The total cost for authorizing benefits is \$0.246 less under EBT. The cost of delivering benefits is \$0.713 per case month lower under EBT than under the paper system. For the FSP overall, EBT reduced local DSS labor costs by \$0.958 per case month, a reduction of 59 percent.

The savings for the cash assistance programs (AFDC, BCS, DALP/PAA) were less dramatic, but still substantial. For AFDC, the cost of authorizing benefits was \$0.100 per case month lower under EBT, with the increased cost to issue Independence cards more than offset by lower costs associated with posting benefit records. There was also a \$0.092 reduction in local DSS costs for delivering AFDC benefits. Overall, local AFDC labor was \$0.190 (23 percent) lower per case month after EBT implementation. There were also savings of \$0.142 and \$0.347 per case month for BCS and DALP/PAA, respectively. The large DALP/PAA savings were mainly due to a \$0.283 per case month reduction in costs for authorizing benefits, a greater drop in costs for that function than for any other program.

Most of the reduction in labor costs in the FSP stemmed from a reduction in fiscal worker time. Exhibit 3.3 shows that \$0.801 of the \$0.958 per case month reduction occurred among fiscal workers. It also shows that \$0.603 of this \$0.801 per case month reduction was attributable to the change in benefit delivery responsibilities for fiscal workers.

For the cash programs, however, eligibility workers and income maintenance clerks accounted for most of the reductions in labor costs. Since routine issuance of cash benefit checks was centralized, the problem-solving tasks that these workers performed constituted the main source of local labor costs under the paper system. For AFDC, there was a \$0.097 savings per case month among eligibility workers and a \$0.117 reduction in costs for income maintenance clerks. There were even greater savings for eligibility workers and income maintenance clerks within the DALP/PAA program. In contrast, fiscal worker costs increased in the AFDC and DALP/PAA programs. A slight increase in BCS eligibility worker costs was more than offset by larger savings in fiscal worker and income maintenance clerk costs.

EXHIBIT 3.3

LOCAL DSS LABOR COSTS, BY TYPE OF WORKER
(dollars per case month)

	Fiscal Workers				Eligibility Workers				Income Maintenance Clerks			
	Food Stamps	AFDC	Bonus Child Support	DALP/PAA	Food Stamps	AFDC	Bonus Child Support	DALP/PAA	Food Stamps	AFDC	Bonus Child Support	DALP/PAA
<i>Authorize benefits</i>												
Issue/update/replace ID												
EBT	0.145	0.145	0.145	0.145	0.119	0.105	0.014	0.178	0.167	0.167	0.167	0.167
Paper	0.009	0.000	0.000	0.000	0.041	0.075	0.007	0.149	0.006	0.096	0.113	0.103
Difference	0.136	0.145	0.145	0.145	0.078	0.030	0.007	0.029	0.161	0.071	0.054	0.064
<i>Create and post benefit records</i>												
EBT	0.032	0.021	0.021	0.021	0.059	0.083	0.005	0.059	0.066	0.064	0.064	0.064
Paper	0.365	0.114	0.155	0.094	0.241	0.214	0.009	0.328	0.173	0.187	0.186	0.242
Difference	-0.333	-0.093	-0.134	-0.073	-0.182	-0.131	-0.004	-0.269	-0.107	-0.123	-0.122	-0.178
<i>Total</i>												
EBT	0.178	0.167	0.167	0.167	0.179	0.188	0.020	0.237	0.233	0.231	0.231	0.231
Paper	0.375	0.114	0.155	0.094	0.282	0.288	0.016	0.477	0.179	0.283	0.299	0.346
Difference	-0.197	0.053	0.012	0.073	-0.103	-0.100	0.004	-0.240	0.054	-0.052	-0.068	-0.115
<i>Deliver Benefits</i>												
EBT	0.029	0.024	0.024	0.024	0.021	0.021	0.005	0.039	0.022	0.018	0.018	0.018
Paper	0.632	0.053	0.068	0.056	0.070	0.018	0.003	0.021	0.083	0.084	0.066	0.069
Difference	-0.603	-0.029	-0.044	-0.032	-0.049	0.002	0.003	0.018	-0.061	-0.066	-0.049	-0.051
<i>Grand Total^a</i>												
EBT	0.206	0.190	0.190	0.190	0.200	0.208	0.025	0.275	0.255	0.249	0.249	0.249
Paper	1.007	0.167	0.223	0.150	0.352	0.305	0.019	0.499	0.261	0.366	0.365	0.415
Difference	-0.801	0.025	-0.032	0.040	-0.152	-0.097	0.006	-0.224	-0.006	-0.117	-0.116	-0.166

^a Fiscal worker EBT Grand Total does not include \$0.002 in costs for Redeeming and Reconciling Benefits (for each program).

EBT Impact on Local DSS Food Stamp Labor by Paper Issuance System

FSP savings in counties using the ATI-OTC system for paper issuance were considerably higher than savings in counties using either the ATP or ATI-Mail paper systems. There was a \$1.395 per case month reduction in labor costs for counties using the ATI-OTC system, and reductions of \$0.929 and \$0.830 per case month for ATP and ATI-Mail counties, respectively. As Exhibit 3.4 shows, this was mainly due to much higher paper issuance costs under the ATI-OTC system: \$2.111 per case month compared to \$1.534 for ATP and \$1.637 for ATI-Mail. The EBT costs for the three groups of counties were relatively similar.

EXHIBIT 3.4

FOOD STAMP PROGRAM COSTS BY ISSUANCE SYSTEM
(dollars per case month)

	EBT	Paper	Difference
ATI-Mail			
Authorize benefits			
Issue/update/replace ID	0.486	0.057	0.429
Create and post benefit records	0.245	0.557	-0.312
Subtotal	0.732	0.614	0.118
Deliver benefits	0.076	1.023	-0.947
Total	0.807	1.637	-0.830
ATP			
Authorize benefits			
Issue/update/replace ID	0.405	0.043	0.362
Create and post benefit records	0.126	0.857	-0.731
Subtotal	0.531	0.900	-0.369
Deliver benefits	0.074	0.634	-0.560
Total	0.605	1.534	-0.929
ATI-OTC			
Authorize benefits			
Issue/update/replace ID	0.468	0.136	0.332
Create and post benefit records	0.190	0.746	-0.556
Subtotal	0.659	0.882	-0.223
Deliver benefits	0.057	1.229	-1.172
Total	0.716	2.111	-1.395

Both ATI-OTC and ATI-Mail counties had dramatic reductions in costs for delivering benefits. Savings for this function were not as large for ATP counties because paper labor costs for delivering benefits were so much lower than in other counties. Two of the three ATP counties relied primarily on contracted issuance agents to deliver coupons to recipients, so these agents' services substituted for the local benefit delivery labor required under the ATI-OTC and ATI-Mail systems.

There were larger reductions in costs for authorizing benefits in ATP counties than in other counties. The cost of authorizing benefits was highest in ATP counties under paper, but lowest under EBT. This was due to substantial savings in creating and posting benefit records, primarily because the EBT system reduces the uncertainty and problems associated with this task.

EBT Impact on Metropolitan Versus Non-Metropolitan Areas

While EBT reduced local DSS costs for all programs in metropolitan areas, this was not the case in non-metropolitan areas. As Exhibit 3.5 shows, local labor costs for all cash assistance programs actually rose in non-metropolitan areas by \$0.254 to \$1.382 per case month, while the same programs had savings of \$0.195 to \$0.393 per case month in metropolitan areas. Food stamp labor savings were lower in non-metropolitan areas (\$0.755 per case month, versus \$0.981 per case month in metropolitan areas). As the following discussion explains, these divergent impacts result from a combination of higher EBT costs and lower paper costs in non-metropolitan areas, when compared with metropolitan areas.

Under EBT, local labor costs in non-metropolitan areas were higher than in metropolitan areas for all programs. In the FSP, non-metropolitan areas had local labor costs of \$0.770 per case month, while metropolitan areas had modestly lower local labor costs of \$0.648 per case month. Similar metropolitan/non-metropolitan differences in local EBT labor costs occurred in the AFDC and BCS programs, but a very large difference occurred in the DALP/PAA program (\$2.021 per case month in non-metropolitan areas versus \$0.683 per case month in metropolitan areas).

For the AFDC and DALP/PAA programs, the largest metropolitan/non-metropolitan differences in local EBT labor are in the costs to issue, update and replace ID cards. Local food stamp and BCS EBT labor costs for this task are also higher in the non-metropolitan areas, but

EXHIBIT 3.5
LOCAL DSS LABOR COSTS, BY REGION
(dollars per case month)

	Non-Metropolitan				Metropolitan			
	Food Stamps	AFDC	Bonus Child Support	DALP/PAA	Food Stamps	AFDC	Bonus Child Support	DALP/PAA
<i>Authorize benefits</i>								
Issue/update/replace ID								
EBT	0.450	0.518	0.401	1.443	0.426	0.405	0.318	0.466
Paper	0.053	0.154	0.074	0.216	0.057	0.172	0.127	0.253
Difference	0.397	0.364	0.327	1.227	0.369	0.233	0.191	0.213
Create and post benefit records								
EBT	0.224	0.160	0.070	0.303	0.151	0.167	0.091	0.140
Paper	0.468	0.307	0.212	0.349	0.807	0.529	0.371	0.675
Difference	-0.244	-0.147	-0.142	-0.046	-0.656	-0.362	-0.280	-0.535
Subtotal								
EBT	0.674	0.678	0.471	1.746	0.577	0.572	0.409	0.606
Paper	0.521	0.461	0.286	0.565	0.864	0.701	0.498	0.928
Difference	0.153	0.217	0.185	1.181	-0.287	-0.129	-0.089	-0.322
<i>Deliver benefits</i>								
EBT	0.096	0.111	0.136	0.275	0.071	0.060	0.042	0.077
Paper	1.004	0.074	0.064	0.074	0.765	0.160	0.148	0.148
Difference	-0.908	0.037	0.072	0.201	-0.694	-0.100	-0.106	-0.071
<i>Grand total</i>								
EBT	0.770	0.789	0.607	2.021	0.648	0.632	0.451	0.683
Paper	1.525	0.535	0.350	0.639	1.629	0.861	0.646	1.076
Difference	-0.755	0.254	0.257	1.382	-0.981	-0.229	-0.195	-0.393

other tasks account for more of the overall metropolitan/non-metropolitan difference in these programs. The smaller caseloads in the non-metropolitan offices may make EBT training and card issuance less efficient, although such an effect should be relatively consistent across programs. (The routine training and card issuance work is performed by fiscal workers and income maintenance clerks, whose costs are allocated by caseload and therefore the same for all programs.) Higher levels of problems with ID cards (perhaps because the non-metropolitan areas were among the last to be added to the EBT system) or more eligibility worker effort in response to these problems may also contribute to the difference in ID-related local EBT labor costs.⁴

The benefit delivery function accounts for most of the rest of the metropolitan/non-metropolitan differences in local EBT labor costs. Again, the differences are larger in the cash programs than in the FSP. (The task of creating and posting benefit records accounted for the largest metropolitan/non-metropolitan difference in local food stamp labor costs under EBT.) Local DSS staff effort for this function is mainly spent responding to problems with benefit delivery, so it appears that workers in non-metropolitan areas spend more time on EBT benefit delivery problems than their counterparts in metropolitan areas. This higher level of effort may be due to a higher incidence of problems, more effort devoted to each problem, or a combination of the two.

Under the paper system, local labor costs were lower for all programs in non-metropolitan areas than in metropolitan areas, as shown in Exhibit 3.5. As was the case with EBT costs, the smallest difference in local paper system labor costs was in the food stamp program which had non-metropolitan area costs of \$1.525 per case month and metropolitan area costs of \$1.629 per case month. The greatest difference was in the DALP/PAA costs, which were only \$0.639 per case month in non-metropolitan areas but \$1.076 per case month in metropolitan areas. Metropolitan/non-metropolitan differences in local paper system labor costs were nearly as great in AFDC and BCS as in DALP/PAA.

4. The high local EBT labor cost for issuing IDs in the DALP/PAA program in non-metropolitan offices may be the result of random variation in this measure over time. Given the small number of DALP/PAA cases (442) in these offices, a small fluctuation in effort (especially in a small office with a large weight) translates into a large fluctuation in the cost per case.

The main reason that local labor costs for the paper system were lower in non-metropolitan areas is that staff in these areas spent less time on the task of creating and posting benefit records, in comparison to their counterparts in metropolitan areas. At the local level, the effort on this task mainly involves issuance-related problem-solving and inquiries on benefit dates, status and amounts (frequently motivated by concern about possibly delayed benefits). The lower cost for these activities suggests that, under the paper system, issuance problems were less common or required less effort to resolve in non-metropolitan areas—as might be expected, given the lower rates of benefit replacements in these areas.

In the FSP, lower non-metropolitan labor costs for authorizing benefits (relative to metropolitan area costs) were partially offset by higher costs for delivering benefits, primarily because of differences in issuance systems. All non-metropolitan counties used the ATI-mail system for coupon issuance; as indicated in Exhibit 3.4, the local benefit delivery labor cost for this system (including metropolitan and non-metropolitan offices) was \$1.023 per case month. In comparison, the great majority of the metropolitan offices used the ATP system, with a local benefit delivery labor cost of only \$0.634 per case month (from Exhibit 3.4). While the ATI-OTC and ATI-mail systems were also used in metropolitan offices, the prevalence of the ATP system held down the overall local benefit delivery labor cost for the FSP to \$0.765 per case month in the metropolitan areas, compared with \$1.004 per case month in the non-metropolitan areas (slightly lower than the overall ATI-mail system cost).

The differences in local labor savings from EBT between metropolitan and non-metropolitan areas cannot be interpreted to show that the system would be more cost-competitive if non-metropolitan areas were excluded. The local labor savings from EBT for the metropolitan areas alone (as shown in Exhibit 3.5) are \$0.023 to \$0.053 higher than the overall local labor savings (as shown in Exhibit 3.2). However, a metropolitan-only EBT system would yield greater savings only if these modest impacts were not offset by the effects of reducing the caseload on fixed costs (and possibly on vendor billings, if prices are volume-dependent) and by the cost of maintaining a small paper-based issuance system for the non-metropolitan areas. This larger question of EBT cost-competitiveness in non-metropolitan areas requires complex simulations that have not been attempted for this report. (An EBT cost projection model currently being developed for FNS may provide some insights into this question.) The findings on local labor costs strongly suggest, nevertheless, that concerns about whether EBT can be cost-

competitive with paper issuance systems in more rural states are warranted and should be taken into account in planning for future EBT systems.

3.3 EBT IMPACT ON CHILD SUPPORT ENFORCEMENT LABOR COSTS

With the adoption of EBT, families served by BCOCSE but not receiving public assistance were allowed three payment options: checks, direct deposit, or the Independence card. As of October 1993, only 25 percent of NPACS cases were on the EBT system (including the 16 percent of EBT cases who chose direct deposit). All check issuance activities carried out before EBT implementation continued to be performed, albeit for a somewhat smaller number of participants. Unlike public assistance checks, all NPACS checks were issued locally.

Those cases on EBT need the same assistance to access their benefits as food stamp and public assistance cases. Fiscal workers and enforcement agents train participants on EBT, maintain the card supply, handle card problems, and respond to inquiries on EBT payments, among a number of other EBT issuance activities. Direct deposit participants were issued Independence cards and trained to use them in the event that direct deposit payments failed to clear and had to be posted to EBT system accounts.

EXHIBIT 3.6
BCOCSE LABOR COSTS
(dollars per case month)

	EBT	Adjusted Paper	Difference
<i>Fiscal Workers</i>			
Authorize benefits	0.944	0.131	0.813
Deliver benefits	0.160	0.625	-0.465
Reconciliation/bank processing	0.000	0.171	-0.171
Total	1.104	0.927	0.177
<i>Enforcement Agents</i>			
Authorize benefits	0.407	0.273	0.134
Deliver benefits	0.210	0.874	-0.664
Reconciliation/bank processing	NA	NA	NA
Total	0.617	1.147	-0.534
<i>Grand Total</i>	1.722	2.074	-0.352

NA = not applicable.

Exhibit 3.6 shows the adjusted paper cost per case month (see Appendix C for details on how the adjustment was made), as well as the EBT cost per case month, for BCOCSE fiscal agents and enforcement workers. Overall, BCOCSE labor costs fell by \$0.352 per case month under EBT. As in the local DSS offices, some costs associated with authorizing benefits rose, while those related to delivering benefits fell, and overall costs were reduced. For the enforcement agents, the \$0.664 per case month reduction in the costs of delivering benefits more than offset the \$0.134 per case month increase in the costs of authorizing access to benefits. However, the \$0.813 per case month increase in costs for authorizing benefits for fiscal workers outweighed the reductions in labor costs for other functions.

Reductions in BCOCSE labor costs for delivering benefits can probably be attributed to two changes brought about by EBT: the elimination of check processing for EBT participants and the greater certainty of payment. There are fewer questions about, or problems with, support payments as a result. When participants do have problems under EBT, they can use alternative resources such as vendor customer service personnel. As noted in Chapter Two, NPACS participants receive more issuances per case month and, as a result, access the EBT system much more frequently than public assistance recipients. Participants who use the EBT system more often are also more likely to encounter problems, so the difference in the number of issuances may explain why BCOCSE fiscal worker costs rose under EBT, while overall DSS fiscal worker costs fell. BCOCSE participants also encountered frequent problems with direct deposits, which may have contributed to the increase in fiscal worker effort over the paper system.

CHAPTER FOUR

SYSTEM IMPACTS ON GOVERNMENT FLOAT

In the paper-based issuance systems, a lag exists between the time that benefit documents (public assistance checks, checks to NPA Child Support (NPACS) clients, and food stamp coupons) are issued to recipients and the point when state and federal governments must disburse funds to cover these obligations. A similar situation exists in an EBT issuance system, although there the benefit "documents" are allotments electronically posted to recipients' EBT accounts.

During the intervals between benefit issuance and disbursement of funds, the state and federal governments experience a gain in float on benefit funds; they either earn interest on the funds until disbursement, or they reduce their borrowing costs during the same period. This *float gain* becomes greater as the time interval between benefit issuance and funds disbursement increases, and *vice versa*.

4.1 INTRODUCTION

This chapter estimates the impact of the Maryland EBT demonstration on the government's gain on float when benefits are issued but not immediately funded. The hypothesized effect is ambiguous. An EBT system's speedier crediting of cash to retailers for food stamp sales will reduce the government's float gain.¹ Similarly, EBT's faster processing of both food stamp and cash assistance benefits through the banking system will reduce float gain. In contrast, state and federal agencies may see net *increases* in float in cash assistance programs. Rather than being disbursed to cover cashed or deposited checks, funds are disbursed only as benefits are actually withdrawn or spent. For the Food Stamp Program (FSP), recipients' speed of use of EBT benefits could be faster, slower, or the same as with coupons. With these potentially opposing impacts in each type of program, the probable net impacts on the government's float gain are unknown.

1. The Maryland EBT system does increase the speed with which retailers receive cash reimbursement for food stamp sales; it also speeds up the processing of food stamp and cash assistance benefits through the banking system. See Beecroft *et al.*, *Evaluation of the Expanded EBT Demonstration, Volume 3*.

Research Approach

Conceptually, one could estimate float gain under EBT and the paper-based issuance systems by measuring the time interval between when a benefit instrument is issued and when funds are released by the State or U.S. Treasury to cover the obligation posed by that benefit instrument. The time interval would vary for different instruments, so the appropriate time measure would be a weighted average across all instruments, with the dollar value of each instrument being the weighting factor. The weighted time interval could then be multiplied by an appropriate daily interest rate to estimate a float gain per dollar, or per \$1,000, of benefits issued. The analysis could be performed for both food stamp and cash assistance program benefits. The difference in float gain under the EBT and paper-based issuance systems would be the estimated impact of the EBT system on float.

In practice, this approach cannot be followed because the state and federal agencies do not maintain readily accessible data on the flow of individual coupons or checks through the issuance and redemption process. An alternative approach, and the one followed in this evaluation, is to realize that the float gained by governmental agencies is float lost by the other participants in the benefit redemption process: recipients, retailers, the EBT system vendor, and financial institutions. This approach recognizes that float is really a transfer of when funds can be used from one party to another.

This analysis therefore estimates the impacts of the Maryland EBT system on the government's gain in float by summing and comparing EBT and paper-based *float costs* to recipients, retailers, the EBT system vendor, and financial institutions. All float is first estimated in terms of loss to participants (or gain to the government) per \$1,000 of benefits issued. Separate values are estimated for food stamp benefits and cash assistance benefits. No attempt is made at this point to derive separate estimates for the NPACS program and each of the public assistance programs served by the EBT system. Checks issued for each of these programs follow essentially the same issuance and redemption process. Inasmuch as we have no program-specific data regarding when EBT cash assistance benefits are used, the estimates of average float costs per \$1,000 of benefits issued will be the same across the cash benefit programs.

Float gain or loss is then calculated on a per-case-month basis by dividing each program's float costs per \$1,000 of benefits issued by the number of cases needed to generate

\$1,000 in benefits, using the program's average monthly benefit allotment. Because average monthly allotments vary across programs, program-specific estimates of float costs per case month are generated. These estimates are then multiplied by twelve times the programs' respective monthly caseloads to yield annual measures of float gain to the government. The overall impact of the EBT system on float gain is the sum of the impacts across programs or, equivalently, the difference between the two issuance systems in aggregate float gain.

The dollar value of float gain is directly tied to interest rates. In calculating float costs, we use an annual interest rate of 3.5 percent. This is the mean rate reported by retailers as the interest they received on coupon deposits at the end of 1991, prior to the introduction of EBT. Interest rates have dropped since then, but the evaluation holds the interest rate constant at 3.5 percent for all float calculations to avoid confounding the estimated impact of EBT with business cycle changes in interest rates.

The precision of the results presented in this chapter requires a note of caution. Many of the data used to calculate float costs are based on survey responses and, like all survey data, they are subject to both sampling and recall error. An error of even one day in the estimated average time interval between benefit receipt and the government's release of funds will change the estimated impact on float gain in Maryland by approximately \$65,000 per year, given the 3.5 percent interest rate used in the analysis and the Maryland average monthly caseload of nearly 257,000 cases.²

Highlights

The introduction of the Maryland EBT system is *reducing* government float gain by an estimated \$0.026 per case month, or about \$80,000 per year given Maryland caseloads. This overall loss is caused by an annual reduction of float gain in the FSP of \$0.082 per case month (or about \$140,000 annually), compared to coupon issuance. Offsetting this reduction, EBT *increases* the government's gain in float across the AFDC, DALP/PAA and Child Support programs by \$0.043 per case month, or about \$60,000 per year.

2. The actual caseload figure of 256,758 represents the average monthly *duplicated* caseload receiving EBT benefits between May and September 1993. The duplicated caseload counts households receiving benefits from two programs (e.g., food stamps and AFDC) twice.

Within both the food stamp and cash assistance programs, the Maryland EBT system reduces float costs borne by retailers and financial institutions because it processes benefit redemption tasks more quickly than the paper-based systems. What retailers and financial institutions gain in float from EBT is a loss to the government. Furthermore, food stamp recipients appear to spend their EBT benefits somewhat sooner, on average, than they used to spend their coupon benefits. Thus, within the FSP, the government loses some float under EBT.

In contrast, cash assistance recipients spend their EBT benefits more slowly than they used to cash their checks. This provides sufficient additional float gain to the government to more than offset the loss arising from faster redemption of EBT benefits by retailers and financial institutions.

This evaluation includes the first comparison of how quickly recipients redeem their benefits in the food stamp and cash assistance programs. It has been known for some time that recipients spend a majority of their food stamp benefits rather quickly; EBT redemptions in the first days after issuance are quite high relative to later in the month. Nevertheless, the measured time intervals between when recipients receive their benefits and when these benefits are accessed are quite short. The average food stamp coupon is spent within 4.88 days of receipt; food stamp EBT benefits are spent even sooner, within 3.15 days on average. Checks are cashed almost immediately, within 1.02 days of receipt. Cash benefits under EBT are spent, on average, within 3.32 days.

4.2 FLOAT IN THE FOOD STAMP PROGRAM

Within the FSP, benefits are issued so that recipients receive their benefits on specified days of the month. The analysis that follows starts the "float clock" on the day of benefit receipt, whether the benefits are food stamp coupons or allotments posted to recipients' EBT accounts. This approach recognizes that the government's obligation to fund program benefits begins when a recipient takes possession of a negotiable instrument.

Once food stamp recipients take receipt of their benefits, they decide when to use them to purchase food. As will be seen, recipients spend most of their benefits in retail food stores shortly after they are received, but some benefits are redeemed throughout the benefit month. The longer a recipient holds onto the benefits before using them to pay for groceries, the greater the government's gain in float.

Food retailers incur float costs from the time a food stamp purchase is made until the retailer receives cash credit for the sale. In the coupon issuance system, credit is not received until the coupons are deposited in the retailer's bank account (or the day after, depending on bank policy). Under EBT, credit is usually received the day after the sale.

Finally, financial institutions incur float costs when there is a time lag between when they credit retailers' accounts and when they are reimbursed by a funds transfer from the Federal Reserve.

Exhibit 4.1 presents the evaluation estimates of float loss per \$1,000 of benefits for recipients, retailers, the EBT system vendor, and financial institutions under the EBT and coupon issuance systems.

EXHIBIT 4.1

FLOAT LOSS IN THE FOOD STAMP PROGRAM (dollars per \$1,000 of benefits issued)

	Recipients	Stores	EBT System Vendor	Financial Institutions	Total
EBT	0.302	0.086	0.000	0.000	0.388
Coupons	0.468	0.174	NA	0.169	0.811
Difference	-0.166	-0.088	0.000	-0.169	-0.423

NA = not applicable

Float costs "incurred" by recipients are not treated as a part of recipients' participation costs in the evaluation's final report because recipients would not view this float as a cost: it arises when recipients *voluntarily* decide not to spend all their monthly benefits on the day of receipt. Nevertheless, for the purpose of the present analysis, the float cost must be measured because it adds to the government's float gain.

In surveys of Maryland recipients conducted prior to and after implementation of the EBT system, food stamp recipients were asked the date and dollar amount of their last food stamp issuance and the amount of the monthly allotment they still held on the date of the interview. From this information we estimated the average proportion of monthly benefits spent on the day benefits were received, on the day following benefit receipt, and so on. These data, presented in Appendix D (Exhibit D.1), reveal a slightly faster expenditure of food stamp

benefits under EBT than under the coupon system. The average number of days to spend a dollar's worth of food stamp benefits under EBT is 3.15 days, compared to 4.88 days with

with coupons because it takes time (an average of 1.77 days for the sampled banks) for banks to process deposited coupons and to receive reimbursement from the Federal Reserve.⁴

Summing across the four components of float cost, the government's total gain in float under coupon issuance is estimated at \$0.811 per \$1,000 of benefits issued. The average time between coupon receipt and government disbursement of funds is 8.46 days. For EBT the average time is 4.05 days, so float gain under EBT is \$0.388 per \$1,000 of benefits issued, or 52 percent lower than with coupon issuance. Thus, because food stamp recipients spend their EBT benefits somewhat faster than coupons, and because the EBT system processes EBT credits faster than coupon redemption, the federal government loses the equivalent of \$0.423 in float gain for every \$1,000 of food stamp benefits issued under the Maryland EBT system.

4.3 FLOAT IN THE CASH ASSISTANCE PROGRAMS

As with the analysis of float in the FSP, we begin tabulating the government's float gain in the AFDC, DALP and child support programs (both Bonus Child Support and NPACS) when recipients take possession of their checks or when benefits are posted to their EBT accounts. Exhibit 4.2 presents the estimates of float for each participant under the EBT and check issuance systems.

EXHIBIT 4.2

FLOAT LOSS IN THE CASH ASSISTANCE PROGRAMS (dollars per \$1,000 of benefits issued)

	Recipients	Stores	EBT System Vendor	Financial Institutions	Total
EBT	0.318	0.086	0.071	0.000	0.476
Checks	0.090	0.117	NA	0.098	0.305
Difference	0.228	-0.031	0.071	-0.098	0.171

NA = not applicable

4. Detailed discussions of the derivation of the float cost estimates for retailers and financial institutions can be found in Beecroft *et al.*, *Evaluation of the Expanded EBT Demonstration, Volume 3*.

Recipients' float costs under check issuance arise from the time that elapses between when they receive the check and when it is cashed or deposited. Based on responses to the evaluation's pre-implementation recipient survey, nearly 60 percent of recipients cash their checks on the day of receipt. These checks represent nearly 59 percent of the cash benefits issued. Appendix D (Exhibit D.2) shows the distribution of the percentage of benefit dollars cashed each day after receipt. The average time to check cashing, weighted by the dollar value of the check, is only 1.02 days according to the 775 recipients surveyed. The estimated float loss is \$0.090 per \$1,000 of benefits, as shown in Exhibit 4.2.

In contrast, recipients' float costs under EBT are \$0.318 per \$1,000. The increase in float arises because the average time to withdraw benefits is 3.32 days.

Retailers' float costs under EBT are identical to their float costs for FSP benefits. The EBT system reimburses retailers for EBT cash withdrawals and purchases in exactly the same manner as it reimburses retailers for food stamp sales. The average time between withdrawal and reimbursement is 1.17 days.

When retailers cash government-issued checks they incur an estimated 2.50 days of float. This includes an assumed average of 0.50 days to deposit the check at their depository institution, and an average of two more days before their account is credited by the bank. The two days represents the time the check takes to clear through the Baltimore-Washington Clearinghouse.⁵ We have no data on the actual time between check cashing and deposit; the 0.50 day estimate assumes that 50 percent of the checks are deposited on the same day they are cashed, with the remaining 50 percent deposited the next day.

With an estimated 2.5 days of float for each check cashed, retailers incur float costs of \$0.24 per \$1,000 of cashed checks. Not all government checks are cashed at stores, however, and for this analysis we need an estimate of float costs incurred by stores, standardized per \$1,000 of check benefits *issued* (to enable comparison with the chapter's other measures of float loss). Survey data indicate that about 51 percent of Maryland recipients cash or deposit their checks at banks, and 49 percent cash their checks at other locations. Thus, stores (representing "other" locations in this analysis) incur float costs of \$0.117 per \$1,000 of checks issued.

5. For a description of the process, see Chapter Six of Beecroft *et al.*, *Evaluation of the Expanded EBT Demonstration, Volume 3*.

When banks cash government checks, they incur a two-day float cost as the checks clear the banking system.⁶ The float cost of \$0.098 per \$1,000 in Exhibit 4.2, however, reflects the fact that recipients cash or deposit 51 percent of all checks at banks. Thus, as with our handling of store costs, this figure reflects float costs per \$1,000 of benefits *issued* rather than *cashed*.

It is possible that some banks in Maryland credit retailers on the day they deposit government checks they have cashed rather than two days later, after the checks have cleared. If so, then the banks' float cost would be higher than that shown in Exhibit 4.2, and retailers' float cost would be lower. The changes, however, would be offsetting. From the government's perspective, the gain in float is unaffected.

As with food stamp benefits flowing through the EBT system, participating banks incur no float costs. Banks owning ATMs are credited for EBT withdrawals on the day of withdrawal. Likewise, the originating and settlement banks for EBT transactions initiated at POS terminals receive credits on the same day that their accounts are debited as the system is settled.

The EBT system vendor, Deluxe Data Systems, incurs one day's float on funds withdrawn at ATMs. About 74 percent of cash assistance benefits are withdrawn at ATMs, so the vendor's float per \$1,000 of benefits issued is 74 percent of one day's float, or \$0.071.

Overall, EBT float costs for cash assistance benefits equal \$0.476 per \$1,000 of benefits issued. This corresponds to an average of 4.96 days between benefit receipt and disbursement of government funds. Float costs with check issuance are lower at \$0.305 per \$1,000 of benefits issued, because recipients cash checks more quickly than they use their EBT benefits. Thus, for every \$1,000 in cash assistance benefits issued, the EBT system increases float loss among participants by \$0.171. This is the gain in government float arising from EBT.

4.4 CHANGES IN FLOAT PER CASE MONTH

To permit easier future comparison of the EBT system's impacts on float gain with system impacts on administrative costs, this section converts the estimated impacts per \$1,000

6. The two days again represent the average time a check takes to clear the Baltimore-Washington Clearinghouse. Banks provide immediate funds for Maryland recipients cashing government checks.

of benefits issued to impacts per case month. The impacts are then transformed into estimates of annual savings and loss in general float.

The first row of Exhibit 4.3 shows, by program, the impacts per \$1,000 of benefits issued presented in the previous two sections. To estimate these impacts on a per-case-month basis, one needs to know the average monthly allotment in each program (the second row of the exhibit). As average allotments increase, fewer cases are needed to represent \$1,000. Thus, for a given impact per \$1,000 of benefits issued, impacts per case month are higher in programs with large average monthly allotments.

EXHIBIT 4.3
OVERALL IMPACTS ON FLOAT

	Total Caseload	Food Stamps	AFDC	Bonus Child Support	DALP/PAA	NPA Child Support
Gain in float per \$1,000	-\$0.118	-\$0.423	\$0.171	\$0.171	\$0.171	\$0.171
Average monthly benefit ^a	\$220.29	\$193.19	\$317.19	\$48.25	\$162.73	\$201.74
Gain per case month	-\$0.027	-\$0.082	\$0.054	\$0.008	\$0.028	\$0.034
Average monthly caseload ^a	256,758	142,509	76,347	13,154	20,859	3,889
Annual savings	-\$80,294	-\$139,848	\$49,679	\$1,302	\$6,964	\$1,609

^a Five-month average between May and September 1993.

As shown in the third row of the exhibit, the introduction of the Maryland EBT system reduced the government's float gain in the FSP by \$0.082 per case month. In the cash assistance programs, float gain increased by anywhere from \$0.008 per case month in the Bonus Child Support program (where average allotments are \$48.25 per month) to \$0.054 in the AFDC program (where average monthly allotments are \$317.19). EBT increased the government's float gain by \$0.028 per case month in DALP and by \$0.034 in the NPACS program.

The last row in Exhibit 4.3 shows the estimated annual savings or loss in government float gain for each program, given the average monthly program caseloads between May and

September 1993 (the same time period used in Chapter Two in estimating EBT impacts on administrative costs). The government's gain in float is reduced by \$139,848 per year in the FSP. In contrast, increases in float gain are realized in each of the cash assistance programs; the total across the four programs is \$59,554. Across all the programs served by the EBT system, the net impact is a loss in float gain of \$80,294 per year.

To this point we have ignored the fact that different government agencies bear the impacts of the EBT system on gains in float. The reduction in float gain associated with the FSP is borne totally by the federal government. The increase in float gain within the DALP and child support programs accrues to the State of Maryland. Finally, the state and federal governments share the gain on float within the AFDC program because both entities provide funding, with a federal reimbursement rate of 50 percent.

Several factors need to be kept in mind when interpreting the estimates in Exhibit 4.3. First, even though the Maryland EBT system appears to reduce the government's float gain, the government still realizes a gain in float in *all* programs. Float accrues to the government whenever there is *any* lag between when recipients receive their benefits and when the benefits are used and ultimately covered by agency funds.

Second, the estimated values of float loss or gain are directly linked to interest rates. If interest rates rise above 3.5 percent, the savings and losses in Exhibit 4.3 will increase in absolute magnitude. Conversely, savings and losses will decrease with lower interest rates.

Third, this chapter has dealt with *shifts* in costs from one party to another. The EBT system has shifted some costs from participants to the government. In deciding whether to support the adoption of an EBT system, these participants may recognize and value the potential reductions in their float loss.

Finally, as noted earlier in the chapter, the point estimates of float loss and gain are subject to some uncertainty because they are based, in large part, on survey responses. Unfortunately, the complexity of the procedures needed to estimate average float loss or gain preclude the estimation of standard errors about the point estimates.

CHAPTER FIVE

EBT IMPACTS ON BENEFIT LOSS AND DIVERSION

Benefit loss and diversion are favorite topics of critics of the Food Stamp Program. While these critics often focus on loss and diversion in the certification process—the determination of program eligibility and benefit amounts—their attention is frequently directed at the methods used to issue food stamp benefits and the way the benefits are used. Indeed, examples of issuance losses and benefit misuse can be common. State and local agencies can be warned (or even sanctioned) by FNS if their mail issuance loss rates exceed certain thresholds. Participating food retailers complain about food stamp recipients who make frequent small purchases in order to accumulate cash change for non-food items. Food stamp trafficking, or the illegal exchange of benefits for non-food items, detracts greatly from the integrity of the Food Stamp Program.

The types of issuance losses and diversions that occur in the Food Stamp Program are less common or nonexistent in the assistance programs that issue cash benefits. Coupon trafficking, for example, has no analogy in cash programs because, unlike the Food Stamp Program, cash programs do not restrict the use of cash benefits to the purchase of specific items. Nonetheless, issuance of cash benefits is subject to certain types of losses, such as benefit checks lost or stolen from the mail. As in the Food Stamp Program, these losses take away from the character of cash assistance programs and add to their costs.

5.1 INTRODUCTION

Although any food stamp benefit system is prone to vulnerabilities that lead to the deliberate or inadvertent loss, theft, or misapplication of program benefits, previous evaluations of EBT systems showed that these systems have great potential for reducing some types of benefit loss and diversion. This chapter analyzes the impact of the Maryland EBT system on benefit loss and diversion. No attempt is made to examine certification fraud or error, because an EBT system does not affect certification rules or processes.

We define benefit loss and diversion as the sum of three component measures: agency loss, stakeholder loss, and benefit diversion. *Agency losses* are defined as losses that increase

benefit outlays; e.g., agency costs increase when grant checks are stolen and fraudulently cashed if these checks are replaced by the agencies that issued them.¹ *Stakeholder losses* do not increase benefit outlays but increase costs to program recipients, participating food retailers or financial institutions. An example of a stakeholder loss occurs when a recipient loses his or her food stamp coupons. Because lost coupons are not replaced by the administering program agency,² these losses are borne by the recipient. *Benefit diversions* do not add to program or participant costs but divert benefits from their intended use. Benefit diversions occur only in the Food Stamp Program, where benefits are intended to increase the food purchasing power of financially needy households. Benefits are diverted when they are not used for this purpose, such as when food stamp benefits are sold for cash or when cash change from food stamp purchases is used to purchase non-food items.

Research Methods

The analysis of benefit loss and diversion in the Maryland EBT system is presented within the context of five broad categories that increase participant or program costs, or divert benefits from their intended purposes:

- *excessive authorizations*, in which benefits are authorized to the wrong (but already certified) persons, or in the wrong amount;
- *redemption losses*, in which cash credit is given to food retailers or financial institutions in the wrong amount;
- *production or handling losses*, in which benefits that have not been issued or have already been redeemed are lost or stolen and later redeemed;
- *benefits lost or stolen from recipients*, in which a person other than an authorized recipient redeems benefits that he steals or finds; and

1. The State of Maryland Department of Human Resources indemnifies, or reimburses, check cashing parties (such as retailers, financial institutions, and check cashing agencies) for fraudulently cashed checks if specific procedures are followed to establish the identity of the check bearer.

2. "State agencies shall not provide replacement issuances to households when coupons are lost, stolen or misplaced after receipt, authorization documents are lost or misplaced after receipt, when authorization documents or coupons are totally destroyed after receipt in other than a disaster or misfortune, or when coupons sent by registered or certified mail are signed for by anyone residing with or visiting the household." *Code of Federal Regulations*, Subchapter C, Section 274.6(b).

- ***benefits used in an unintended manner***, in which benefits are used for purposes other than those stated by the Food Stamp Program.

These five loss and diversion categories are presented in separate sections of the chapter. Within each section, separate loss and diversion estimates are provided for paper coupon and EBT delivery of Food Stamp Program benefits and paper check and EBT delivery of cash program benefits. Detailed descriptions of the specific vulnerabilities that underlie these loss and diversion estimates are provided in Appendix E.

The analytic approach to estimating benefit loss and diversion rates follows the pre/post design used in other sections of this report to estimate impacts of the Maryland EBT system. Pre-implementation measurements of benefit loss and diversion under the paper coupon and check systems in Maryland are compared with post-implementation estimates of loss and diversion under the EBT system. For some pre-implementation measures of benefit loss and diversion, however, reliable estimates are not available at the state level. The incidence of counterfeit food stamp coupons, for example, is reported only at the national level. In these situations, we used nationwide data to generate more accurate measures of paper-based issuance losses.

To the extent possible, we use data available through routine reporting systems to estimate benefit loss and diversion rates. Thus, for example, estimates of the amount of food stamp coupons or cash program checks that were lost in the mail are based on data routinely reported by the AIMS Fiscal Unit of the State of Maryland's Department of Human Resources (DHR). Data related to other areas of benefit loss are not regularly collected and reported, however, and extant data on EBT losses and diversions are quite limited. To the extent possible, these gaps were filled with data collected during interviews with participating food retailers, program recipients, and financial institutions that supported analyses of the Maryland EBT system's impacts on these groups. These analyses are discussed in Volume 3 of this report.³

Loss and diversion categories for which no formal reporting system or participant interview data existed were estimated using data collected during interviews with a panel of "expert respondents"—individuals who are highly knowledgeable about EBT systems or program

3. Beecroft *et al.*, *The Evaluation of the Expanded EBT Demonstration, Volume 3*.

operations. These individuals included two EBT system technical consultants,⁴ the current and former directors of the Maryland EBT demonstration, a representative of a major provider of point-of-sale (POS) services, an agent of the USDA Office of the Investigator General, and two representatives of the AIMS Fiscal Unit staff. In addition, less formal interviews were conducted with staff from Deluxe Data Services, the EBT Help Desk, FNS Field Offices in Towson, Maryland and Alexandria, Virginia, and the Maryland DHR Office of the Investigator General.

For the most part, when a loss or diversion estimate is based on information collected from expert respondents, it is the simple arithmetic mean of the most consistent responses. If we had reason to believe that one or more of the experts were more knowledgeable about a particular area of loss or diversion, then we weighted their responses more heavily than others. Where these situations occurred, the contrasting estimates are identified and described in the text. In situations where a vulnerability affects both food stamp and cash benefit programs, loss estimates are allocated according to the relative amounts of cash and food stamp benefits processed through the Maryland EBT system.

Several key assumptions support the analysis of benefit loss and diversion in the food stamp and cash programs that participate in the Maryland EBT system:

- **Issuance losses only**—this approach excludes vulnerabilities, such as providing false information, that are related to the eligibility certification of program applicants. It is believed that implementation of the EBT system in Maryland (or any EBT system) has no effect on the types of loss related to the certification process.
- **Steady-state level of EBT operations**—the analysis approximates a steady-state operational level by considering proposed or recently made changes to the system that were designed to control benefit loss.
- **Reclaimed or represented loss amounts**—loss amounts that are repaid by program clients, participating retailers, or financial institutions are not included in this analysis. While this approach may overstate the true amount of benefit loss, it is undertaken because generalizable information is not available about recovery rates in the specific loss vulnerabilities that are analyzed. Moreover, even if paper

4. One of these consultants had recently completed a security review of the Maryland EBT system. See Charles King, *Maryland Department of Human Resources, Electronic Benefit Transfer System, System Security Review, Findings* (draft). Oakland, CA: King System Consulting, December 1993.

system recovery rates were available for the specific vulnerabilities analyzed, they may not be appropriate as estimates of EBT recovery given the different recovery processes utilized in each system.

- **Regulation E**—these results should not be interpreted as estimates of the level of loss and program liability that would be expected under full Regulation E coverage, which the Board of Governors of the Federal Reserve Bank has ruled will apply to EBT systems in 1997. Among other consumer provisions, Regulation E limits cardholder liability from losses that result from unauthorized access to their financial accounts. EBT recipients currently do not have this protection against unauthorized account access. If Regulation E is applied to EBT systems, some EBT advocates fear that recipients will have an incentive to fraudulently report unauthorized account accesses. This would increase agency losses considerably, as recipients will be responsible only for the first \$50 of a loss.

Separate loss and diversion estimates are provided in terms of the *percent of benefits issued* and *dollars per case month* for the Food Stamp Program and programs that deliver cash benefits through the Maryland EBT system. Despite the high level of precision that is implied in actual loss estimates provided in this chapter, the results should be interpreted cautiously. As noted earlier, many of the loss and diversion estimates are based on information provided by expert respondents and participating recipients, retailers, and financial institutions. This methodology is more useful for showing the relative importance of each area of benefit loss and diversion, and the expected direction of the EBT effect, than it is for showing the absolute magnitude of actual loss and diversion.

Highlights

The EBT system in Maryland shows great potential for reducing benefit loss and diversion in the food stamp and cash programs. Estimates of food stamp benefit loss and diversion *decrease* by about 44 percent under the Maryland EBT system, and estimated cash program loss rates under EBT are lower by nearly 75 percent. These results represent potential annual savings in combined food stamp loss and diversion of about \$2.7 million, and in cash program loss of roughly \$500,000.

Reductions in food stamp losses and diversions were estimated in four of the five categories analyzed. About 38 percent of the overall reduction results from decreases in the amount of benefits used for unintended purposes. This category of diversion accounts for activity such as food stamp trafficking and ineligible purchases (using food stamp coupons or

the cash change from coupon purchases) that do not add to program or participant costs (and are not always necessarily illegal), but detract from the integrity of the program. With regard to food stamp trafficking, the Maryland EBT system is estimated to reduce the amount of trafficked food stamp benefits by 10 percent.

As expected, overall cash program loss rates are generally smaller under both systems than those in the Food Stamp Program, given the less restrictive use of cash benefits. However, estimated cash program loss rates decreased under EBT in both categories for which estimated losses were greater than zero. Lower estimates of lost and stolen benefits represented the largest source of the overall decline.

Agency losses, or the estimated amounts that each program agency incurs due to benefit loss, are unevenly distributed between the food stamp and cash program agencies. Food Stamp Program agency losses decrease sharply under the Maryland EBT system, potentially saving administrating agencies about \$460,000 per year. Estimated losses to agencies that administer cash program benefits actually *increase* under the Maryland EBT system, potentially adding roughly \$48,000 to annual program expenditures.

Stakeholder losses, or losses incurred by program participants that are not reimbursed by administering agencies, decrease for both food stamp and cash program participants under the Maryland EBT system. Estimated losses to food stamp stakeholders, including recipients, retailers, and financial institutions, decrease by about 37 percent under EBT, representing potential annual savings of about \$900,000. Estimated cash program stakeholder losses decrease by about 82 percent under the Maryland EBT system, for estimated annual savings of \$530,000.

The Maryland EBT system's ability to reduce benefit loss and diversion is slightly lower than that estimated for other EBT systems that deliver food stamp benefits (benefit loss has not been measured before for EBT delivery of cash program benefits). Estimated benefit loss and diversion decreased by 75 to 80 percent with introduction of EBT systems in Ramsey County, Minnesota and New Mexico.⁵ Part of the smaller estimated effect in Maryland is explained by higher coupon loss rates in Ramsey County and New Mexico. These two sites had issued food stamp coupons entirely by mail, an issuance method normally associated with higher loss rates.

5. John Kirlin *et al.*, *The Impacts of the State-Initiated EBT Demonstrations on the Food Stamp Program*. Cambridge, MA: Abt Associates Inc., June 1993, p. 119.

In Maryland, only 22 percent of food stamp participants received direct mail issuances prior to implementation of the EBT system. Higher estimated rates of lost or stolen EBT benefits and diverted EBT benefits, as reported by program recipients in Maryland, also contribute to the lower Maryland results.

These results make no assumptions about coverage by Regulation E of the Maryland EBT system. The current waiver of Regulation E to EBT systems allows program agencies to limit their liability against recipient claims of unauthorized account accesses. This waiver acts as a disincentive to fraudulent claims of lost benefits because recipients know that they will not get reimbursed for the claims. The analysis presented in this chapter reflects recipient behavior *without* Regulation E protection, which would likely change under full protection by Regulation E. Regulation E will be extended to EBT systems in 1997, according to a recent ruling by the Federal Reserve Board of Governors.

Moreover, despite the high level of precision implied by these results, the estimated levels of loss should be interpreted with care. As noted, many of the results are based on information provided by expert respondents and participating stakeholders. This research approach is more useful at showing the relative importance of loss and diversion vulnerabilities than the absolute magnitude of actual loss and diversion.

5.2 EXCESSIVE RECIPIENT BENEFIT AUTHORIZATION

Excessive benefit authorization refers to events in which benefits are authorized for the wrong people or in the wrong amount. Given the nature of these losses, it is possible that retailers or program agencies can recoup some or all of the lost benefits from subsequent issuances. The loss estimates provided in this section are not adjusted to reflect potential recoupments, however, because of the lack of generalizable recoupment information, as was mentioned earlier.

Food Stamp Coupon Loss from Excessive Authorization

The sources of excessive authorization losses under the paper coupon system in Maryland were mail losses of food stamp coupons or ATP documents, duplicate issuances of coupons or ATPs, and fraudulent redemptions of lost or stolen ATPs.

According to AIMS fiscal unit reports, total benefit losses caused by excessive coupon authorization represented about 0.119 percent of food stamp benefits issued, or about \$0.230 per case month. Nearly all of this total (0.100 percent of benefits) resulted from coupon mailings that were reported lost or stolen and not returned. Lesser amounts were attributed to duplicate issuances of coupons or ATPs that were redeemed (0.010 percent of benefits) and to ATP documents that were redeemed fraudulently after being reported lost or stolen from the mail (0.009 percent of benefits). These loss estimates are presented in Exhibit 5.1.

EXHIBIT 5.1

**SUMMARY OF LOSSES RESULTING FROM
EXCESSIVE RECIPIENT AUTHORIZATION**

	Percent of Benefits	Dollars per Case Month
Food stamp coupon losses		
Mail losses	0.100	
Duplicate ATP or coupons issued	0.010	
Fraudulently redeemed ATPs	0.009	
Total	0.119	\$0.230
Food stamp EBT losses		
Erroneous credit	0.004	
Double issuance posting	0.003	
Total	0.007	\$0.014
EBT - coupon difference	-0.112	-\$0.216
Percent difference		-93.9%
Cash program check losses		
Mail losses	0.032	
Duplicate check issued	0.000	
Total	0.032	\$0.081
Cash program EBT losses		
Erroneous credit	0.015	
Double issuance posting	0.000	
Total	0.015	\$0.038
EBT - check difference	-0.017	-\$0.043
Percent difference		-53.1%

Nearly all of the total estimated loss due to excessive coupon authorizations (0.117 percent of benefits) adds directly to *agency losses*. The remaining portion (0.002 percent of

benefits) represents *stakeholder losses* incurred by check cashing agents who transacted ATP documents but were not indemnified by DHR because the documents had been reported lost or stolen.

Food Stamp EBT Loss from Excessive Authorization

Excessive authorizations of food stamp benefits in the Maryland EBT system can be caused by events that lead to erroneous credits to client accounts, such as unreimbursed voucher transactions, system processing errors, or employee errors. The Maryland EBT system also could be vulnerable to losses from double posting of an authorization file.

Expert respondents were quite confident in the Maryland EBT system's ability to minimize excessive EBT authorizations. Indeed, respondents believed that these types of losses would amount to only 0.007 percent of food stamp benefits, or about \$0.014 per case month (Exhibit 5.1). This estimate represents a reduction of about 94 percent in loss relative to the paper coupon system.

Two sources of excessive food stamp EBT authorizations—erroneous credits to client accounts and double posting of an issuance file—were considered equally unlikely, leading to estimated losses of only 0.003-0.004 percent of benefits. These estimates are roughly consistent with reported incidents by DHR representatives of food stamp loss in the Maryland EBT system. There has been some loss incurred by mobile vendors for unreimbursed voucher transactions, but DHR sources estimate the level of loss to equal about \$500 per month. Although this amount can be significant to individual vendors, it represents only about 0.002 percent of the roughly \$27.5 million dollars in food stamp benefits that are transacted each month. Experiences in Maryland suggest that a small amount is lost each month due to system processing errors that incorrectly credit client accounts, but there have been no reports of food stamp losses due to double issuance posting or employee error.

About one-half of the losses that result from excessive credits to recipient accounts (0.002 percent of food stamp benefits) are considered *stakeholder losses* to retailers because these losses represent unreimbursed voucher transactions. The entire estimated loss due to double posting of an authorization file and the remaining portion of erroneous credits caused by system processing errors (combined losses of 0.005 percent of benefits) are considered *agency*

losses because the cost of these losses would be incurred by the administering federal and state agencies.

Cash Program Check Loss from Excessive Authorizations

Excessive recipient authorizations occurred in the Maryland paper check system when benefit checks were cashed after being reported lost or stolen from the mail, or when duplicate checks were issued and cashed. Data provided by the AIMS fiscal unit indicate that losses amounting to 0.032 percent of benefit checks (or about \$0.081 per case month) were experienced for checks that were cashed after being reported lost or stolen from the mail, not returned, and replaced by the program agency that authorized the issuance. The other source of excessive authorization loss, the issuance and redemption of an erroneous duplicate check, is not recorded in routine reporting systems but never happened, according to AIMS fiscal unit staff. These loss estimates are presented in Exhibit 5.1.

AIMS fiscal unit data indicate that most check losses were not indemnified by the Maryland DHR,⁶ meaning that *stakeholder losses* to retailers, check cashing agencies, and financial institutions amounted to 0.031 percent of cash benefits issued. The indemnified portion of the total (0.001 percent of benefits issued) is considered an *agency loss* because program agencies reimbursed this amount to check cashing parties for fraudulent checks.

Cash Program EBT Loss from Excessive Authorization

Excessive authorization of EBT benefits could occur if client accounts are erroneously credited (by system or human error, or by an inability to cover a voucher transaction), or if an authorization file is posted more than once.

Expert respondents believed that the Maryland EBT system was adequately tested and contained sufficient safeguards to prevent system errors that erroneously credit client accounts, and their estimates of loss rates are quite consistent with the reported levels of loss that have been attributed to the Maryland system. One source of loss, ATMs that misdispense currency, creates losses amounting to about \$3,000 per month, according to an official of Deluxe Data

6. The Maryland DHR indemnifies, or reimburses, check cashers for a fraudulently cashed check only if specified procedures were followed to properly identify the bearer of the check.

Systems. When combined with small losses from other sources (human or other system errors and overdrawn accounts), estimated cash program losses from erroneous credits total to about 0.015 percent of benefits issued, or about \$0.038 per case month.

Experts estimate that duplicate issuance posting, the other vulnerability to excessive cash program EBT authorizations, will create no expected losses relative to the paper loss rate (which was zero percent of benefits).

Total estimated cash losses due to excess authorizations in the Maryland EBT system therefore equal 0.015 percent of benefits, or about 53 percent lower than the comparable check estimate, as shown in Exhibit 5.1. All but a fraction of the total loss, including the entire ATM misdispense loss, is considered an *agency loss* because these losses would be borne by the administering program agencies. Cash program losses resulting from voucher transactions against accounts with insufficient funds are *stakeholder losses* to retailers, but these losses are extremely small and round to zero percent of benefits.

Although cash loss rates from excessive authorizations decrease under EBT, a greater percentage of the EBT loss is incurred by agency sources rather than participants. This shifting of losses from cash program stakeholders to the administering agencies is due to the use of ATM distribution of cash benefits. ATMs provide program recipients with convenience and improved budgeting ability, but the use of ATMs lengthens the amount of time agencies are liable for the benefits because recipients do not need to withdraw their entire allotment at the time of issuance.

5.3 BENEFIT REDEMPTION LOSSES

Vulnerabilities that create benefit redemption losses are incidents in which cash credit is given to food retailers or banks in an amount that differs from the amount of benefits redeemed.

Food Stamp Coupon Redemption Losses

The redemption of food stamp coupons in Maryland involved food retailers, financial institutions, and the Federal Reserve Bank of Richmond (which serves Maryland). A redemption loss could occur when the amount credited to retailers or financial institutions for a coupon deposit differed from the dollar amount of the actual deposit because the coupons were

incorrectly counted by the bank, for example, and the miscount could not be traced back to the depositing retailer. These types of losses are explained in Appendix E.

Coupon redemption errors by retailers and banks are rare events, according to interviews with representatives of Maryland retailers and financial institutions and the Federal Reserve Bank. Indeed, as shown in Exhibit 5.2, retailers estimated their losses to equal only 0.008 percent of benefits redeemed, and banks reported zero coupon losses. These losses are considered *stakeholder losses* because retailers were not reimbursed by the administering program agencies.

EXHIBIT 5.2

SUMMARY OF BENEFIT REDEMPTION LOSSES

	Percent of Benefits	Dollars per Case Month
Food stamp coupon losses		
Inaccurate retailer credit	0.008	
Inaccurate bank credit	0.000	
Total	0.008	\$0.015
Food stamp EBT losses		
Inaccurate retailer credit	0.019	
Inaccurate bank credit	0.000	
Total	0.019	\$0.037
EBT - coupon difference	0.011	\$0.022
Percent difference		146.7%
Cash program check losses		
Inaccurate retailer credit	0.000	
Inaccurate bank credit	0.000	
Total	0.000	\$0.000
Cash program EBT losses		
Inaccurate retailer credit	0.000	
Inaccurate bank credit	0.000	
Inaccurate credit to ATM owner	0.000	
Total	0.000	\$0.000
EBT - check difference	0.000	\$0.000
Percent difference		0.0%

Food Stamp EBT Redemption Losses

Food stamp redemption under the Maryland EBT system involves retailers and their depository financial institutions, the system processor, the concentrator bank, and the Federal Reserve Bank of Minneapolis (which serves the concentrator bank). A food stamp EBT redemption loss could occur when error or fraud in the EBT settlement process causes a dollar amount credited to a retailer or financial institutions to differ from the amount of actual benefits redeemed.

Participating Maryland retailers perceived EBT system accounting losses totalling about 0.019 percent of food stamp benefits, or about two times the coupon loss rate.⁷ Maryland financial institutions reported very small losses due to redemption errors that rounded to zero percent of benefits issued. These estimates are presented in Exhibit 5.2. All losses associated with redemption errors are considered *stakeholder losses* because they are incurred by participating retailers or banks.

Agency losses associated with redemption errors should technically equal the negative of the sum of stakeholder losses because losses during the redemption process to stakeholders are actually gains to the administering program agencies (who do not have to reimburse the full amount of the redemption). Conversely, stakeholders' redemption *gains* would equal redemption losses to program agencies. Given that we did not collect data on stakeholder redemption gains (because few, if any, stakeholders could be expected to honestly provide the information), we assume that *agency losses* equal zero and acknowledge the likely understatement of the loss estimate.

Expert respondents did not entirely agree with the retailer and bank results, however, and considered the safeguards in the Maryland EBT system as sufficient to prevent redemption errors. Moreover, respondents noted that if practically no losses occurred in the manual coupon redemption process, then it was less likely that losses would occur in the nearly fully-automated EBT redemption process. Given a belief that retailer and bank respondents are more knowledgeable about these types of redemption losses, we used their responses to construct the estimates presented in Exhibit 5.2.

7. Beecroft *et al.*, *The Evaluation of the Expanded EBT Demonstration, Volume 3*. Retailers were asked to recall incidents when they lost money *permanently* because the wrong amount had been credited to their account or an EBT sale had not been credited.

Cash Program Check Redemption Losses

Redemption of cash program checks involves check cashers (such as retailers, check cashing agencies, and financial institutions), the Federal Reserve Bank of Richmond, and Signet Bank of Maryland, where the Maryland DHR holds an account. A check redemption loss could occur when the amount credited to check cashers or their financial institutions for cashing a check differed from the amount due.

Zero percent rates for cash program redemption losses are estimated for participating retailers and banks, according to expert respondents⁸ (Exhibit 5.2). Given the volume of paper checks processed each day, most banks have developed highly automated and reliable check processing procedures. Respondents noted that discrepancies do occur, but that the discrepancies were always resolved satisfactorily.

Cash Program EBT Redemption Losses

In the Maryland EBT system, cash benefits are distributed through ATMs in the MOST network and retailers that chose to provide cash back through POS terminals. A redemption error could occur if the dollar amount credited these parties (or the financial institutions involved in the settlement process) differs from the amount actually redeemed.

Expert respondents believed that zero losses could be expected from cash program redemption through the Maryland EBT system, as shown in Exhibit 5.2. Respondents noted that the amount of dollars flowing through the system, while sizable, was still small compared to the amounts transferred safely and accurately each day through electronic financial networks in the United States. Respondents were also convinced of the integrity of the MOST settlement process and that the network's security measures were sufficient to prevent redemption errors by ATM card acquirers, or the owners of the ATMs in the MOST network.

5.4 PRODUCTION AND HANDLING LOSSES

Vulnerabilities associated with production and handling losses consist of incidents where benefits are lost or stolen before issuance or after redemption and are later redeemed.

8. Excessive redemptions of cash program checks and EBT benefits were not measured in surveys of participating food retailers and financial institutions.

Food Stamp Coupon Production and Handling Loss

Production and handling losses of food stamp coupons occur when coupons are lost or stolen prior to issuance or after redemption. Coupons can be lost or stolen from the inventory of the coupon producer, during transport to state or local issuance centers, or from state or local inventories. Coupon losses can also occur during the redemption process, such as from the vaults or processing areas of banks that accept coupon deposits. Finally, food stamp coupons can be counterfeited, which we consider a production and handling loss because counterfeit coupons represent unissued benefits.

Lost or stolen coupons from production, shipping, and handling processes are relatively infrequent events that are not measured by formal reporting systems. An agent of the USDA's Office of Investigator General, which investigates these losses, disclosed that the only reported case of this type occurred in 1984 and involved \$4 million worth of food stamp coupons that was stolen from the inventory of the coupon producer. Although all of this theft was later recovered or paid back in cash, this theft represents 0.002 percent of the \$175 billion in food stamp coupons that was issued between fiscal years 1979 and 1993.

A second type of production and handling loss, unreconciled issuance losses, represents discrepancies in the Maryland coupon inventory, as documented in the FNS-250 report. During fiscal year 1991, the last complete year in which Maryland issued food stamp coupons, unreconciled issuance losses accounted for 0.020 percent of total benefits issued.

According to the OIG respondent, the only documented case involving recirculated coupons occurred in the late 1970s when thieves stole coupons that had been deposited but not canceled from a bank that represented the Federal Reserve in Puerto Rico. Later, the thieves developed a bleaching process that washed cancellation stamps from the coupons and literally laundered the coupons back into circulation. In all, about \$11 million in food stamp coupons was recirculated, although about half the total was later recovered. This theft represents about 0.006 percent of the \$175 billion in food stamp coupons issued between fiscal years 1979 and 1993.

Between fiscal years 1989 and 1993, roughly \$1 million in counterfeit coupons were passed into the redemption process, according to the U.S. Secret Service, or about 0.001 percent of benefits issued during that time period (\$86 billion). This amount excludes counterfeit coupons that were seized but not redeemed, as well as counterfeit coupons that are undetected.

It is likely that very few counterfeit coupons are undetected, given the Federal Reserve Banks' ultraviolet screening process, although the OIG respondent said that technologically advanced color copying machines make everyone a potential counterfeiter.

Total coupon production and handling losses amount to about 0.029 percent of benefits issued, or about \$0.056 per case month, as shown in Exhibit 5.3. All losses except those created by counterfeit coupons are considered *agency losses*, given that the administering agencies are ultimately responsible for losses. Counterfeit coupon losses are considered *stakeholder losses* because counterfeit coupons are charged back to the retailers or banks that accepted them.

EXHIBIT 5.3
SUMMARY OF PRODUCTION AND HANDLING LOSSES

	Percent of Benefits	Dollars per Case Month
Food stamp coupon losses		
Production, shipping or handling losses	0.002	
Unreconciled issuance losses	0.020	
Recycled coupons	0.006	
Counterfeit coupons	0.001	
Total	0.029	\$0.056
Food stamp EBT losses		
Tampered authorization file	0.000	
Counterfeit EBT card	0.001	
Total	0.001	\$0.002
EBT - coupon difference	-0.028	-\$0.054
Percent difference		-96.4%
Cash program check losses		
Counterfeit checks	0.000	
Total	0.000	\$0.000
Cash program EBT losses		
Tampered authorization file	0.000	
Counterfeit EBT card	0.000	
Total	0.000	\$0.000
EBT - check difference	0.000	\$0.000
Percent difference		0.0%

Cash Program EBT Production and Handling Loss

Production and handling vulnerabilities to losses of cash program EBT benefits are identical to those considered for food stamp EBT benefits. These vulnerabilities are tampered or lost data from an authorization file and counterfeit EBT cards.

Expert respondents estimated a zero loss rate for vulnerabilities associated with data tampering or loss from an authorization file (Exhibit 5.3). As mentioned, this loss rate was based on respondent confidence in the Deluxe reconciliation process, as well as the additional need to access the tampered benefits after they are authorized. Account access would require production of an EBT card encoded with the account numbers of a fraudulent account (into which the tampered benefits had been diverted) or participation in the tampering by a current EBT account holder.

Cash program losses due to counterfeit EBT cards are estimated to equal a very small percentage of cash benefits (which rounds to zero percent in Exhibit 5.3). Counterfeit cards could be used in the Maryland EBT system, but it is likely that the only loss would occur with unauthorized voucher transactions. Given that nearly all of these transactions are conducted by route vendors and most are debited against food stamp accounts, we assume that loss due to counterfeit cards will affect cash program benefits at a fraction of the comparable food stamp EBT rate. This percent rounds to zero in Exhibit 5.3.

5.5 LOST OR STOLEN BENEFITS

Benefits are lost or stolen from recipients when persons other than an authorized recipient redeems benefits that they steal or find.

Food Stamp Coupon Loss from Lost or Stolen Benefits

Food stamp recipients are vulnerable to losses that occur when they lose their coupons or the coupons are stolen. In addition, recipients might be overcharged by retailers for purchases made with food stamp coupons.

Estimates of lost or stolen food stamp coupons and retailer overcharging are based on information collected from Maryland program recipients. Maryland recipients reported lost and stolen benefits equal to 0.476 percent of benefits and grocer overcharges equalling 0.254 percent

of benefits.⁹ The combined loss amount from these two vulnerabilities (0.730 percent of benefits) is the equivalent of about \$1.410 per case month, as shown in Exhibit 5.4.

EXHIBIT 5.4
SUMMARY OF LOST OR STOLEN BENEFITS

	Percent of Benefits	Dollars per Case Month
Food stamp coupon losses		
Lost or stolen coupons	0.476	
Grocer overcharges	0.254	
Total	0.730	\$1.410
Food stamp EBT losses		
Unauthorized account access	0.414	
Grocer overcharges	0.026	
Software errors	0.003	
Total	0.443	\$0.856
EBT - coupon difference	-0.287	-\$0.554
Percent difference		-39.3%
Cash program check losses		
Lost or stolen checks	0.153	
Total	0.153	\$0.389
Cash program EBT losses		
Unauthorized account access	0.031	
Software errors	0.001	
Total	0.032	\$0.081
EBT - check difference	-0.121	-\$0.308
Percent difference		-79.2%

Stakeholder losses equal the full amount of the reported loss, or 0.730 percent of benefits. **Agency losses** are zero because lost or stolen benefits are not replaced.

9. Beecroft *et al.*, *Evaluation of the Expanded EBT Demonstration, Volume 3*. The estimates in Exhibit 5.4 exclude reported participant losses from damaged coupons, because damaged coupons can be replaced. These estimates are based on recipient claims of permanent and unreplaced losses. Just under 1 percent (0.9 percent) of food stamp recipients reported incidents of unauthorized use of their EBT cards. About 1.3 percent of cash program recipients reported similar incidents of unauthorized use.

Food Stamp EBT Loss from Stolen Benefits

Because EBT benefits have no physical representation like food stamp coupons, the main EBT vulnerabilities considered are from unauthorized access to recipient accounts (e.g., fraudulent voucher transactions, retailer fraud, DHR employee fraud, unauthorized card use) and system software errors that incorrectly debit a client's account. As with food stamp coupons, recipients also are vulnerable to retailer overcharges in the EBT system.

Recipient food stamp losses due to unauthorized EBT account access average about 0.414 percent of benefits, according to interviews with program recipients. Recipients also reported grocer overcharges of food stamp EBT purchases that average about 0.026 percent of benefits.¹⁰

Estimates of unauthorized account access based on expert respondents and reports of actual losses (0.034 percent of benefits) are much smaller than comparable recipient estimates. This estimate includes assumptions about loss levels that might be expected from the types of thefts that have already been detected in Maryland. For example, losses due to fraudulent transaction vouchers had averaged about \$2,500 per month. An EBT Hotline employee in Maryland expects that amount to be reduced by 50 percent as a result of new voucher forms that include a date field. Also, a programming change that replaced the card number with a recipient identification number on printed receipts is expected to nearly eliminate suspected monthly losses of about \$500 from manual entry of client card and PIN numbers. Finally, more stringent controls over access to unactivated client cards (e.g., separating card issuance from PIN assignment) is expected to eliminate a type of food stamp loss potentially caused by DHR employees. Given that program recipients have, at least in principle, a more comprehensive knowledge of loss or theft situations that affect their food stamp balances, we use their estimates for the rate of loss due to unauthorized account access and grocer overcharges.

Software processing errors will cause monthly losses equalling about 0.003 percent of benefits issued, according to expert respondents. Although the experts acknowledged that the

10. Beecroft *et al.*, *op. cit.* The estimate reported in Exhibit 5.4 is derived by adding component measures for losses associated with stolen client cards, lost client cards, and unauthorized uses of benefits (which is used to approximate loss from fraudulent voucher transactions, and retailer and DHR fraud). It excludes losses due to recipient account credits for less than expected and fewer benefits in an account than expected.

Deluxe system had been exhaustively tested, there was still some room for loss due to undetected system reversals, which represent potential losses to store retailers.¹¹

Total losses due to lost and stolen food stamp benefits are estimated to equal 0.443 percent of benefits, or about \$0.856 per case month, as shown in Exhibit 5.4. The entire estimated loss is considered a *stakeholder loss* because retailers (in the case of system reversals) or recipients are expected to incur the losses.

The most surprising result in Exhibit 5.4 is the large reduction (from 0.254 to 0.026 percent of benefits) in grocer overcharges that were perceived by food stamp participants under EBT. We have no certain explanation for this result, although it is possible that recipients are perceiving the more automated nature of an EBT transaction as somehow guaranteeing that the correct price is being charged. It is also possible that retailers who might have intentionally overcharged food stamp clients using coupons refrain from doing so under EBT, fearing that such overcharges could be identified from system records (even though such identification is not possible).

Cash Program Check Loss from Lost and Stolen Benefits

Cash program recipients incur losses when their benefit checks are lost or stolen and the benefits are not replaced by the issuing program agency. Information provided by cash program participants indicates that 0.153 percent of benefits were lost from checks that were lost or stolen from participants,¹² as shown in Exhibit 5.4. This total is considered a *stakeholder loss* because it represents the amount that was not reimbursed to participants in the form of replacement checks.

11. System reversals describe events in which the system is unable to complete a transaction and "reverses" itself to restore the situation before the transaction was attempted. Most commonly, reversals are caused by telecommunications problems that cause a failure by either the system host or a POS terminal to communicate an acknowledgement message. After a pre-set amount of time, the system is programmed to reverse itself and send a message to the terminal that the transaction is not authorized. In some circumstances, store clerks have failed to notice the reversal message and allowed clients to leave the store with their purchases.

12. Beecroft *et al.*, *The Evaluation of the Expanded EBT Demonstration, Volume 3*. The amount reported in Exhibit 5.4 consists of the loss estimate for lost or stolen checks only.

Cash Program EBT Loss from Stolen Benefits

Cash program EBT vulnerabilities to lost or stolen benefits are nearly identical to those described earlier in the context of food stamp benefits. These vulnerabilities include unauthorized access to client accounts and software errors. We exclude grocer overcharges from the analysis of cash program vulnerabilities, however, because we assume that any overcharges of cash-paying customers are unrelated to their participation in a cash assistance program.

Maryland recipients reported lost and stolen cash program EBT benefits equal to about 0.031 percent of benefits,¹³ as shown in Exhibit 5.4. This loss rate is roughly consistent with an estimate based on expert respondents and reports of actual losses (0.050 percent of benefits), but is strikingly much lower than recipient estimates of comparable food stamp EBT losses (0.414 percent of benefits). This difference may reflect the fraudulent voucher transaction vouchers, which were processed mainly against food stamp accounts.

Software errors, such as reversed transactions, are estimated to create small losses to cash program accounts (0.001 percent of benefits).

Total cash program losses from lost or stolen EBT benefits are estimated to equal 0.032 percent of cash benefits, or about 79 percent lower than estimated paper check losses (Exhibit 5.4). *Stakeholder loss* accounts for the entire loss because these benefits are not replaced by administering program agencies.

5.6 BENEFIT DIVERSIONS

The Food Stamp Program restricts the use of food stamp benefits to the purchase of eligible food items. Food stamp benefits are used in an unintended manner, or diverted from their intended use, when they are used to purchase items other than food. Benefit diversions do not exist in cash programs because the use of cash benefits is not similarly restricted.

13. Beecroft *et al.*, *op. cit.* The amount reported in Exhibit 5.4 consists of the combined estimates for forced cash withdrawals, cash benefits taken while card stolen, cash benefits taken while card lost, and cash benefits taken without authorizations.

Estimated Food Stamp Coupon Diversion

Sources of food stamp coupon benefit diversion include the purchase of ineligible items, food stamp trafficking, the use of cash change to purchase ineligible items, and purchases from non-authorized food retailers.

In a typical year FNS' Compliance Branch investigates between 4,000 and 5,000 stores for program violations including ineligible purchases. Investigators make ineligible buys at least once in roughly 2,500 of these stores, and three times (the requirement for program disqualification) in about 1,500 stores. These investigations target specific stores, however, on the basis of prior knowledge that a store might be allowing ineligible purchases.

Despite this effort to maintain retailer compliance with program regulations, there are no regularly reported estimates of the nationwide frequency or dollar amount of ineligible purchases. We base our estimate of coupon purchases of non-eligible items on analysis completed for an evaluation of the Reading EBT demonstration. The analysis, which was based on attempted purchases of ineligible items in a *random sample* of stores, estimated that benefit diversion by means of ineligible purchases amounts to 0.170 percent of food stamp coupon benefits,¹⁴ as shown in Exhibit 5.5. To the extent that this percentage estimated the true rate of ineligible purchases in 1984, it likely overstates the current rate given the growth in the use of bar-code scanners over the past ten years. Bar-code scanners decrease the likelihood of ineligible purchases because the eligibility of an item is programmed into a store's scanning system. Given a lack of more recent data on ineligible purchases, however, we use the estimate developed for the Reading EBT evaluation.

Estimates of the level of food stamp trafficking in the United States vary considerably and are the subject of much debate. Indeed, "... loss cannot be measured unless the fraudulent activity has first been detected. Data to estimate redemption and trafficking diversions in the

14. *Food Stamp Program Redemption System: A Preliminary Assessment*. Alexandria, VA: Food and Nutrition Service, Program Accountability Division, June 21, 1984. FNS investigators attempted to make ineligible purchases in a random sample of authorized food retailers. In 14 percent of large stores (total monthly sales over \$100,000), investigators were able to make at least one ineligible purchase; they made three purchases in 4 percent of the stores. At least one ineligible purchase was made in 50 percent of small stores, and three ineligible purchases were made in 29 percent. To estimate the overall rate of ineligible purchases, we assumed that recipients might attempt to buy unauthorized items in 10 percent of the purchases, and that the ineligible items in these cases would amount to 10 percent of the total purchase value. We further assumed that all attempts to purchase ineligible items would be accepted in the three-buy stores, half the attempts would be accepted in the one-buy stores, and none would be accepted in other stores.

EXHIBIT 5.5

SUMMARY OF BENEFITS USED IN AN UNINTENDED MANNER

	Percent of Benefits	Dollars per Case Month
Food stamp coupon diversions		
Purchases of ineligible items	0.170	
Coupon trafficking	0.390	
Cash change purchases of ineligible items	0.331	
Unauthorized store redemption	0.031	
Total	0.922	\$1.781
Food stamp EBT diversions		
Purchases of ineligible items	0.170	
Benefit trafficking	0.351	
Unauthorized store redemption	0.016	
Total	0.537	\$1.037
EBT - coupon difference	-0.385	-\$0.744
Percent difference		-41.8%
Cash program check diversions		
None		
Cash program EBT diversions		
None		

Food Stamp Program have not been systematically collected and diversion estimation methods for redemption and trafficking (other than expert opinion) are non-existent within the Program."¹⁵ Although FNS recently undertook an effort to "systematically and objectively examine the characteristics of recipients who engage in food stamp trafficking, their motives and the conditions under which this activity occurs",¹⁶ no generally accepted level of food stamp trafficking currently exists.

Previous evaluations of EBT systems have estimated the level of trafficking at 0.39 percent of benefits. This estimate was based on analysis conducted in 1987, which indicated that one-eight of all stores disqualified from participation in the Food Stamp Program are caught

15. James S. Lubalin *et al.*, *Food Stamp Program Integrity Methodological Feasibility Study*, Research Triangle Park, NC: Research Triangle Institute, March 1, 1991, p. 7.

16. Request for Proposal Number FNS 93-013CAW for *Recipient Food Stamp Trafficking*, May 7, 1993.

trafficking.¹⁷ Although many experts and non-experts alike believe that the true rate of coupon trafficking is much higher, we adapt the conservative approach and use it as our coupon trafficking estimate, as shown in Exhibit 5.5.¹⁸

Retailers are allowed to provide up to \$0.99 in cash change for food stamp purchases. According to economic theory on spending behavior, cash change represents a marginal increase in recipient cash income, part of which is spent on non-food items. Based on analyses of how food stamp recipients spend marginal increases in income, as well as assumptions on the average number of monthly food stamp transactions in Maryland and the average amount of cash change, we estimate that about 0.331 percent of food stamp coupon benefits was diverted to non-food items. A detailed discussion of the methodology used to derive this estimate is presented in Appendix E.

The estimated diversion rate of redemptions by non-authorized stores is less straightforward because this activity is not closely monitored by FNS field offices (which are responsible for authorizing retailers). We assume that the majority of redemptions by non-authorized stores are conducted by stores that once had been authorized to accept food stamp benefits but later lost their authorization because of program violations, such as trafficking or allowing the purchase of ineligible items (we exclude redemptions by stores that change ownership and the new owner is not aware that he needs to re-apply for authorization). We make this assumption because store information provided in the application to accept food stamp benefits is not routinely verified by FNS field office personnel. Thus, most stores that want to accept food stamp benefits can obtain legal authorization unless prevented from doing so by a program disqualification. According to an FNS field office representative, at any point in time

17. The analysis assumed that one-eighth of the three-buy stores identified in the 1984 FNS report as ineligible purchasers were also trafficking in coupons. Based on respondents' statements that trafficking accounts for a substantial proportion of redemptions in those stores that traffic, it was assumed that one-third of these stores' total food stamp redemptions resulted from trafficking. See William Hamilton *et al.*, *The Impact of an Electronic Benefit Transfer System on the Food Stamp Program*. Cambridge, MA: Abt Associates Inc., May 1987, p. 104.

18. It could be argued that some portion of trafficked food stamp benefits is actually used to purchase food and should not be included in our estimate of benefit diversion. It is possible, for example, that some recipients traffic their benefits in order to solve liquidity problems caused by irregular sources of cash income. These recipients might traffic some of their food stamp benefits to meet current cash obligations and then complete their food purchases later out of future sources of cash income.

there are about 115 Maryland stores serving disqualifications for program violations. Assuming that 10 percent of these stores continue to accept food stamp benefits at roughly 25 percent of the average monthly redemption level for small non-supermarket stores (\$3,000), total redemptions by non-authorized stores is estimated to create \$8,625 in monthly food stamp diversions, or about 0.031 percent of total redemptions, as shown in Exhibit 5.5. This monthly food stamp diversion rate was considered "reasonable" by the FNS field office representative.

Total food stamp coupon benefit diversion equals 1.010 percent of benefits issued, or about \$1.951 per case month, as shown in Exhibit 5.5. These amounts are *benefit diversions*; they add neither to stakeholder nor agency costs.

Estimated Food Stamp EBT Diversion

With the exception of benefit diversions caused by cash change, which is eliminated in the EBT system, EBT benefit diversions are the same as those discussed in the context of food stamp coupons. These diversions are ineligible purchases, food stamp trafficking, and purchases at non-authorized stores.

None of the expert respondents believed that purchases of ineligible items would change under the Maryland EBT system. One respondent thought that EBT diversions might be smaller if store clerks or recipients thought that somehow the EBT system could monitor purchases. This respondent admitted, however, that this perception would go away with system use and that purchases of ineligible items would likely be no different than experienced under the coupon system. Given that we are interested in diversion estimates under a steady state of system operations, we assume that ineligible purchases will not change, and assign to it the coupon rate of benefit diversion. Thus, the rate of benefit diversion from purchases of ineligible items is assumed to equal 0.170 percent of benefits issued, as shown in Exhibit 5.5.

Expert respondents disagreed more over the effect of the Maryland EBT system on benefit trafficking than over any other vulnerability considered in this chapter. Responses ranged from a zero percent change to a sixty percent reduction in trafficking under EBT. Respondents who estimated no change in trafficking believed that the level of trafficking is a near constant over the long run, and that as long as food stamp benefits are restricted in their use the level of trafficking will not change. Short-term trafficking may decrease following the announcement of a major successful trafficking investigation, but over time the level of

trafficking will creep back up to its long term level. This phenomenon is believed to be occurring in Reading, according to the OIG investigator. In 1993 OIG completed an investigation of trafficking that resulted in the arrests and convictions of three store owners and over 100 program recipients. Suspected trafficking activity was thought to have dropped off dramatically following the arrests, but the OIG investigator believes that it has since gone back up to the point that it existed before the investigation.

Other respondents believe that the Maryland EBT system has had a dramatic impact on food stamp trafficking. These respondents point to the more complicated nature of EBT trafficking transactions and the increased investigatory powers that the system possesses as reasons for estimating reduced levels of food stamp trafficking. These respondents acknowledge that EBT is not a cure-all to food stamp trafficking as some would like to believe, but it will have significant effects. Several respondents cautioned, however, that their assessments were based on the current EBT environment in which Regulation E does not apply. When Regulation E is applied to EBT in 1997, respondents note that recipients will have incentives to sell their card and PIN for cash and have the trafficked amount credited back to their account after filing a Regulation E claim that the card was lost or stolen.

A simple mean of expert respondent estimates would generate an EBT trafficking rate 25 percent lower than the coupon rate, or about 0.293 percent of benefits. The backgrounds of the respondents who estimated little or no impact, however, and survey information provided by program recipients suggests that a smaller EBT impact could be expected. These respondents consisted of an OIG investigator, the current EBT director, and an EBT system consultant who recently completed a security review of the Maryland EBT system. These respondents estimated only smaller impacts that averaged about 10 percent of the coupon rate. An analysis of recipient survey data, which is provided in Appendix F, yields a similar result.¹⁹ Given the more informed nature of the subsample of expert respondents and the rough confirmation of their estimates of trafficking impacts by recipient survey data, we estimate that the Maryland EBT

19. As reported in Appendix F, the evaluation's pre- and post-implementation recipient surveys asked a series of questions about trafficking under the coupon and EBT issuance systems. The intent was to understand better the market for trafficked benefits and how EBT was affecting the market. The survey responses suggest that trafficking under EBT is a bit harder than before, but probably not so hard as to expect major reductions in trafficked benefits. The 10 percent reduction used in this chapter seems consistent with the survey data.

system reduces trafficking by about 10 percent, to 0.351 percent of benefits, as shown in Exhibit 5.5.

A loss rate of 0.016 percent, or one-half the comparable coupon rate, is estimated for redemptions by non-authorized stores, based on the view of a representative of the Towson Field Office of FNS that this activity has "decreased considerably with EBT."

Continuing from previous page...

Maryland EBT system reduces estimated *total benefit diversion* by about 42 percent, to 0.537 percent of benefits or about \$1.037 per case month. These estimates are shown in Exhibit 5.5.

5.7 CONCLUSIONS

This chapter has presented estimated rates of benefit loss and diversion for food stamp and cash program delivery of benefits under the paper and EBT systems in Maryland. As

EXHIBIT 5.6

SUMMARY OF BENEFIT LOSS AND DIVERSION

	Percent of Benefits	Dollars per Case Month
Food stamp coupon losses		
Excessive recipient authorization	0.119	
Excessive redemption credit	0.008	
Production and handling loss	0.029	
Lost or stolen benefits	0.730	
Benefits used in an unintended manner	0.922	
Total	1.808	\$3.493
Food stamp EBT losses		
Excessive recipient authorization	0.007	
Excessive redemption credit	0.019	
Production and handling loss	0.001	
Lost or stolen benefits	0.443	
Benefits used in an unintended manner	0.537	
Total	1.007	\$1.945
EBT - coupon difference	-0.801	-\$1.548
Percent difference		-44.3%
Estimated annual cost		-\$2,647,247
Cash program check losses		
Excessive recipient authorization	0.032	
Excessive redemption credit	0.000	
Production and handling loss	0.000	
Lost or stolen benefits	0.153	
Benefits used in an unintended manner	NA	
Total	0.185	\$0.470
Cash program EBT losses		
Excessive recipient authorization	0.015	
Excessive redemption credit	0.000	
Production and handling loss	0.000	
Lost or stolen benefits	0.032	
Benefits used in an unintended manner	NA	
Total	0.047	\$0.119
EBT - check difference	-0.138	-\$0.351
Percent difference		-74.7%
Estimated annual cost		-\$481,212

Under the Maryland EBT system, estimated cash program losses decrease by nearly 75 percent, from \$0.470 to \$0.119 per case month. This estimated reduction represents potential annual savings of about \$480,000 in lost cash program benefits.

For the Food Stamp Program, estimated loss and diversion rates decreased in four of the five vulnerability categories analyzed in this chapter. The largest food stamp effect was estimated for benefit diversions, which decreased from 1.922 to 0.537 percent of food stamp benefits under the Maryland EBT system. Much of this effect resulted from the elimination of cash change in the electronic system, although a lower EBT diversion rate also was estimated for food stamp trafficking. Lower estimated rates of benefit diversion account for about 38 percent of the overall EBT effect on estimated Food Stamp Program loss and diversion.

Another important factor in the difference between food stamp coupon and EBT loss and diversion rates is the estimated reduction in vulnerabilities associated with lost or stolen benefits. Although lower EBT estimates of losses due to grocer overcharges account for much of this result, estimated losses associated with unauthorized access to client food stamp accounts on the EBT system are also smaller than comparable coupon losses. About 36 percent of the overall food stamp result is due to lower estimates of lost and stolen benefits under the Maryland EBT system.

The elimination of paper system losses associated with delivery by mail of coupons contributed to lower estimates of excessive recipient authorizations under the Maryland EBT system, although the electronic system introduced new vulnerabilities in the form of erroneous credits to client accounts and duplicate issuance posting. Estimated loss associated with excess recipient authorization is lower by nearly 96 percent under the Maryland EBT system, which accounts for about 14 percent of the overall food stamp result.

Cash program vulnerabilities registered non-zero loss rates in only two categories: excessive recipient authorization and lost or stolen benefits. Estimated rates of lost and stolen cash benefits decrease by nearly 80 percent (from 0.153 to 0.032 percent of benefits) under the Maryland EBT system, due to the elimination of lost or stolen cash program checks. Similarly, the elimination of mail losses under the Maryland EBT system contributes to a roughly 50 percent reduction in estimated losses (from 0.032 to 0.015 percent of benefits) associated with excessive recipient authorization.

Agency Losses

As explained throughout this chapter, some but not all losses add directly to agency costs. Exhibit 5.7 presents estimates of agency loss rates under paper and EBT systems of food stamp and cash program benefit delivery in Maryland.

Estimated Food Stamp Program losses are greatly reduced under the EBT system in Maryland, from approximately 0.145 percent to 0.005 percent of benefits issued. This estimated reduction in agency losses results in potential annual savings of about \$460,000, or \$0.270 per case month.

Nearly the entire reduction in agency losses to the Food Stamp Program results from vulnerabilities associated with excessive recipient authorization. The use of the EBT system in Maryland eliminates coupon mail losses and fraudulently transacted ATP documents while adding excessive authorization losses of only 0.005 percent of benefits issued. The added agency losses under the EBT system account for losses associated with double issuance posting.

Estimated production and handling agency losses to the Food Stamp Program are entirely eliminated under the Maryland EBT system. The use of EBT eliminates estimated coupon agency losses due to production, shipping, or handling losses, unreconciled issuance losses, and recycled coupons.

Estimated agency losses to cash programs actually increase under the Maryland EBT system, from 0.001 to 0.015 percent of benefits. Erroneous EBT credits that result in excessive recipient authorizations are the source of this estimated increase, which represents about \$48,000 in increased annual cash program costs. In terms of issuance costs, estimated losses in the EBT delivery of cash program benefits increase agency costs by \$0.035 per case month.

The reason for this increase in agency costs is that vulnerabilities that increased recipient costs under the paper system have been transferred to program agencies. Mail losses of paper checks, for example, are eliminated under the Maryland EBT system, most of these losses were incurred by participants. Mail losses added only about 0.001 percent of benefits to cash program costs (the portion of total mail losses that were indemnified to retailers, banks, and check cashing agents). The unindemnified portion, or the amount that is not reimbursed for cashing fraudulent checks, increases the costs of these stakeholder groups.

Under the Maryland EBT system, excess recipient authorization losses in cash programs are not passed on to stakeholders. The vulnerabilities associated with excess recipient

EXHIBIT 5.7

SUMMARY OF AGENCY LOSS RATES

	Percent of Benefits	Dollars per Case Month
Food stamp coupon losses		
Excessive recipient authorization	0.117	
Excessive redemption credit	0.000	
Production and handling loss	0.028	
Lost or stolen benefits	0.000	
Total	0.145	\$0.280
Food stamp EBT losses		
Excessive recipient authorization	0.005	
Excessive redemption credit	0.000	
Production and handling loss	0.000	
Lost or stolen benefits	0.000	
Total	0.005	\$0.010
EBT - coupon difference	-0.140	-\$0.270
Percent difference		-96.4%
Estimated annual cost		-\$461,729
Cash program check losses		
Excessive recipient authorization	0.001	
Excessive redemption credit	0.000	
Production and handling loss	0.000	
Lost or stolen benefits	0.000	
Total	0.001	\$0.003
Cash program EBT losses		
Excessive recipient authorization	0.015	
Excessive redemption credit	0.000	
Production and handling loss	0.000	
Lost or stolen benefits	0.000	
Total	0.015	\$0.038
EBT - check difference	0.014	\$0.035
Percent difference		1166.7%
Estimated annual cost		\$47,985

authorizations under the Maryland EBT system—ATM misdispenses, DHR employee fraud, and processing errors—are all assumed to add to agency costs because they are not caused by participant actions.²⁰ Although some part of this total could be ultimately recovered, as could a portion of agency losses in the paper check system, we do not consider amounts potentially recouped or re-presented because of a lack of reported data on recoupment rates for these types of activities. Overall recoupment rates for errors in the paper check system can be estimated, but these rates reflect amounts recovered from activities that are not included in this analysis, such as certification fraud.

Stakeholder Losses

Losses incurred by program stakeholders are smaller under EBT benefit delivery in Maryland, according to estimates of stakeholder loss rates. Estimated food stamp stakeholder losses to program recipients, food retailers, and financial institutions decrease by about 37 percent under the Maryland EBT system (from 0.741 percent to 0.465 percent of benefits), as shown in Exhibit 5.8. This estimated result suggests potential stakeholder cost savings of about \$913,000 annually, or \$0.534 per case month.

Lost and stolen food stamp benefits under the EBT system in Maryland represent the biggest source of the decrease in estimated stakeholder losses. Stakeholder losses from this vulnerability decrease from 0.730 percent of coupon benefits to 0.443 percent of food stamp benefits in the EBT system.

Cash program stakeholders benefit from reduced losses under the Maryland EBT system as well. Estimated stakeholder loss rates decrease by about 83 percent under EBT benefit delivery in Maryland (from 0.184 percent to 0.032 percent of benefits). These reduced loss estimates represent about \$531,000 in annual cost savings to program recipients, retailers, and financial institutions.

As with food stamp benefits, reduced estimates of lost or stolen benefits account for the majority of the reduction in estimated stakeholder losses. Stakeholder losses due to lost or stolen cash benefits decrease from 0.153 to 0.032 percent of cash benefits under the Maryland EBT

20. It could be argued that some of these vulnerabilities, such as processing errors, should be incurred by the system processor. We consider these agency losses, however, because program agencies ultimately pay for the cost of these losses in the form of higher fees.

EXHIBIT 5.8

SUMMARY OF STAKEHOLDER LOSS RATES

	Percent of Benefits	Dollars per Case Month
Food stamp coupon losses		
Excessive recipient authorization	0.002	
Excessive redemption credit	0.008	
Production and handling loss	0.001	
Lost or stolen benefits	0.730	
Total	0.741	\$1.432
Food stamp EBT losses		
Excessive recipient authorization	0.002	
Excessive redemption credit	0.019	
Production and handling loss	0.001	
Lost or stolen benefits	0.443	
Total	0.465	\$0.898
EBT - coupon difference	-0.276	-\$0.534
Percent difference		-37.3%
Estimated annual cost		-\$913,198
Cash program check losses		
Excessive recipient authorization	0.031	
Excessive redemption credit	0.000	
Production and handling loss	0.000	
Lost or stolen benefits	0.153	
Total	0.184	\$0.468
Cash program EBT losses		
Excessive recipient authorization	0.000	
Excessive redemption credit	0.000	
Production and handling loss	0.000	
Lost or stolen benefits	0.032	
Total	0.032	\$0.081
EBT - check difference	-0.152	-\$0.387
Percent difference		-82.7%
Estimated annual cost		-\$530,572

system. This estimated decrease in lost or stolen benefits represents nearly 80 percent of the overall decrease in cash program stakeholder losses. The remaining portion of the overall result is due to stakeholder losses associated with excessive authorizations that are eliminated in the Maryland EBT system.

Benefit Diversion

Benefit diversion results only from the vulnerabilities described in Section 5.6—Benefits Used in an Unintended Manner. The EBT system in Maryland reduces estimated food stamp diversions by about 42 percent, from 0.922 to 0.537 percent of food stamp benefits. The main source of reduction is the electronic system's elimination of cash change. Benefit diversions are not applicable to the programs that issue cash benefits through the EBT system because, unlike the Food Stamp Program, cash programs do not restrict the use of cash benefits to specific purchases.

Comparison of Agency Loss, Stakeholder Loss, and Benefit Diversion

Benefit diversion accounts for roughly one-half of total food stamp benefit loss and diversion in both the coupon and EBT systems in Maryland, as shown in Exhibit 5.9. Estimated stakeholder loss, the second largest category, increases slightly from about 41 percent of total coupon loss and diversion to about 46 percent of the EBT total. Agency losses, which comprise less than 10 percent of coupon losses and diversions, are nearly eliminated in the Maryland EBT system.

Estimated agency loss rates increase from less than one percent of total agency losses in cash programs to about one-third of the EBT total. Conversely, stakeholder loss estimates decrease from nearly all to two-thirds of estimated total agency loss in cash programs.

Comparison with Other Evaluation Results

The EBT system in Maryland has a smaller effect on estimated food stamp benefit loss and diversion rates than was found in evaluations of the New Mexico and Ramsey County EBT systems. As shown in Exhibit 5.10, estimated food stamp loss and diversion rates decreased by only 44 percent under the Maryland EBT system, compared with 75-80 percent reductions

EXHIBIT 5.9

SUMMARY OF COMPONENT MEASURES OF
BENEFIT LOSS AND DIVERSION

	Percent of Benefits	Dollars per Case Month
Food stamp coupon losses		
Agency loss	0.145	
Stakeholder loss	0.741	
Benefit diversion	0.922	
Total	1.808	\$3.493
Food stamp EBT losses		
Agency loss	0.005	
Stakeholder loss	0.465	
Benefit diversion	0.537	
Total	1.007	\$1.945
EBT - coupon difference	-0.801	-\$1.548
Percent difference		-44.3%
Estimated annual cost		-\$2,647,247
Cash program check losses		
Agency loss	0.001	
Stakeholder loss	0.184	
Benefit diversion	NA	
Total	0.185	\$0.470
Cash program EBT losses		
Agency loss	0.015	
Stakeholder loss	0.032	
Benefit diversion	NA	
Total	0.047	\$0.119
EBT - check difference	0.138	-\$0.351
Percent difference		-74.7%
Estimated annual cost		-\$481,217

estimated in Ramsey County and New Mexico. The evaluation of these two systems estimated loss and diversion rates in the Food Stamp Program only.

Part of the difference in the cross-site results is due to the lower rates of coupon loss and diversion that were estimated in Maryland, most notably for vulnerabilities associated with excessive recipient authorizations. Much of this difference can be explained by the smaller percentage of food stamp recipients that received mail issuance in Maryland relative to the other two sites. Mail issuance, which is subject to high loss rates, was used to issue coupons to all

EXHIBIT 5.10

SUMMARY OF COMPONENT MEASURES OF BENEFIT
LOSS AND DIVERSION AMONG EBT SYSTEMS

	Maryland	New Mexico	Ramsey County
Food stamp coupon losses			
Excessive recipient authorization	0.119%	0.780%	0.750%
Inaccurate redemption credit	0.008%	0.010%	0.010%
Production and handling loss	0.029%	0.020%	0.020%
Lost or stolen benefits	0.730%	0.500%	1.300%
Benefits used in an unintended manner	0.922%	1.100%	1.100%
Total	1.808%	2.400%	3.180%
\$ per case month	\$3.49	\$4.37	\$5.29
Food stamp EBT losses			
Excessive recipient authorization	0.007%	0.030%	0.100%
Inaccurate redemption credit	0.019%	0.040%	0.040%
Production and handling loss	0.001%	0.010%	0.010%
Lost or stolen benefits	0.443%	0.160%	0.100%
Benefits used in an unintended manner	0.537%	0.370%	0.370%
Total	1.007%	0.600%	0.610%
\$ per case month	\$1.95	\$1.09	\$1.01
EBT - coupon percentage difference	-0.801	-0.800	2.570
EBT - coupon dollars per case month difference	-\$1.55	-\$3.28	-\$4.28
Percent reduction in dollars per case month	-44.3%	-75.1%	-80.9%

participating households in Ramsey County and New Mexico. In Maryland, where only 22 percent of the households received mail issuance, mail loss rates were small relative to the total amount of food stamp benefits issued. If the mail loss rates in Ramsey County or New Mexico were applied in Maryland, overall Maryland coupon loss estimates would be roughly comparable to estimated coupon loss in the other two sites.

Estimated EBT loss and diversion rates are about 65 percent higher in Maryland relative to the other two sites. Estimated EBT losses and diversions associated with lost or stolen benefits and benefits used in an unintended manner account for most of the higher Maryland results. The estimated rate of lost or stolen EBT benefits in Maryland is three to four times higher than comparable estimates for Ramsey County and New Mexico, even though the estimates for all three sites were based on information provided by program recipients. We

know of no system feature or reported problems that would suggest the rates of lost or stolen benefits in Maryland should be any different from what was estimated in other sites.

The rate of benefit diversion that was estimated for the Maryland EBT system is also higher than was measured in the other two sites. This difference can be explained by the higher rate of EBT trafficking that was estimated in Maryland. Expert respondents interviewed for the benefit loss analysis of the Ramsey County and New Mexico EBT systems estimated a 50 percent reduction in food stamp trafficking activity. Estimated trafficking rates in Maryland were 10 percent lower under the EBT system. These different estimates do not reflect differences in the EBT systems, but in the expert respondents' view of people's long-term response to EBT.

Estimated agency and stakeholder losses and benefit diversions decreased after implementation of EBT systems in all three sites, as shown in Exhibit 5.11. Benefit diversions represent the largest source of total loss and diversion in the Maryland and New Mexico coupon systems. Stakeholder coupon losses are largest in Ramsey County, followed by Maryland and New Mexico. Agency coupon losses are the smallest component of total estimated losses and diversions in two of the three sites (Maryland and Ramsey County).

With respect to estimated EBT loss rates, a relatively consistent pattern of decline exists across the three sites. Estimated agency losses are almost eliminated under EBT benefit delivery, most notably in New Mexico and Ramsey County, where high coupon program losses were measured (due to mail losses). Stakeholder loss estimates also decrease under the EBT systems, although by a much greater rate in Ramsey County than in Maryland or New Mexico. High coupon stakeholder loss estimates in Ramsey County, as reported by food stamp recipients, contribute to the magnitude of the reduction. Estimated reductions in rates of benefit diversion are greater in New Mexico and Ramsey County in part because of differences in coupon trafficking estimates.

EXHIBIT 5.11

**SUMMARY OF AGENCY AND STAKEHOLDER
LOSS AND BENEFIT DIVERSION AMONG EBT SYSTEMS**

	Maryland	New Mexico	Ramsey County
Food stamp coupon losses			
Agency loss	0.145%	0.790%	0.760%
Stakeholder loss	0.741%	0.510%	1.320%
Benefit diversion	0.922%	1.100%	1.100%
Total	1.808%	2.400%	3.180%
\$ per case month	\$3.49	\$4.37	\$5.29
Food stamp EBT losses			
Agency loss	0.005%	0.040%	0.050%
Stakeholder loss	0.465%	0.190%	0.190%
Benefit diversion	0.537%	0.370%	0.370%
Total	1.007%	0.600%	0.610%
\$ per case month	\$1.95	\$1.09	\$1.01
EBT - coupon percentage difference	-0.801	-0.800	-2.570
EBT - coupon dollars per case month difference	-\$1.55	-\$3.28	-\$4.28
Percent reduction in dollars per case month	-44.3%	-75.1%	-80.9%

CHAPTER SIX

SYSTEM STARTUP COSTS

Prior to the expansion of the Maryland EBT demonstration, the Maryland Department of Human Resources (DHR) operated a pilot EBT system in the Park Circle district of Baltimore. The system designer and processor for the pilot was ACS/TransFirst. In September 1991, Deluxe Data Systems entered into a contract with DHR to assume EBT processing responsibilities and to expand the system to statewide operations.¹ This chapter examines the costs incurred by Deluxe Data Systems and by local, state and federal officials to convert from TransFirst to Deluxe operations and to expand the system statewide.

6.1 INTRODUCTION

The basic research question addressed in this chapter is, "How much did it cost to convert from TransFirst to Deluxe operations and to expand to statewide operations?" Inasmuch as Deluxe Data Systems had to design and develop their EBT system software before conversion could take place, the costs analyzed in this chapter are essentially those of designing, developing and implementing a statewide EBT system.

Data Sources

The primary data sources for the analysis of startup costs are the cost reports prepared by Deluxe Data Systems and field interviews with federal, state and local staff. To collect information on startup activities and costs, the evaluation team interviewed DHR and federal staff involved with implementation of the Deluxe EBT system (Deluxe staff also were interviewed, but only for process information). In addition, interviews were conducted with lead staff at a sample of local DSS offices in nine counties. In these interviews, respondents were asked to estimate the level of effort by type of worker for each of a standard set of conversion

1. A full description of events leading up to the contract with Deluxe Data Systems, as well as tasks required to convert to Deluxe operations and to expand the system statewide, is contained in Hargreaves and Elwood, *Evaluation of the Expanded EBT Demonstration, Volume 1*, May 1994.

and expansion activities. The local costs reported in this chapter are estimated from the startup costs identified in the sample offices by applying weights based on these offices' caseloads.

We present the vendor costs with more uncertainty than resource costs gathered directly by the evaluation team, because Deluxe's resource cost reports include an unknown loading for profit. The vendor's startup costs were not directly billed, so we present the full resource costs (including profit factor) reported by Deluxe.²

We note that, while Deluxe Data Systems did not bill DHR directly for conversion or expansion activities, their bills for ongoing system operations presumably include a factor for recovery of their initial investment. Because these billed costs are included in the analysis of administrative costs in Chapter Two, one has to be careful not to double-count the vendor costs reported here. They are included because they represent a large portion of the resources needed to implement the Maryland EBT system. *They do not, however, represent costs that had to be paid by state or federal authorities at the time of conversion and expansion.*

Highlights

The total cost to convert system operations from ACS/TransFirst operations to the Deluxe system was approximately \$2.79 million, most of which (\$2.40 million) represents system design and development work by the vendor. The total cost of expansion was \$8.01 million, of which the largest costs were for training recipients and equipping and training retailers. Combining the two phases, the total startup cost for the expanded Maryland EBT system was \$10.80 million. On a per-case basis, local expansion costs were 60 percent higher in non-metropolitan offices than in metropolitan offices.

6.2 RESOURCE COSTS FOR SYSTEM STARTUP

The analysis separates startup costs into two distinct phases, in terms of work to be performed: conversion and expansion. Temporally, however, the phases overlap. The conversion phase began in September 1991 with the signing of the contract between DHR and

2. This approach differs from the analysis of operational administrative costs presented in Chapter Two. For operational costs under the EBT system, we used Deluxe's actual billed costs to represent the magnitude of

Deluxe Data Systems. This phase ended with the actual conversion to the Deluxe system in July 1992. The expansion phase began in January 1992 when Cecil County was brought onto the system (which was still being operated by ACS/TransFirst under contract to Deluxe Data Systems). The expansion phase continued until the end of April 1993, when all counties were on the Deluxe EBT system.

During both the conversion and expansion phases, the EBT system was "live," providing benefits first to the pilot caseload and then to recipients in a growing number of counties and districts within Baltimore. Operations costs, such as the cost of processing transactions, were incurred during this period. These costs are excluded from the analyses reported below. However, "shake-down" costs associated with the transition from startup to operations (which required additional effort as new procedures were adopted and fine-tuned) are included as one-time startup costs.

Conversion Costs

Conversion costs incurred by federal, state and local office staff and by the system vendor are presented in Exhibit 6.1. The total cost of conversion was \$2.79 million. Most of this cost, \$2.42 million, was expended by Deluxe Data Systems, primarily for system design, development, and testing.

The major non-vendor costs were management expenses at the federal, state and local levels. State and federal staff had an oversight role in the extensive pre-conversion tests of the newly developed system. For the offices that were placed on the TransFirst EBT system and then converted to the Deluxe system, state and local office management staff had to plan conversion activities, disseminate information about changes to the system, and help local staff learn how to use the new system. (Access to the new system for administrative functions, while more flexible and powerful than with the old system, was also more complex. Local staff needed training on how to use the new EBT software on their administrative terminals.)

Expansion Costs

Expansion costs were much greater than conversion costs, primarily because this phase included the very labor-intensive processes of training recipients, retailers, and DHR staff, and installing POS terminals at over 3,000 retailer locations.

EXHIBIT 6.1
CONVERSION COSTS

	Total Cost, All Programs
<i>Federal costs</i>	
Management	\$43,112
Total	43,112
<i>State costs</i>	
Management	090,453
Recipient interface ^a	1,622
Retailer interface ^b	0
DHR staff interface ^c	11,353
System development	78,047
Total	181,475
<i>Local costs</i>	
Management	104,468
Recipient interface ^a	0
Retailer interface ^b	0
DHR staff interface ^c	23,795
System development	21,170
Total	149,433
<i>Vendor costs</i>	
Management	22,000
Recipient interface ^a	0
Retailer interface ^b	0
DHR staff interface ^c	0
System development	2,397,153
Total	2,419,153
<i>Grand total</i>	\$2,793,173

^a Includes recipient training, answering questions, etc.

^b Includes installing POS terminals, retailer training, etc.

^c Includes staff training.

Over half of the \$8.01 million expansion cost was incurred by the vendor, as shown in Exhibit 6.2. Vendor costs mostly fell into three categories: retailer interface, recipient interface, and management. The \$1.81 million spent on retailer interface included recruiting and training retailers, and installing POS terminals and telecommunications links to the Deluxe processing center. Deluxe spent \$1.58 million on recipient training and related interface costs, including the trainers' pay, rent for training space, and postage to send notices to all recipients.

Vendor management, which cost \$1.10 million, was performed by project management staff in Wisconsin and field staff in Maryland coordinating the expansion activities.

EXHIBIT 6.2
EXPANSION COSTS

	Total Cost, All Programs
Federal costs	
Management	\$43,758
Total	43,758
State costs	
Shakedown ^a	12,127
Management	151,748
Recipient interface ^b	61,526
Retailer interface ^c	5,882
DHR staff interface ^d	372,557
System development	89,675
Total	693,515
Local costs	
Shakedown ^a	388,149
Management	406,358
Recipient interface ^b	1,035,071
Retailer interface ^c	106
DHR staff interface ^d	759,296
System development	61,424
Total	2,650,404
Vendor costs	
Management	1,097,686
Recipient interface ^b	1,581,461
Retailer interface ^c	1,810,705
DHR staff interface ^d	131,212
System development	0
Total	4,621,064
Grand total	\$8,008,741

^a Includes extra effort to implement and refine procedures.

^b Includes recipient training, answering questions, etc.

^c Includes installing POS terminals, retailer training, etc.

^d Includes staff training.

About a third of the expansion cost, \$2.65 million, was incurred at the local DSS level. Much of this expenditure was related to training clients and staff. The \$1.04 million local recipient interface cost included training recipients and answering client questions about the new

system. On average, Deluxe trained about 60 percent of the existing caseload. The 40 percent of recipients who missed the Deluxe training sessions, plus all recipients who began receiving benefits less than two months before the "go live" date in each office, were trained by the local DSS staff. Local EBT trainers generally had trained all of these recipients within two months after the end of Deluxe training.

Another major cost for the local DSS staff and for the state DHR staff was the time that these groups spent in training, which is included in "DHR staff interface" in Exhibit 6.2. Management, which included both planning and problem-solving activities, also took a substantial share of the expansion resources at both the state and local levels, as did the shakedown of state and local operations.

Total Resource Costs

Considering both phases together, the \$10.80 million total startup cost can be divided among six major groups of activities, as presented in Exhibit 6.3. Four of the activities account for almost 85 percent of the startup costs. Recipient interface and systems-related activities are the largest expenses, at 24.5 and 24.2 percent of the total, respectively. Management activities accounted for 19.1 percent of total startup costs, while 16.2 percent of the cost was for retailer interface.

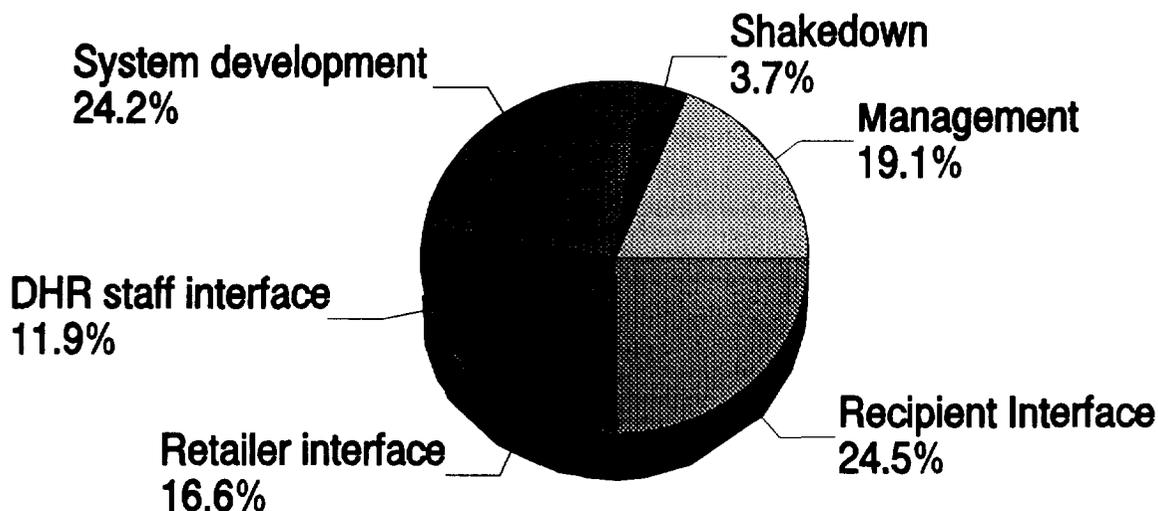
Exhibit 6.4 breaks out the total startup costs among the four agencies that incurred the costs. The vendor incurred almost two-thirds of the total startup costs, with the largest vendor cost being system design and development. Over a quarter of the total startup costs were incurred at the local level, primarily for recipient training and staff training.

6.3 STARTUP COSTS BY PROGRAM

Exhibit 6.5 presents each program's share of the total costs for each phase and the combined total startup cost, using the duplicated caseload for May to September 1993 (used in

Exhibit 6-3

Components of Total Startup Cost



Chapter Two) as the basis for allocation. The shares of total cost range from \$6.15 million for the Food Stamp Program to just \$168,000 for NPA Child Support.³

6.4 METROPOLITAN VERSUS NON-METROPOLITAN LOCAL EXPANSION COSTS

Previous EBT demonstrations have been confined to urban pilot areas with relatively large local offices. In a statewide system such as Maryland's, EBT must also be implemented in smaller, more remote offices. It might be expected that implementation would be less efficient in such locations if training sessions for recipients and staff are smaller.

3. This method aggregates all costs and allocates them among the programs by caseload. NPA Child Support costs would be higher if the local labor costs were charged directly to the program. The food stamp share of expansion costs may be understated, since most retailer activity is food stamp-related.

EXHIBIT 6.4

MARYLAND EXPANDED EBT SYSTEM STARTUP COSTS

	Total Cost, All Programs
Federal costs	
Management	\$86,870
Total	86,870
State costs	
Shakedown ^a	12,127
Management	242,201
Recipient interface ^b	63,148
Retailer interface ^c	5,882
DHR staff interface ^d	383,910
System development	167,722
Total	874,990
Local costs	
Shakedown ^a	388,149
Management	510,826
Recipient interface ^b	1,035,071
Retailer interface ^c	106
DHR staff interface ^d	783,091
System development	82,594
Total	2,799,837
Vendor costs	
Management	1,119,686
Recipient interface ^b	1,581,461
Retailer interface ^c	1,810,705
DHR staff interface ^d	131,212
System development	2,397,153
Total	7,040,217
Grand total	\$10,801,914

^a Includes extra effort to implement and refine procedures.

^b Includes recipient training, answering questions, etc.

^c Includes installing POS terminals, retailer training, etc.

^d Includes staff training.

EXHIBIT 6.5
STARTUP COST BY PROGRAM

	All Programs	Food Stamps	AFDC	Bonus Child Support	DALP/PAA	NPA Child Support
Conversion cost	\$2,793,173	\$1,550,299	\$830,547	\$143,101	\$226,922	\$42,305
Expansion cost	8,008,741	4,445,102	2,381,392	410,306	650,642	121,299
Total cost	10,801,914	5,995,401	3,211,939	553,407	877,564	163,603

The evidence from Maryland supports this hypothesis. Exhibit 6.6 breaks down the estimated local-level expansion⁴ costs—which amounted to 33 percent of the total cost for this phase—between the metropolitan and non-metropolitan portions of the state. (There are a total of 15 metropolitan and nine non-metropolitan counties in Maryland; the estimates are based on data from the six metropolitan and three non-metropolitan counties where startup cost data were collected for this evaluation.) In addition to total local expansion costs by task for each group, the cost per case (based on duplicated case counts, as in Chapter Two) is presented as a more meaningful basis for comparison.⁵

Local-level expansion costs were substantially higher on a per-case basis in the non-metropolitan counties at \$15.776 per case, compared with \$9.948 per case in the metropolitan counties. The greatest contributor to this \$5.828 per case difference is the \$2.728 per case difference in recipient interface costs. This difference appears to reflect smaller training group

4. Conversion costs were incurred in the metropolitan counties that were initially placed on the TransFirst EBT system. All non-metropolitan counties were added after conversion to the Deluxe EBT system, so none of these counties had conversion costs. Accordingly, conversion costs are excluded from the metropolitan/non-metropolitan comparison.

5. The cost per case represents the average investment of resources—over the entire phase—per existing assistance unit. This measure differs from the cost per case month used in Chapter Two, which relates costs to caseload in an average month. While costs other than the actual recipient interface expenses do benefit households added later to the EBT system, it is simpler and clearer to divide all costs by the same caseload, rather than try to amortize some costs with longer-term benefits (such as staff training and shake-down) over the long-term flow of recipients.

EXHIBIT 6.6
LOCAL EXPANSION COSTS:
METROPOLITAN VERSUS NON-METROPOLITAN

	Expansion Cost	Total Cost per Case
<i>Metropolitan</i>		
Shakedown ^a	\$388,149	\$1.643
Management	332,706	1.408
Recipient interface ^b	900,708	3.813
Retailer interface ^c	0	0.000
DHR staff interface ^d	653,358	2.766
System development	51,433	0.218
Total	2,326,354	9.848
<i>Non-Metropolitan</i>		
Shakedown ^a	0	0.000
Management	73,652	3.586
Recipient interface ^b	134,362	6.541
Retailer interface ^c	106	0.005
DHR staff interface ^d	105,938	5.157
System development	9,991	0.486
Total	324,049	15.776

^a Includes extra effort to implement and refine procedures.

^b Includes recipient training, answering questions, etc.

^c Local area retailer interface was limited to as-needed liaison.

^d Includes staff training.

sizes. The proportion of cases trained by Deluxe was basically the same in metropolitan and non-metropolitan counties (about 59 percent overall), so variation in the number of cases left to be trained by the local DSS was not a factor in the local expansion cost difference.

DHR staff interface costs (primarily for local staff training) were \$2.391 per case higher in the non-metropolitan offices; this difference, too, probably reflects the smaller caseloads in the non-metropolitan offices. Each county presumably needed a certain minimum number of

workers trained to perform key EBT functions, regardless of how many cases would need those workers to perform those functions.

The data in Exhibit 6.6 should be interpreted with caution and not over-generalized. Given the small size of the sample, especially for the non-metropolitan counties, the estimates may be distorted by unusually high or low costs in a single county. Moreover, the non-metropolitan counties only account for 12 percent of all local expansion costs, so the higher costs in these areas did not greatly affect the overall total.

6.5 COMPARISON OF STARTUP COSTS: MARYLAND AND STATE-INITIATED EBT DEMONSTRATIONS

While the Maryland EBT demonstration involves more than eight times the number of cases than the previous state-initiated EBT demonstrations, the startup activities in these three demonstrations were largely the same. A new EBT system was designed, developed, tested, and implemented in all three sites. The major activities of the expansion phase in Maryland—retailer training, POS installation, card issuance and recipient training—were performed during the "implementation" phases of the state-initiated demonstrations. While the Deluxe EBT system design was based on the functionality of the TransFirst EBT system, the vendor still had to accomplish the same basic tasks during the conversion phase as did the system vendors in Ramsey County and New Mexico during those sites' "design and development" phases. These vendors, too, built on existing systems: the first-generation EBT system that supported the initial cash-only pilot in Ramsey County, and the electronic banking systems operated by the New Mexico vendor for its private customers.

As one would expect, total startup costs for the Maryland EBT system far exceeded those of the state-initiated EBT systems (see Exhibit 6.7). The relatively modest startup costs of \$1.6 to \$2.1 million for the state-initiated EBT systems (inflated to 1993 dollars for comparison) reflect the much smaller size of these pilot sites. To compensate for this difference in size, each system's startup cost per case (total startup costs divided by the average monthly steady-state caseload) is shown.

Using this approach, the Maryland startup cost was \$42 per case, substantially less than the \$53 per case cost in New Mexico and the \$68 per case cost in Ramsey County. The principal reason for this cost difference was that, on a per-case basis, conversion costs in

EXHIBIT 6.7
STARTUP COSTS FOR MARYLAND, RAMSEY COUNTY
AND NEW MEXICO

	Total Cost	Caseload	Cost per Case
Maryland	\$10,801,914	256,758	\$42
New Mexico ^a	1,604,939	30,158	53
Ramsey County ^a	2,110,698	30,858	68

^a Ramsey County and New Mexico costs are inflated to 1993 dollars. FNS costs for these demonstrations, which were measured jointly and therefore cannot be assigned individually, are not included.

Maryland were less than half of the comparable design and development costs in the other sites: \$11 per case, compared with \$31 per case in New Mexico and \$46 per case in Ramsey County. Thus, even though the total conversion cost of \$2.8 million in Maryland was much greater than the comparable totals in the other sites, the greater caseload in Maryland more than made up for this difference, providing evidence that there are substantial economies of scale in these activities.

On the other hand, the expansion costs of \$31 per case in Maryland were substantially higher than the \$22-23 per case implementation cost in New Mexico and Ramsey County. (As noted earlier, the implementation phase in the state-initiated EBT demonstrations included the same retailer, recipient, and staff interface activities that were performed during expansion in Maryland). The available data do not provide a clear basis to explain this difference in expansion costs, but the geographic spread and diversity of the Maryland site is likely to be a factor. If local office expansion costs were higher on a per-case basis in non-metropolitan areas, it is likely that the mass recipient training cost per case in those areas (part of the vendor cost) and state costs for staff training were also higher. Moreover, per-case implementation costs in the state-initiated EBT demonstrations may have been held down (relative to Maryland's per-case expansion costs) by more limited requirements for retailer and recipient interface. Ramsey County had already trained cash assistance recipients during the earlier cash-only pilot, the costs of which are not included in the total for the FNS-supported demonstration, and the New Mexico vendor did not have to equip the substantial number of retailers who chose to use third-party processors.

Taken together, the total and per-case startup costs from these three EBT demonstrations provide a range of values that are useful for planning future EBT projects, but they will not necessarily be replicated elsewhere. Just as a number of differences among these sites contribute to the variation in startup costs, it is likely that the particular approach, site characteristics, and parties involved in other EBT systems will lead to costs that differ from these three benchmarks.

6.6 CONCLUSION

At \$10.8 million, the resource cost of EBT system startup in Maryland was quite substantial. The largest part of this cost, however, was the \$7.0 million vendor cost, which was not billed to the State. As a result, the state and federal agencies had only \$3.8 million in direct expenditures. Local costs, as estimated for this study from interviews in selected offices, represented the largest share of these direct government expenditures, at \$2.8 million.

The interpretation of the \$7.0 million vendor resource cost depends on the perspective that is adopted. When considering the magnitude of the actual resources required for EBT system startup in Maryland, this figure must be included. Regardless of how the ultimate burden of paying for these resources is distributed, they were in fact consumed, and their cost is indicative of the level of effort that would be required to develop and implement a similar EBT system in a similar state. On the other hand, the unbilled vendor resource cost for startup should not be included in determining whether the system has yielded savings to taxpayers. As discussed in Chapter Two, the vendor's billings to DHR for operations may have recovered some startup costs. Whether this is the case or not, the only cost to the taxpayers for the vendor's services is the actual billing for operational costs, which is included in the total operational cost of \$3.85 per case month. It should also be noted that the vendor's investment of \$2.4 million in system development yielded a product that is presumably transferrable to other states, albeit at an unknown cost.

Although there is some uncertainty about the treatment of the startup costs, there is much to be learned from them. In particular, while EBT is seen as a major innovation in technology, the costs of startup are dominated by people-oriented activities such as training recipients, retailers, and staff, and managing the roll-out of a complex system. Systems design, development, and testing activities represent only one-quarter of the total startup cost.

The importance of recipient, retailer, and staff interface implies an upper bound to the economies of scale for startup. All of these major components of the startup costs are variable, depending largely on the numbers of retailers and recipients on the system. While there do appear to be scale economies in system development, this activity becomes less important as the scale increases. Over time, vendors' investments in EBT system development are likely to be spread over multiple sites, further reducing the influence of development costs in any one site. Instead of scale, differences in methods, site characteristics, and management are likely to be the prime factors in determining per-case startup costs.

CHAPTER SEVEN

OVERALL COST IMPACT

This report has examined the impacts of the Maryland EBT system on a number of factors affecting the federal and state governments' costs to issue benefits in the food stamp, cash assistance and child support programs. The resource inventory approach used for this report yields cost estimates that are independent of those resulting from federal and state procedures for accounting and sharing paper and EBT costs. To emphasize this distinction, the costs as measured by the evaluation are labeled as "resource costs." We note that reported EBT vendor operating costs are reported as billed to DHR to preserve the confidentiality of the vendors' resource costs.

The purpose of this final chapter is to pull the separate analyses together to assess the overall impact of the EBT system on program costs.

7.1 SYSTEM IMPACTS ON PROGRAM COSTS PER CASE MONTH

The Maryland EBT system has affected resource requirements and associated costs for the issuance and redemption of program benefits in the food stamp, cash benefit, and child support programs. Once implemented, the system affected each program's administrative costs, float on obligated benefits, and agency losses associated with benefit issuance and redemption. Before these impacts were realized, of course, the state and federal governments experienced costs in developing and implementing the system.¹

Putting aside for the moment the costs incurred in developing and implementing the demonstration EBT system, the top portion of Exhibit 7.1 shows, overall and by program, the components of issuance and redemption costs in the paper-based and EBT systems. The administrative cost and agency loss components require actual outlays of funds; float gain

1. In addition to these factors affecting costs, the Maryland system could have changed benefit outlays and overall administrative costs through effects on the size of program caseloads. As reported in Volume 3 of this final report, there is no evidence that the EBT system had any consistent effect on caseload size. See Beecroft *et al.*, *Evaluation of the Expanded EBT Demonstration, Volume 3*, Chapter Three.

represents an increase in interest dollars accruing to the government or a reduction in borrowing costs.²

EXHIBIT 7.1
PROGRAM COSTS
(dollars per case month)

	Total Caseload	Food Stamps	AFDC	Bonus Child Support	DALP/PAA	NPA Child Support
EBT						
Administrative costs	3.849	3.916	3.865	2.820	3.513	6.348
Float gain	-0.095	-0.075	-0.151	-0.023	-0.077	-0.096
Agency loss	0.022	0.010	0.048	0.007	0.024	0.030
Total	3.776	3.851	3.762	2.804	3.460	6.282
Paper						
Administrative costs	3.888	4.705	2.861	2.166	2.963	4.896
Float gain	-0.121	-0.157	-0.097	-0.015	-0.050	-0.062
Agency loss	0.157	0.280	0.003	0.000	0.002	0.002
Total	3.923	4.829	2.768	2.151	2.915	4.837
EBT impact						
Per case month	-0.147	-0.978	0.994	0.655	0.545	1.446
Annually	-453,845	-1,671,659	910,865	103,091	136,379	67,479

Note: EBT administrative costs are allocated across programs according to the evaluation's resource allocation method.

Except for the last row, each component in Exhibit 7.1 is expressed in dollars per case month. Positively signed entries represent costs to the federal or state governments. Float gain is always negative in the exhibit because, in each issuance system, a lag exists between the time that recipients receive their benefit "documents" (food stamp coupons and checks in the paper-based system, and electronic postings of benefits to accounts in the EBT system) and when funds are actually released to cover the benefit obligations. This lag increases the government's interest earnings or reduces its borrowing costs. Thus, float gain reduces overall government costs.

2. Benefit diversion in the Food Stamp Program is not considered in this analysis because it does not increase actual program expenditures. Instead, benefit diversion represents a different kind of cost—a reduction in funds going toward the program's intended purpose of providing better nutrition to needy families.

When administrative costs, float gain, and agency losses are summed, the total resource costs of the EBT system during the study period are \$3.776 per case month. EBT system costs are allocated according to the evaluation's resource allocation method. For paper-based issuance, total costs are \$3.923 per case month. The Maryland EBT system, therefore, *decreases* total costs by \$0.147 per case month. This 3.8 percent reduction yields resource savings of about \$454,000 annually, given the size of the Maryland food stamp and cash assistance caseloads.

The overall system savings arise from savings in the Food Stamp Program (FSP). The EBT system reduces total resource costs in the FSP by \$0.978 per case month, or \$1.67 million per year. Within each program issuing cash benefits, however, the EBT system increases total resource costs. As discussed in Chapter Five, agency losses are higher in the cash benefit programs under EBT than they were when checks were issued. Administrative costs are higher under EBT as well, due largely to ATM fees, EBT card issuance and training costs, and the relatively low costs of check issuance. On a per-case-month basis, the largest EBT impact within cash programs is the \$1.446 per-case-month increase in costs in the NPA Child Support (NPACS) program. With a far larger program caseload, however, the AFDC program incurs the largest annual dollar impact under EBT, an increase of \$910,865. Annual increases in the other cash benefit programs are much smaller, ranging from \$67,479 in NPACS (because relatively few NPACS participants in Baltimore chose to receive funds through the EBT system) to \$136,379 in the DALP/PAA programs.

The pattern of resource savings and losses across programs does not necessarily mean that a FSP-only system would be more advantageous to government agencies than the multi-program system actually implemented. If the Maryland EBT system had included just the FSP, system impacts within that program would have been different. For instance, because a food stamp-only system would be much smaller, the system vendor probably would have charged more per case to operate the system each month, as evidenced by the volume-based discounts in vendor fees. In addition, fixed or nearly fixed costs, such as settlement fees and the costs of administrative terminals, would have been spread over a smaller caseload. Card issuance and training costs, which are currently shared by the multiple programs for households receiving both food stamp and cash benefits, would have been borne entirely by the FSP. Finally, issuance operations within local offices probably would have been less efficient, owing to the

maintenance of multiple issuance systems. All of these factors would have increased per-case-month EBT costs in the FSP. As discussed in Volume 3 of this final report, a single-program system also would provide less benefit to system stakeholders—recipients, retailers and financial institutions—than a multi-program system.

7.2 MONTHLY SAVINGS VERSUS SYSTEM DEVELOPMENT AND IMPLEMENTATION COSTS

As discussed in Chapter Six, the estimated total resource cost to develop and implement the expanded EBT system in Maryland was \$10.80 million. Most of this cost (\$7.04 million) was incurred by Deluxe Data Systems and not billed directly to the Maryland DHR. Rather, the State compensates the vendor for all of its services—including system development, implementation, and operations—through fees for each case receiving benefits through the EBT system each month. Vendor resource costs for startup, therefore, are already included in the estimates of system impacts on administrative costs. The direct expenses incurred by the state and federal governments for system development and implementation total about \$3.76 million.

With \$3.76 million in direct startup costs, is the Maryland EBT system cost-competitive with the paper systems it replaces? The answer depends in part on what time period is deemed appropriate for repaying system startup costs. It also depends on how one measures monthly savings attributable to EBT. Previous EBT evaluations have focused primarily on system impacts on ongoing administrative costs. The EBT system's impacts on agency losses also can be considered, because they too affect total government outlays associated with program operations. Whether impacts on float gain should be considered depends on how wide a perspective one wishes to take regarding costs. As discussed in Chapter Four, the Maryland EBT system reduces gains in government float. These costs, however, represent lower interest earnings or increased borrowing charges at the federal and state treasuries. While such changes are not usually perceived as credits or charges to program accounts, they clearly arise in this situation from a change in how the programs issue benefits.

Exhibit 7.2 provides information on payback periods resulting from the use of different measures of monthly savings. The "payback period" is simply the time needed for monthly

savings to fully offset the initial state and federal investment required to realize the savings.³ For instance, if one looks just at the \$120,369 in annual savings in administrative costs observed during the study period (a 1 percent decrease relative to annual administrative costs with paper issuance), it would take 31.3 years to pay back the initial system cost of \$3.76 million.

EXHIBIT 7.2
ANNUAL SAVINGS AND PAYBACK PERIODS

Factors Included	Annual Costs
<i>Administrative costs</i>	
EBT	\$11,859,366
Paper	\$11,979,735
EBT savings	\$120,369
Percent change	-1.0%
Payback period	31.3 years
<i>Administrative costs plus agency losses</i>	
EBT	\$11,928,139
Paper	\$12,462,262
EBT savings	\$534,123
Percent change	-4.3%
Payback period	7.0 years
<i>Administrative costs plus agency losses plus float</i>	
EBT	\$11,634,068
Paper	\$12,087,913
EBT savings	\$453,845
Percent change	-3.8%
Payback period	8.3 years

Note: Excluding vendor costs, the direct expenses for system development and implementation were \$3,761,697.

3. This approach is somewhat simplistic, since it assumes that a dollar of future (real) savings is equivalent to a dollar of present expenditures. A more sophisticated net-present-value analysis, however, would require life-cycle cost data that are not available at this time.

As presented in Chapter Five, the EBT system reduces overall agency losses by \$413,754 per year. When these savings are added to the system's impacts on administrative costs, total savings increase to \$534,220 per year, a 4.3 percent reduction compared to costs under paper issuance. The impact on payback period is substantial, with a decline from 31.3 years to 7.0 years.

Adding in the EBT system's impact on float gain (a cost of \$80,294 per year, as presented in Chapter Four) yields net annual savings of \$453,845, a 3.8 percent reduction relative to paper issuance. The payback period increases somewhat, to 8.3 years.

7.3 CONCLUSIONS

Whether or not the Maryland EBT system is cost-competitive depends on what measure of annual savings is used and what is deemed an appropriate payback period. Looking at EBT-generated savings in total actual government outlays (i.e., EBT impacts on administrative costs, float, and agency losses), the payback period is 8.3 years.

Eight to nine years does not seem unreasonably long for an EBT system payback period. Government agencies have spent more than ten years investigating the promise of EBT as an alternative issuance method, and it seems unlikely that, if EBT were implemented on a broad scale, another issuance system would replace it before another ten years had elapsed. Under this assumption, the Maryland EBT system appears to be cost-competitive, even if the loss of float is considered.

A still broader question is whether the Maryland EBT system is *cost-effective*, i.e., whether it better serves program goals at the same or less cost than the paper system. While different stakeholders have different perspectives on how to assess cost-effectiveness, the Maryland system clearly has other beneficial impacts on program effectiveness, such as the reduction in benefit diversion within the FSP. In addition, as described in Volume 3 of the final report, large majorities of program recipients, retailers and financial institutions prefer the EBT system to paper issuance methods. These preferences presumably mean that the EBT system confers benefits that are not reflected in the calculus of cost-competitiveness.

The Maryland EBT system, therefore, can be characterized in the following ways. The system, which serves about 256,000 food stamp, cash assistance, and child support cases, was fairly costly to develop and implement. Federal agencies and the Maryland DHR spent \$3.76

million to convert from paper issuance to EBT. The system generated modest savings in administrative costs during the study period, about \$120,000 per year. Greater savings, about \$414,000 per year, are realized through reducing agency losses that occur during issuance and redemption. Offsetting these savings is an increase of about \$80,000 per year in float costs. Considering all these factors are considered together, it would take about 8.3 years to generate savings equal to government startup costs.

In addition to these considerations of costs borne by the state and federal governments, the EBT system reduces benefit diversion in the FSP by about \$1.3 million per year. It also enjoys solid support from nearly all parties to the benefit issuance and redemption process.

As it stands, the benefits of the Maryland EBT system appear to justify its initial costs. A changing environment could, however, affect this assessment either positively or negatively. On the negative side is the fact that in approximately three years all EBT systems will be covered by provisions of the Federal Reserve's Regulation E, which creates the legal framework of rights and responsibilities for providers of electronic funds transfer services and their customers. Among these are consumer rights to disclosure of terms and conditions, to receipts and periodic statements, to error resolution within specified time frames, and to limits on a customer's liability for unauthorized transfers from his or her account.

When EBT systems come under Regulation E coverage, system costs will increase by an unknown amount. Program benefit outlays will increase because state (and perhaps federal) agencies will be liable for that portion of alleged unauthorized transfers exceeding \$50. In addition, administrative costs can be expected to increase as state agencies process, investigate, and seek to limit reported losses.

On the other hand, other factors are likely to reduce future EBT costs. Most importantly, under its current six-year contract with the Maryland DHR, Deluxe Data Systems' monthly per-case billings for EBT services decline as certain thresholds in total numbers of cases ever served per program are reached. Some rates have already declined since the end of the study period. The rates in effect as of December 1993 would reduce the annual EBT costs presented in this report by about \$750,000, holding all other costs constant. By itself, this impact would reduce the payback period to a little over three years. In addition, as commercial usage of the Deluxe-deployed POS terminals increases, the State will realize increased credits

which will reduce net EBT operating costs.⁴ Finally, possible changes in program participation, technology, or pricing structures (especially when the current EBT contract expires) could cause system operating costs to increase or decrease.

The reduction in fees and increases in commercial usage can clearly generate very sizable reductions in EBT costs. These reductions will presumably be at least partially offset by the cost increases expected with Regulation E. Only time will tell whether the Maryland EBT system will remain a successful, cost-competitive alternative to the paper-based issuance systems it has replaced.

4. Commercial usage has already increased since the summer of 1993 when the evaluation's EBT cost data were collected.

APPENDIX A

**COST BILLING ARRANGEMENTS
IN THE MARYLAND EBT DEMONSTRATION**

This appendix provides details on two sets of cost billing arrangements in the Maryland EBT demonstration: the EBT Single Administrative Grant (EBTSAG) governing federal reimbursements, and the fee structure for compensating the vendor.

Federal-State Cost Sharing Under the EBTSAG

As noted in Chapter One, the EBTSAG was created to ensure that the Maryland EBT system would be cost-neutral to the Food Stamp, AFDC and Bonus Child Support (BCS) Programs. (NPA Child Support (NPACS) Program reimbursements remained under existing reimbursement rules.) As part of the Memorandum of Understanding authorizing the expanded demonstration, FNS and ACF agreed to fund a combined grant in lieu of separately reimbursing state EBT administrative costs for each program. Each federal agency's contribution to this grant was capped at its share of baseline (federal FY 1990) issuance costs under the paper system, adjusted annually for inflation and changes in caseloads. FNS' share of the EBTSAG was based on direct federal expenditures under the coupon system (e.g., for printing coupons) as well as reimbursements for DHR's coupon issuance costs (at the usual rate of 50 percent); the FNS costs added up 56 percent of total baseline coupon issuance costs. ACF's share was based solely on reimbursements of 50 percent of DHR's AFDC and BCS check issuance costs.

To claim reimbursement under the EBTSAG, DHR first aggregates all state, local and vendor costs for the EBT system, as recognized by its accounting system (including allocated portions of certain costs shared with the residual paper issuance system). Next, the total reported EBT cost is allocated by caseload across all programs, including DALP and NPACS, as well as the three programs covered by the EBTSAG. The federal shares of costs allocated to the EBTSAG programs (at the usual 50 percent rate) are then pooled and reallocated in proportion to each program's share of the total federal paper issuance cost (as determined for the 1990 federal fiscal year). If the EBT cost allocated to the EBTSAG programs exceeds the cap, DHR bears the excess, in addition to its usual 50 percent share of administrative costs. On

the other hand, while the federal EBTSAG funding represents more than 50 percent of paper system costs (because of the inclusion of FNS' direct expenditures in the cap), DHR can only claim a maximum of 50 percent of its EBT system administrative costs in reimbursements from the EBTSAG.

For each program covered by the EBTSAG, Exhibit A.1 shows the total baseline paper issuance cost, the maximum federal reimbursement, and the program's share of total federal funds available under the EBTSAG. The combined maximum federal reimbursement for all three programs is also shown. The paper issuance costs used in setting the EBTSAG caps differ from those reported by this evaluation. The state estimated the EBTSAG baseline costs for a different period using different data sources and measurement approaches. Unlike the evaluation, the EBTSAG relies exclusively on costs as measured by DHR and FNS accounting systems. Federal FY 1990 data were used as the baseline paper costs for the EBTSAG; the data used by the evaluation include state FY 1991 accounting records and time studies conducted during state FY 1992.

EXHIBIT A.1

SUMMARY OF EBTSAG PARAMETERS FOR 1993 FEDERAL FISCAL YEAR

	Food Stamps	AFDC	BCS	EBTSAG Total
Adjusted total paper issuance cost per case month	\$6.04	\$1.96	\$1.47	n.a.
Maximum federal issuance reimbursement per case month	\$3.60	\$1.00	\$0.75	n.a.
Total annual maximum federal issuance reimbursement (thousands)	\$5,731	\$822	\$103	\$6,656
Percent of EBTSAG costs allocated to program	85.1%	13.1%	1.8%	100%

In the 1993 federal fiscal year, DHR reported the total EBT cost for the EBTSAG programs at \$8.87 million, as shown in Exhibit A.2; the total reported EBT cost (including DALP and NPACS) was \$9.64 million. *These costs included both start-up and operations, since the expansion phase did not end until the middle of FY 1993.* Under the EBTSAG formula, DHR's share of total EBT costs for all programs was \$5.16 million. Considering all

federal programs (including NPACS), FNS paid \$3.77 million for Food Stamp Program costs and ACF paid a total of \$0.71 million, making the combined federal cost \$4.48 million.

EXHIBIT A.2

**FEDERAL FY 1993 REPORTED EBT COSTS
AS REPORTED FOR REIMBURSEMENT PURPOSES
(in thousands of dollars)**

	Food Stamps	AFDC	BCS	EBTSAG Total	DALP/ PAA	NPA Child Support	Grand Total
Total taxpayer cost	\$7,545	\$1,161	\$160	\$8,866	\$698	\$74	\$9,638
Federal share	3,772	581	78	4,433	N.A.	49	4,482
State share	3,772	581	78	4,433	698	25	5,155

Vendor Pricing Structure for Maryland EBT System

Under the contract between DHR and Deluxe Data Systems, the vendor's sole compensation is a set of flat monthly per-case fees for "active" and "inactive" cases. A case is active during a given month if it receives a new benefit authorization or draws against any remaining balance from an existing authorization. Thus, a case may be counted as active for billing purposes even if it is no longer counted as a participating case from the program perspective. An inactive case is one that is on the data base but has no authorization or withdrawal activity.

The Deluxe fee schedule is presented in Exhibit A.3. As the exhibit shows, the fee schedule has three important features.

1. Separate active case fees are established for each program. The fee for inactive cases is the same for all programs.
2. Fees differentiate between standard cases (posted to EBT system accounts accessed via Independence Cards) and ACH cases (i.e., those receiving benefits by direct deposit).
3. For each program and access method, fees decline as the cumulative number of billed cases reaches specified levels.

EXHIBIT A.3
MARYLAND EBT VENDOR FEE SCHEDULE

Program	Cumulative Billed Cases	Fee per Case Month
AFDC	1 to 116,000	\$1.28
	116,001 to 377,000	1.20
	377,001 to 1,160,000	1.15
	1,160,001 and over	.95
DALP	1 to 29,000	\$1.14
	29,001 to 94,250	1.06
	94,251 to 290,000	1.01
	290,001 and over	.81
PAA	1 to 1,160	\$1.38
	1,161 to 3,770	1.30
	3,771 to 11,600	1.25
	11,601 and over	1.05
FS	1 to 320,000	\$4.70
	320,001 to 1,200,000	3.53
	1,200,001 to 2,080,000	3.38
	2,080,001 to 3,842,000	3.13
	3,842,001 and over	3.03
Bonus Child Support	1 to 58,100	\$1.03
	58,101 to 185,600	.95
	185,601 to 568,100	.90
	568,101 and over	.70
NPA Child Support	1 to 22,600	\$1.38
	22,601 to 72,200	1.30
	72,201 to 221,000	1.25
	221,001 and over	1.05
ACH/AFDC ^a	1 to 46,800	\$1.00
	46,801 to 253,600	.50
	253,601 to 460,400	.45
	460,401 and over	.40
ACH/Bonus Child Support ^a	1 to 8,200	\$1.00
	8,201 to 44,500	.50
	44,501 to 80,800	.45
	80,801 and over	.40
ACH/NPA Child Support ^a	1 to 27,100	\$1.00
	27,101 to 146,800	.50
	146,801 to 266,500	.45
	266,501 and over	.40
Inactive Cases	Each	\$.40

Note: Fees in bold type were in effect during the study period for vendor billings (June to August 1993).

^a ACH cases receive payment via direct deposit.

As noted in Exhibit A.3, none of the lowest fees had been reached during the June-August 1993 period from which billed vendor costs were obtained for the estimates in this report. As of December 1993, the lowest fees had been reached for standard AFDC and DALP cases, and the fees for standard food stamp and BCS cases were at the next-to-lowest level on their respective schedules. Thus, billed costs have been reduced from the levels in the study period by \$0.15 per food stamp case and \$0.20 per standard case for AFDC and DALP. Further savings can be expected in food stamps, BCS, and NPACS.

If the current vendor fees had been in effect during the study period, the vendor cost would have been \$0.22 per case month lower (\$2.55 per case month instead of the \$2.79 per case month included in the analysis), reducing total vendor costs by \$750,324 per year. Another \$0.07 per case month could be saved (at study period caseloads) if all vendor fees reached their lowest levels, but the lowest fees are not likely to be reached for standard NPACS and the various types of direct deposit cases before the vendor contract expires. While the savings in vendor costs from recent fee reductions can be estimated, it is not possible to estimate the actual total cost of EBT system operations after the study period, because the data collected exclusively for the evaluation are not available for more recent months. Therefore, we have reported the costs and savings as of the study period. However, the conclusion of this report notes the potential savings from reduced vendor fees.

While the evaluation uses billed vendor costs, *the estimates of vendor costs per case by program do not match the fees charged by program*, for three reasons. First, the cost actually billed for each program includes standard cases, inactive cases, and (for cash programs) ACH cases. Thus, the actual billed cost per case for a given program represents a weighted average of these fees. Second, the "active" cases for billing purposes exceed the number of cases participating in each program because of the difference in the definition of an active case. As a result, the overall vendor cost per case as measured for this evaluation (using the program definition of cases) exceeds the ratio of total billed vendor costs to total billed cases as counted by the vendor.

The third and most important reason is that *the evaluation's cost allocation method did not simply assign the vendor's fees as billed to each program*. Instead, as described in Chapter Two, the total billed vendor cost was allocated by task and object in proportion to the vendor's resource costs; each component was then allocated across programs by the best available

measure of resource use (caseload, total transactions, total cash transactions, POS transactions, or number of direct deposits). *The evaluation result indicates how the taxpayers' share of the resource costs (as measured by the total billed vendor cost plus federal, state and local resource costs) is distributed by program, task and level.* It is important to note that the EBTSAG also redistributes billed vendor costs for the food stamp, AFDC and BCS programs, so the vendor cost that goes into each program's reported cost for reimbursement purposes also differs from the actual billings by program.

APPENDIX B

BACKUP TABLES FOR ADMINISTRATIVE COSTS

Each of the first five tables in Appendix B presents administrative costs for the EBT-based system for one of the five functional groups of tasks discussed in Chapter 2. The remaining five tables each present administrative costs for the paper-based system for the five groups of tasks. These tables present the administrative costs of the two systems in greater detail than in Chapter 2, breaking out costs by which sector, federal, state, local, or vendor, incurred the costs. Costs are also presented separately for labor and non-labor costs. Labor costs include labor and non-labor overhead.

EXHIBIT B.1
EBT COSTS: AUTHORIZING BENEFITS
(cost per case month)

Task	Total	Food Stamps	AFDC	BCS	DALP/ PAA	NPACS
<i>Issue/update/replace ID</i>						
Local costs—labor	.428	.432	.417	.326	.490	.496
Local total	.428	.432	.417	.326	.490	.496
State costs—nonlabor	.054	.053	.053	.076	.053	.064
State total	.054	.053	.053	.076	.053	.064
Vendor costs—nonlabor	.037	.037	.037	.037	.037	.037
Vendor total	.037	.037	.037	.037	.037	.037
Task total	.519	.522	.507	.440	.580	.597
<i>Create and post benefit records</i>						
Local costs—labor	.167	.158	.169	.091	.144	.856
Local total	.167	.158	.169	.091	.144	.856
State costs—labor	.036	.037	.037	.037	.037	.000
State costs—nonlabor	.045	.039	.039	.130	.039	.130
State total	.081	.076	.076	.167	.076	.130
Task total	.248	.234	.245	.258	.220	.986
Function total	.767	.755	.751	.698	.800	1.583

EXHIBIT B.2
EBT COSTS: DELIVERING BENEFITS
(cost per case month)

Task	Total	Food Stamps	AFDC	BCS	DALP/ PAA	NPACS
<i>Maintain benefit delivery system</i>						
Local costs—labor	.022	.022	.022	.022	.022	.000
Local total	.022	.022	.022	.022	.022	.000
Vendor costs—labor	.067	.106	.020	.010	.016	.034
Vendor costs—nonlabor	.568	.898	.167	.087	.134	.285
Vendor total	.635	1.004	.187	.097	.149	.319
Task total	.656	1.026	.209	.119	.172	.319
<i>Process transactions</i>						
Local costs—labor	.008	.008	.008	.007	.007	.004
Local total	.008	.008	.008	.007	.007	.004
Vendor costs—nonlabor	1.233	.865	1.815	.946	1.446	3.125
Vendor total	1.233	.865	1.815	.946	1.446	3.125
Task total	1.241	.873	1.822	.954	1.453	3.129
<i>Resolve transaction problems</i>						
Local costs—labor	.043	.042	.032	.017	.050	.361
Local total	.043	.042	.032	.017	.050	.361
State costs—labor	.009	.012	.005	.005	.005	.000
State total	.009	.012	.005	.005	.005	.000
Vendor costs—labor	.410	.410	.410	.410	.410	.410
Vendor total	.410	.410	.410	.410	.410	.410
Task total	.410	.410	.410	.410	.410	.410
Vendor costs—nonlabor	.153	.153	.153	.153	.153	.153
Vendor total	.563	.563	.563	.563	.563	.563
Task total	.615	.617	.601	.586	.618	.924
Function total	2.512	2.516	2.632	1.658	2.243	4.372

EXHIBIT B.3

EBT COSTS: REDEEMING AND RECONCILING BENEFITS
(cost per case month)

Task	Total	Food Stamps	AFDC	BCS	DALP/ PAA	NPACS
<i>Retailer settlement</i>						
Vendor costs—nonlabor	.021	.024	.019	.010	.015	.033
Vendor total	.021	.024	.019	.010	.015	.033
Task total	.021	.024	.019	.010	.015	.033
<i>Authorize retailers and monitor redemption activity</i>						
Federal costs—labor	.045	.076	.009	.000	.000	.000
Federal costs—nonlabor	.003	.006	.000	.000	.000	.000
Federal total	.048	.081	.009	.000	.000	.000
Task total	.048	.081	.009	.000	.000	.000
<i>Reconcile issuances and report losses</i>						
Federal costs—labor	.005	.009	.000	.000	.000	.000
Federal costs—nonlabor	.001	.003	.000	.000	.000	.000
Federal total	.006	.012	.000	.000	.000	.000
Local costs—labor	.002	.002	.002	.002	.002	.000
Local total	.002	.002	.002	.002	.002	.000
State costs—labor	.015	.010	.021	.021	.021	.000
State costs—nonlabor	< .001	< .001	< .001	< .001	< .001	.000
State total	.015	.010	.022	.022	.022	.000
Task total	.023	.024	.024	.024	.024	.000
<i>Management and oversight</i>						
Federal costs—labor	.006	.011	.000	.000	.000	.000
Federal costs—nonlabor	.001	.002	.000	.000	.000	.000
Federal total	.007	.013	.000	.000	.000	.000
Local costs—labor	< .001	.000	.000	.000	.000	.006
Local total	< .001	.000	.000	.000	.000	.006
State costs—labor	.075	.070	.082	.082	.082	.034
State costs—nonlabor	.019	.019	.019	.019	.019	.019
State total	.093	.089	.100	.100	.100	.052
Vendor costs—labor	.275	.275	.275	.275	.275	.275
Vendor costs—nonlabor	.028	.028	.028	.028	.028	.028
Vendor total	.303	.303	.303	.303	.303	.303
Task total	.403	.405	.403	.403	.403	.361
Function total	.496	.534	.455	.437	.442	.393

EXHIBIT B.4
EBT COSTS: INVESTIGATING AND PROSECUTING FRAUD
(cost per case month)

Task	Total	Food Stamps	AFDC	BCS	DALP/ PAA	NPACS
<i>Investigate fraud</i>						
Federal costs—labor	.026	.047	.000	.000	.000	.000
Federal costs—nonlabor	.007	.012	.000	.000	.000	.000
Federal total	.033	.059	.000	.000	.000	.000
State costs—labor	.002	.002	.002	.002	.002	.000
State total	.002	.002	.002	.002	.002	.000
Task total	.035	.061	.002	.002	.002	.000
<i>Sanction retailers</i>						
Federal costs—labor	.004	.008	.000	.000	.000	.000
Federal costs—nonlabor	< .001	< .001	.000	.000	.000	.000
Federal total	.005	.008	.000	.000	.000	.000
Task total	.005	.008	.000	.000	.000	.000
<i>Recovery of benefit funds</i>						
Federal costs—labor	.001	.003	.000	.000	.000	.000
Federal total	.001	.003	.000	.000	.000	.000
Task total	.001	.003	.000	.000	.000	.000
Function total	.041	.072	.002	.002	.002	.000

EXHIBIT B.5
EBT COSTS: MANAGING BENEFIT FUNDS
(cost per case month)

Task	Total	Food Stamps	AFDC	BCS	DALP/ PAA	NPACS
<i>Manage food stamp benefit funds</i>						
Federal costs—labor	.012	.022	.000	.000	.000	.000
Federal total	.012	.022	.000	.000	.000	.000
State costs—labor	.010	.017	.000	.000	.000	.000
State total	.010	.017	.000	.000	.000	.000
Task total	.022	.039	.000	.000	.000	.000
<i>Manage cash benefit funds</i>						
State costs—labor	.011	.000	.025	.025	.025	.000
State total	.011	.000	.025	.025	.025	.000
Task total	.011	.000	.025	.025	.025	.000
Function total	.033	.039	.025	.025	.025	.000
Grand total	3.849	3.916	3.865	2.820	3.513	6.348

EXHIBIT B.6
PAPER COSTS: AUTHORIZING BENEFITS
(cost per case month)

Task	Total	Food Stamps	AFDC	BCS	DALP/ PAA	NPACS
<i>Issue/update/replace ID</i>						
Local costs—labor	.109	.057	.171	.120	.252	.000
Local costs—nonlabor	.064	.043	.106	.000	.106	.000
Local total	.173	.099	.277	.120	.358	.000
Task total	.173	.099	.277	.120	.358	.000
<i>Create and post benefit records</i>						
Local costs—labor	.663	.779	.514	.350	.665	.404
Local costs—nonlabor	.015	.000	.000	.000	.000	1.017
Local total	.679	.779	.514	.350	.665	1.421
State costs—labor	.121	.105	.146	.155	.132	.000
State costs—nonlabor	.757	.587	1.071	.534	1.047	.000
State total	.877	.692	1.217	.689	1.180	.000
Task total	1.556	1.472	1.731	1.039	1.844	1.421
Function total	1.729	1.571	2.008	1.159	2.202	1.421

EXHIBIT B.7
PAPER COSTS: DELIVERING BENEFITS
(cost per case month)

Task	Total	Food Stamps	AFDC	BCS	DALP/ PAA	NPACS
<i>Maintain benefit delivery system</i>						
Federal costs—labor	.003	.005	.000	.000	.000	.000
Federal costs—nonlabor	.236	.426	.000	.000	.000	.000
Federal total	.239	.431	.000	.000	.000	.000
Local costs—labor	.044	.079	.000	.000	.000	.000
Local costs—nonlabor	.041	.074	.000	.000	.000	.000
Local total	.085	.153	.000	.000	.000	.000
State costs—labor	.014	.025	.000	.000	.000	.000
State costs—nonlabor	.063	.113	.000	.000	.000	.000
State total	.077	.138	.000	.000	.000	.000
Task total	.401	.722	.000	.000	.000	.000
<i>Process transactions</i>						
Local costs—labor	.479	.706	.154	.137	.146	1.499
Local costs—nonlabor	.664	1.147	.000	.000	.000	1.805
Local total	1.143	1.853	.154	.137	.146	3.304
State costs—labor	.026	.000	.060	.063	.059	.000
State costs—nonlabor	.242	.000	.553	.730	.493	.000
State total	.268	.000	.613	.793	.552	.000
Task total	1.411	1.853	.767	.930	.698	3.304
Function total	1.812	2.575	.767	.930	.698	3.304

EXHIBIT B.8
PAPER COSTS: REDEEMING AND RECONCILING BENEFITS
(cost per case month)

Task	Total	Food Stamps	AFDC	BCS	DALP/ PAA	NPACS
<i>Retailer settlement</i>						
Federal costs—nonlabor	.000	.000	.000	.000	.000	.000
Federal total	.000	.000	.000	.000	.000	.000
Task total	.000	.000	.000	.000	.000	.000
<i>Authorize retailers and monitor redemption activity</i>						
Federal costs—labor	.044	.075	.009	.000	.000	.000
Federal costs—nonlabor	.148	.266	.000	.000	.000	.000
Federal total	.192	.341	.009	.000	.000	.000
Task total	.192	.341	.009	.000	.000	.000
<i>Reconcile issuances and report losses</i>						
Federal costs—labor	.006	.011	.000	.000	.000	.000
Federal costs—nonlabor	.001	.003	.000	.000	.000	.000
Federal total	.007	.013	.000	.000	.000	.000
Local costs—labor	.003	.000	.000	.000	.000	.171
Local total	.003	.000	.000	.000	.000	.171
State costs—labor	.055	.052	.064	.064	.050	.000
State costs—nonlabor	.011	.009	.014	.013	.013	.000
State total	.066	.061	.078	.077	.063	.000
Task total	.076	.074	.078	.077	.063	.171
<i>Management and oversight</i>						
Federal costs—labor	.005	.009	.000	.000	.000	.000
Federal costs—nonlabor	.001	.002	.000	.000	.000	.000
Federal total	.006	.011	.000	.000	.000	.000
State costs—labor	.034	.061	.000	.000	.000	.000
State total	.034	.061	.000	.000	.000	.000
Task total	.040	.072	.000	.000	.000	.000
Function total	.308	.487	.087	.077	.063	.171

EXHIBIT B.9

PAPER COSTS: INVESTIGATING AND PROSECUTING FRAUD
(cost per case month)

Task	Total	Food Stamps	AFDC	BCS	DALP/ PAA	NPACS
<i>Investigate fraud</i>						
Federal costs—labor	.026	.047	.000	.000	.000	.000
Federal costs—nonlabor	.007	.012	.000	.000	.000	.000
Federal total	.033	.059	.000	.000	.000	.000
Task total	.033	.059	.000	.000	.000	.000
<i>Sanction retailers</i>						
Federal costs—labor	.004	.008	.000	.000	.000	.000
Federal costs—nonlabor	.000	.000	.000	.000	.000	.000
Federal total	.005	.008	.000	.000	.000	.000
Task total	.005	.008	.000	.000	.000	.000
<i>Recovery of benefit funds</i>						
Federal costs—labor	.002	.003	.000	.000	.000	.000
Federal costs—nonlabor	.000	.000	.000	.000	.000	.000
Federal total	.002	.003	.000	.000	.000	.000
Task total	.002	.003	.000	.000	.000	.000
	.039	.070	.000	.000	.000	.000

EXHIBIT B.10
PAPER COSTS: MANAGING BENEFIT FUNDS
(cost per case month)

Task	Total	Food Stamps	AFDC	BCS	DALP/ PAA	NPACS
<i>Manage food stamp benefit funds</i>						
Federal costs—labor	.000	.000	.000	.000	.000	.000
Federal costs—nonlabor	.001	.002	.000	.000	.000	.000
Federal total	.001	.002	.000	.000	.000	.000
Task total	.001	.002	.000	.000	.000	.000
Function total	.001	.002	.000	.000	.000	.000
 Grand total	 3.888	 4.705	 2.861	 2.166	 2.963	 4.896

APPENDIX C

MEASURING LOCAL LABOR COSTS

This appendix provides supplementary information regarding the analysis of local office labor costs in the paper and EBT systems.

Research Design

Time studies were administered to eligibility workers, income maintenance clerks, and fiscal workers in a sample of DSS offices. The studies were designed to capture all time spent on issuance-related activities by local staff in a typical month (22 working days). Issuance functions include authorizing access to benefits, delivering benefits to recipients, and reconciling benefits authorized to benefits issued. Of the three, the first two are by far the most important in terms of the amount of staff time involved.

Offices sampled for pre-implementation data collection were revisited for the post-implementation wave of data collection. We estimate the effect of EBT by comparing pre- and post-implementation labor costs. The principal limitation of this method is the difficulty of controlling for any other factor that might have affected labor costs after expansion of the EBT system. The most important of these potential confounding effects is changes in caseload unrelated to EBT. To reduce this distortion, we express all labor costs in terms of cost per case month.

Time studies were conducted at 27 locations in 17 counties and Baltimore City. This gave us data on a broad cross section of offices. All three paper issuance systems for the Food Stamp Program are represented: ATI-Mail, ATP, and ATI-OTC. Six counties are included which are not in metropolitan areas.

In addition to 18 "main" offices, there were nine district offices included in the sample. To reflect the geographic diversity of Baltimore City, four of its 15 district offices were in the sample. The remaining five sampled district offices were the five main offices included in the sample that operated between one and four district offices. In each case, one district office was selected.

Main and district offices were selected by probability proportional to size, using caseload served as the measure of size. The one exception to this method was in Baltimore City, where the only district office serving the homeless caseload was sampled with certainty.

The pre-implementation time studies were conducted between November 1991 and April 1992. In all sites this was prior to conversion to EBT. Time spent on each specific issuance-related activity was collected through self-recorded daily time logs.

The post-implementation time studies were conducted between February 1993 and September 1993. In almost all offices this was at least three months after EBT implementation.

The overall response rate to the pre-implementation time study was 95 percent. It was 98 percent for the post-implementation survey. Measures of time spent on issuance activities were weighted up, based upon the time logs missing for each office and worker type.

Pre- and post-implementation time studies were also conducted at the BCOCSE fiscal office, with response rates of 89 and 92 percent, respectively. Surveys were conducted with BCOCSE enforcement agents. Unlike the time studies, which asked workers to record issuance activities as they happened, the surveys asked workers to recall the amount of time spent on particular issuance activities over the last four months. Approximately 81 percent of the agents completed the pre-implementation survey; 92 percent completed the post-implementation survey.

Adjustments to NPA Child Support Costs

The typical custodial parent choosing EBT had much more account activity than the average parent who did not. The EBT cases averaged 2.4 issuances per month, while the other cases averaged only 1.4. This fact alone would make EBT costs per case month much higher than those under the check system, even if the underlying operating costs of the EBT and check systems were identical. In short, clients who are more expensive to serve volunteered for EBT.

To control for this effect we calculated the cost per issuance for the pre-implementation check system and the current check system, and then averaged the two. We then estimated what the cost per case month would be for the check system, if clients on that system had the same number of issuances per month as clients on EBT. This we did by multiplying the check system cost per issuance by 2.4 (the number of issuances per case for EBT) instead of by 1.4 (the number of issuances per case month for checks).

Fringe Benefit Rate and Overhead

For both pre- and post-implementation measures of labor costs, a compound fringe benefit rate has been applied to direct wage costs. The first rate of 15.5 percent of salary represents vacation, sick, and holiday time. This accounts for approximately 40.5 days a year of paid time off (away from work). A second rate of 33 percent accounts for health premiums, payroll taxes, pension costs, and worker compensation premiums. The combined fringe rate is 53.6 percent.

An overhead rate of 16.5 percent was also applied to all labor costs (including fringe). This rate was based on the overhead cost allocated in the 1991 state fiscal year to local food stamp issuance workers under DHR's cost allocation plan.

Weighting

Sampling weights were calculated to allow us to estimate labor costs separately for each of the four strata: ATI-Mail Metropolitan, ATI-Mail Non-Metropolitan, ATP, and ATI-OTC. The weight was calculated for each sampled office and applied to that office's cost data when estimating overall costs for that stratum. The weights were derived from the Income Maintenance caseload (AFDC, DALP, PAA, and NPA food stamp households). There is a single weight for each county, and it was applied to costs for each labor type and program within that county.

APPENDIX D

RECIPIENT DRAWDOWN PATTERNS

As noted in Chapter Four, the government experiences a gain in float whenever there is a delay between when program recipients or child support clients receive benefit documents (food stamp coupons, checks, or allotments posted to EBT accounts) and when the government releases funds to cover the obligations posed by those documents.¹ To estimate the EBT system's impacts on government float gain, therefore, the evaluation needed to estimate the average amount of time between when recipients receive their benefits and when they use them.²

This appendix explains the data and procedures used to estimate when recipients access their benefits, relative to when benefits are received. The discussion begins with use of food stamp benefits; cash assistance benefits are then examined.

D.1 WHEN FOOD STAMP BENEFITS ARE USED

The evaluation included two surveys of recipients. The first survey was conducted between March and September 1992 and interviewed program recipients before they began to receive benefits through the EBT system. The second survey occurred between June and September 1993; it asked recipients about their experiences with the EBT system.³

Each survey asked food stamp recipients the dollar value of food stamp benefits they had not yet used at the time of the survey. The surveys also collected information on the dollar value of the last monthly food stamp allotment and the date the last allotment was received. From this information it was possible to calculate the average percentage of food stamp benefits

1. Checks and EBT payments issued to Bonus Child Support and NPA Child Support clients do not draw on government funds. Rather, they are pass-through payments initiated by the non-custodial parent. The State, however, does gain interest on these payments from the time the non-custodial parent's check clears to when the State Treasury disburses funds to cover the State-issued checks or EBT system withdrawals.

2. The time required for benefits to be processed by retailers, financial institutions and, for EBT benefits, the system vendor, also affects government float gain. See Chapter Four for a discussion of these other elements.

3. For a detailed discussion of sampling and data collection procedures for these two recipient surveys, see Appendix A of Beecroft *et al.*, *Evaluation of the Expanded EBT Demonstration, Volume 3*.

spent within so many days of receipt. Each survey sample was divided into cohorts corresponding to the number of days between the date benefits were received and the date of the interview. For each person in each cohort, the percentage of that month's benefit already spent was calculated as the difference between the benefit allotment and the amount remaining. Cohort-specific percentages of benefits spent were then estimated by taking the weighted average of all persons in the cohort.⁴

Exhibit D.1 displays these cohort-specific percentages. The first column of the exhibit presents data from the pre-implementation recipient survey, when food stamp coupons were being issued. The second column presents comparable information from the post-implementation recipient survey, when the EBT system was being used to issue benefits. Only those recipients who had received a benefit within the last month are included within this exhibit. The numbers of food stamp recipients meeting this criterion from the pre-implementation and post-implementation surveys are 1,014 and 989, respectively.⁵

Taken together, the percentages in each column yield an estimate of the cumulative density function for the percent of monthly food stamp benefits spent throughout a month. These raw tabulations cannot be used directly as cumulative density functions, however, because they sometimes show *reductions* in percent of benefits spent from one day to the next. This is most obvious on Days 22 and 29 under coupon issuance. Given that each cohort yields an independent sample, such day-to-day variability in the estimates is to be expected.

A number of adjustments were made to these raw data before using them to estimate the average duration between recipients' receipt of benefits and use of those benefits. First, we regarded the coupon estimates for Days 22 and 29 as unreliable and replaced each with the mean of the estimates from the day before and the day after. Second, we believed that the Day 0 coupon percentage (16.7 percent) was not comparable to the Day 0 EBT percentage (45.4 percent). While EBT benefits are available to recipients early in the day, recipients using coupons either have to wait for mail delivery to take possession of their food stamp coupons or they have to go to a coupon issuance point to pick up their coupons. With the survey interviews

4. The weights were sampling weights.

5. To maximize the comparability of the estimated percentages, responses were used only for those recipients who were sampled from the same geographic areas in both surveys.

EXHIBIT D.1

CUMULATIVE PERCENT^a OF FOOD STAMP COUPON AND EBT BENEFITS SPENT, BY DAY

	Pre-Implementation			Post-Implementation		
	Days Since Receipt of Benefits	Percent of Monthly Coupon Allotment Spent	Number in Cohort	Days Since Receipt of Benefits	Percent of Monthly Coupon Allotment Spent	Number in Cohort
D-3	0	16.7%	24	16	88.9%	28
	1	42.1	40	17	90.7	40
	2	48.2	35	18	92.0	35
	3	56.2	30	19	98.7	31
	4	65.3	43	20	96.3	32
	5	59.2	28	21	99.0	24
	6	68.6	42	22	76.3	32
	7	75.7	42	23	93.9	40
	8	72.9	33	24	99.0	22
	9	80.1	37	25	97.2	27
	10	75.1	40	26	99.9	35
	11	78.6	29	27	99.2	24
	12	81.9	30	28	98.9	31
	13	83.1	35	29	77.4	37
	14	89.1	35	30	100.0	20
	15	92.0	33			

Source: Pre-implementation and post-implementation recipient surveys.

^a Each day's estimate of cumulative percent of benefits spent is based on an independent sample of recipients. For this reason the cumulative percent figures do not always stay the same or increase from day to day, as they would in a true cumulative density function.

being conducted throughout the day, it is probable that much of the coupon-EBT difference in Day 0 percentages simply reflects the fact that the coupon respondents had not had as much time to shop as the EBT respondents. We adjusted for this by increasing the 16.7 percent figure to 35.4 percent, or 10 percentage points below the Day 0 EBT figure. This adjustment was adopted because roughly a 10-point difference persists for several days immediately following issuance.

After these two adjustments were made, the cumulative density function numbers were used to derive the density function of the percent of benefits spent each day. (This procedure did not adjust any data; it merely converted the data to a more usable form.) The density functions were then "smoothed" by converting them to three-day moving averages and standardizing the resulting numbers so they summed to 1.00.

From this analysis, the estimated average number of days between benefit receipt and use of a dollar's worth of benefits is 4.88 days under coupon issuance and 3.15 days under EBT issuance. The faster redemption of EBT benefits is somewhat surprising. Some had expected that, given the EBT system's improved protection against loss or theft of benefits, recipients would hold onto their EBT benefits longer, taking advantage of the increased security to budget their use of benefits throughout the month. The data strongly indicate, however, that recipients using EBT spend more of their monthly benefits in the first several days after issuance than recipients using coupons. The difference in spending patterns mostly disappears by six or seven days after receipt.⁶

D.2 WHEN CASH ASSISTANCE BENEFITS ARE USED

In thinking about the impact of the EBT system on government float in the cash assistance programs, we are not concerned with when program recipients or child support clients *spend* their benefits under check issuance. Rather, we need to know, relative to when they receive their checks, when these checks are *cash*ed or *depos*ited. Once a check is cashed or

6. The differences in cumulative percentages for Days 0, 2 and 4 (unadjusted) are statistically significant at the 10 percent level. By Day 7, the cumulative percentages are within one percentage point. This comparability after one week is consistent with survey responses to another question asking about share of food stamps left one week after receipt. See Beecroft *et al.*, *Evaluation of the Expanded EBT Demonstration*, p. 29.

deposited, the process leading to government release of funds to cover the check begins. On the EBT side, we are interested in when clients withdraw their benefits (or spend them at the point of sale), which is analogous to our interest in when food stamp recipients spent their EBT benefits.

The first column of Exhibit D.2 shows the cumulative percentage of check-issued payments cashed (or deposited) each day after receipt. These data are based on responses to a question on the pre-implementation recipient survey that asked how much time passes between receiving a check and cashing or depositing that check.⁷ The mean number of days, weighted by the dollars involved, is 1.02 days.

The numbers in the second column of the exhibit were derived in a rather complex fashion, similar to that used in examining the food stamp data in the previous section. Unlike the food stamp data (or the data in the first column of Exhibit D.2), however, the data regarding the speed with which cash EBT benefits are used are not survey data. They are based directly on system-generated reports indicating the dollar value of cash benefits processed by the EBT system each day. The complexity arises because issuance of cash benefits was spread over three days each month in 1993. This means that the cash EBT redemptions processed by the system on any given day represent an average of spending patterns of three cohorts of recipients. We used a series of recursive equations to estimate the density function of the percentage of benefits accessed each day after receipt, then applied the three-day moving average and standardization techniques used on the food stamp data to generate a smooth cumulative density function. This is the function shown in the exhibit.

Based on this derived cumulative density function, the average number of days between receipt and use of EBT-issued cash program benefits is 3.32 days. The data do not permit any analysis of whether these EBT spending patterns differ across cash assistance programs.

7. The daily distribution of the percent of *recipients* cashing their checks is almost identical to the distribution of dollars involved, suggesting that the speed with which a check is cashed is nearly independent of the amount of the check.

EXHIBIT D.2

CUMULATIVE PERCENT OF CHECKS CASHED AND EBT BENEFITS SPENT, BY DAY

Days Since Receipt of Benefits	Percent of Check Dollars Cashed	Percent of Cash EBT Benefits Withdrawn or Spent	Days Since Receipt of Benefits	Percent of Check Dollars Cashed	Percent of Cash EBT Benefits Withdrawn or Spent
0	58.8%	38.3%	16	99.7%	94.0%
1	77.6	59.7	17	99.7	94.6
2	89.2	71.6	18	99.7	95.2
3	94.0	77.2	19	99.7	95.7
4	95.6	80.3	20	99.7	96.3
5	96.7	82.0	21	99.7	96.9
6	96.9	84.1	22	99.7	97.4
7	98.8	86.2	23	99.7	98.0
8	98.8	87.5	24	99.7	98.4
9	98.8	88.7	25	99.7	98.7
10	99.1	89.9	26	99.7	99.0
11	99.1	90.6	27	99.7	99.3
12	99.5	91.0	28	99.7	99.6
13	99.5	91.9	29	99.7	100.0
14	99.7	92.6	30	100.0	100.0
15	99.7	93.2			

D-6

Source: Pre-implementation recipient survey and the Maryland EBTS "Monthly Clearing Statement," for June 1993.

APPENDIX E
VULNERABILITIES TO BENEFIT LOSS AND DIVERSION

to ensure that the proper number of coupon booklets was issued. If the process reconciled, the stuffed envelopes were taken to the post office for delivery to recipient addresses.

Direct mail issuance of food stamp coupons was vulnerable to mail loss and theft. Given that paper food stamp coupons can be negotiated easily, coupons issued through the mail could be stolen by thieves in the postal service or the general public or by the authorized recipients themselves, who could later claim the loss and receive a replacement issuance. The most common control against mail losses was to deliver the coupons using certified or registered mail. In Maryland, only 2-3 percent of mail issuances used certified mail.

Other controls against mail losses attempted to deter the thief. Recipients who claimed a mail loss needed to complete an affidavit affirming that the coupons were never delivered. Moreover, if a recipient reported two losses over five months, then future issuances were conducted using the ATI-over the counter method. The penalties for falsely reporting a mail loss included temporary or permanent disqualification from the program. Also, mail theft is a federal offense and punishable by prison sentence or monetary fine.

Mail issuance of food stamp coupons was also vulnerable to duplicate issuances. This vulnerability could occur when the AIMS system erroneously generated a duplicate issuance record for a case and the error was not detected by production staff who prepared the mailing. Audit and reconciliation processes were the main controls against duplicate issuance losses.

ATP Issuance. ATP issuance involved the delivery by mail of an ATP document that a recipient exchanged at a food stamp issuance agent for the appropriate amount of coupons. ATP documents were printed from information contained in the AIMS file, physically stuffed in envelopes and posted, and brought to the post office for delivery. In Maryland, check cashing organizations served as food stamp issuance agents, and 67 percent of the caseload received ATP issuance.

Given that ATP documents were issued through the mail, ATP issuance was vulnerable to mail loss and theft. Unlike coupons stolen from the mail, however, stolen ATP documents were more difficult to transact. Coupon issuance agents were required to positively identify the bearer of an ATP document, or risk not being reimbursed by DHR if it was later learned that the ATP had been fraudulently transacted.

As could occur with mail issuance, ATP documents were vulnerable to duplicate issuances. This type of loss occurred when the AIMS system erroneously generated a duplicate ATP document, and both documents were mailed to the recipient and transacted.

ATI Issuance. A method similar to ATP issuance in Maryland involved ATI cards. The major difference between the two issuance methods is that ATI cards were mailed or delivered directly to local DSS offices rather than to recipients, and recipients picked up their coupons at these sites. In Maryland, 11 percent of the caseload received ATI issuance.

The main vulnerability to loss in the ATI issuance method occurred when the wrong amount of coupons was issued to the recipient. This type of loss was controlled by performing daily reconciliation, verifying the identify of the recipient at the time of the issuance, and having the recipient sign for the coupon allotment.

Food Stamp EBT Vulnerability to Excessive Authorization

In an EBT system, excessive food stamp authorizations can occur if a recipient's food stamp account is credited for an amount that exceeds the amount authorized for the case. This type of loss can result when the EBT system erroneously processes transactions or by a human error, such as a double posting of an authorization file. System testing and reconciliation are the main controls against these vulnerabilities.

Excessive food stamp EBT authorizations also can occur from fraudulent activity. For example, an employee of the system vendor could post benefits to a fictitious case or inflate the issuance to an existing case. Deluxe Data Systems employs various controls to prevent this type of activity. Security codes, for example, are used to limit employee access only to certain system functions. In addition, separate employees are used to conduct activities that could create loss situations. Moreover, if the excessive authorization did not balance with other financial activity, the authorization would be detected during the daily reconciliation process.

Another type of excessive food stamp EBT authorization can occur when a recipient overdraws their account during a voucher transaction. Voucher transactions are allowed when system failure prevents completion of on-line transaction processing or by mobile vendors, such as milk delivery services, that do not have ability to authorize a transaction until after the transaction is completed. Mobile vendors are instructed to telephone for authorization on the same day as the transaction and are guaranteed reimbursement only for transactions that are

authorized. If funds are not available in a client's account to cover a voucher transaction, a retailer may not receive reimbursement for the transaction.

Cash Program Check Vulnerability to Excessive Authorization

Prior to the EBT system in Maryland, recipients of programs that provide cash benefits were issued their monthly allotment by paper check. Benefit checks, which were generated from information maintained on the AIMS system, were mailed by AIMS staff to recipient addresses over a five-day period at the beginning of each month.

The main vulnerability of the paper check issuance process to excessive authorization was losses in the mail delivery system. To control against mail losses, some but not many recipient checks were delivered by certified or registered mail.² Additional controls were provided by parties that cash checks. The Maryland DHR indemnified retailers, check cashing agents, and financial institutions for fraudulently cashed checks only if the identity of the check bearer was properly established according to specified guidelines. Check cashing parties that failed to follow DHR guidelines ran the risk of not being reimbursed for the cashed check.

A second type of vulnerability could occur when a duplicate check was issued, and both checks were cashed by the recipient. Daily automated reconciliation of the AIMS system controlled against this type of vulnerability.

Cash Program EBT Vulnerability to Excessive Authorization

The EBT system in Maryland is also vulnerable to losses that lead to excessive recipient authorizations. Most of these vulnerabilities are identical to those identified earlier as potentially creating food stamp EBT losses. An additional vulnerability that is unique to EBT distribution of cash benefits is caused when an ATM misdispenses cash during a withdrawal transaction. Although ATM card acquirers can usually determine the transaction (and cardholder) that benefits from a misdispense, an official of Deluxe Data Systems, the organization that monitors misdispense losses, reports that the Maryland DHR rarely attempts to recover misdispensed

2. AIMS mail room staff could not recall exactly, nor did they have records to indicate, the number of cash program checks that were sent by certified or registered mail, but they believed the number was rather small.

funds from program recipients. The administrative cost of attempting recovery may exceed the expected amount of the recovery.

E.2 VULNERABILITIES TO BENEFIT REDEMPTION LOSSES

Vulnerabilities that create benefit redemption losses are incidents in which cash credit is given to food retailers or banks in an amount that differs from the amount of benefits redeemed.

Food Stamp Coupon Vulnerability to Redemption Losses

Food stamp redemption by retailers in the coupon system differs considerably from the EBT system. To redeem coupons, food retailers must endorse the coupons with a store stamp, count and strap the coupons into bundles of like denominations, fill out a Redemption Certificate, and deposit the coupons and Redemption Certificate into a bank account. Most banks give retailers immediate cash credit for coupon deposits, then forward the coupons and Redemption Certificates to a Federal Reserve branch bank either directly or through a correspondent bank. The Federal Reserve reimburses the bank by crediting the bank's account at the Federal Reserve with funds drawn down from a letter of credit made available for the Food Stamp Program by the U.S. Treasury.

All coupon deposits must be accompanied by a Redemption Certificate, which is pre-encoded with a retailer authorization number and tells the bank that the retailer is authorized by FNS to accept food stamp benefits. When a Redemption Certificate is deposited with coupons, the financial institution that receives the deposit encodes the Redemption Certificate with the deposit amount. Encoded Redemption Certificates are sent from the Federal Reserve to FNS, where they are used to track food stamp redemptions at the individual store level.

Excessive food stamp coupon redemptions can occur when a food retailer or bank receives dollar credit for a food stamp deposit that differs from the dollar value of the deposit. This occurs, for example, when a bank credits a retailer for the amount recorded on a Redemption Certificate and that amount differs from a physical count of the coupons. Although this difference may be adjusted later from the retailer's account, we include these types of accounting discrepancies because they represent potential losses to participants in the redemption process.

Food Stamp EBT Vulnerability to Redemption Losses

The food stamp redemption process in the Maryland EBT system is nearly entirely automated. Each day at the end of a "cut-over" period, the EBT system totals the food stamp sales for each retailer and prepares a file to reimburse retailers through the Federal Reserve System's automated clearinghouse (ACH) network. This file is prepared at Deluxe Data System's processing center in Wisconsin and sent electronically to Deluxe's ACH origination bank, Norwest Bank in Minnesota, which combines the Deluxe data with other ACH records and forwards the file to the Federal Reserve Bank of Minneapolis. The ACH transmission includes a net credit to each retailer's financial institution and a net debit to Marshall & Isley, Deluxe's settlement bank. The Federal Reserve Bank implements the ACH actions, making funds available to banks by the start of business the following day.

The retailers' financial institutions set their own policies for posting ACH transactions to retailer accounts. Typically, they will not post the transactions until the night after the ACH transaction is received, adding another day before the funds are actually available to the retailer. If a retailer's end-of-business-day time coincides with system cut-over, that retailer will be reimbursed two days later for all transactions completed before cut-over. Transactions completed after cut-over will be settled and reimbursed with the next day's transactions—that is, in three days.

Excessive redemption credits could occur at several points in the settlement process. Employees at Deluxe or the concentrator bank could inflate credits to legitimate store accounts or create and credit fraudulent retailer accounts. Also, the electronic transmission of credits between Deluxe and Norwest could be intercepted by high-tech thieves and replaced with a file that redirects the funds. Non-fraudulent actions, such as a system software error, could properly debit a client account but fail to pass the credit on to the retailer.

The main controls against these types of vulnerabilities are daily system reconciliation and deterrence caused by the likelihood of detection. Daily reconciliation reports created for the Maryland EBT system would not balance if funds directed to a store account were arbitrarily increased without offsetting debits to client accounts. These reports would also identify the account receiving the funds, and the consequent beneficiary of the diverted benefits. Other control measures, such as encrypting data transmissions and system testing of processing software, serve to prevent vulnerabilities that might occur while leaving the system in balance.

Situations that create excessive redemptions through unauthorized access to recipient accounts are considered in a later section dealing with lost or stolen recipient benefits (Section E.4). For example, a situation in which a retailer learns a client card number and PIN and manually enters the numbers into an EBT terminal is considered a stolen client benefit rather than an excessive retailer redemption.

Cash Program Check Vulnerabilities to Redemption Losses

Food retailers and local financial institutions are involved in the redemption of cash program benefits as well. Food retailers cash checks for program recipients and cancel and deposit the checks for reimbursement in their bank accounts. Banks also cash checks for program recipients, and combine these checks with other checks that are cashed or deposited, including those deposited by retailers. Check processing activities vary by banks but usually involve cancellation, encoding, and sorting procedures. Checks drawn on the same bank are combined; those issued by the Maryland DHR are forwarded to Signet Bank, where the Maryland DHR maintains an account.

Excessive redemptions in the paper check system could occur if a retailer or bank is miscredited for the dollar amount on the deposited checks. Daily retailer and bank reconciliation efforts are the main controls against these types of vulnerabilities. Moreover, if a discrepancy is noticed, there is an opportunity to identify the retailer or individual that deposited the check from the cancellation stamp or signature, and to correct the discrepancy by debiting or crediting the appropriate account.

Vulnerabilities associated with fraudulently cashed checks were considered in Section E.1 (Vulnerabilities to Excessive Authorizations).

Cash Program EBT Vulnerability to Redemption Losses

Under the Maryland EBT system, retailers allow EBT purchases from cash accounts and some provide cash back to participants. Retailers are reimbursed for these transactions by an electronic settlement process that is similar to the one used to credit retailers for food stamp EBT sales. The only practical difference between food stamp and cash POS settlement is that funding for cash POS transactions is transferred from Signet Bank rather than the Federal Reserve to the Deluxe account at the Marshall & Isley Bank.

In addition to retailers and banks, ATM card acquirers in the MOST network participate in the Maryland EBT system by providing ATM access to cash program benefits. ATM settlement is initiated by the MOST network. At the end of its business day, the MOST network produces a settlement report, which is sent to the MOST settlement bank, Crestar. The settlement file has the net credit or debit for the business day for each member of the MOST network. Deluxe's settlement account at Crestar is debited for that day's EBT ATM transactions, offsetting the credits to all card acquirers that have issued cash benefits via their ATMs.

To refresh its Crestar account, Deluxe creates a Clearing Statement report. DHR's AIMS fiscal unit accesses this report through an administrative terminal to determine the amount of payment due Deluxe for the day's projected ATM cash benefit withdrawals. Through the state treasurer, AIMS instructs Signet Bank to transfer funds from DHR's account to an account Deluxe maintains at Signet. DHR uses the HHS Payment Management System to request reimbursement from the U.S DHHS, which uses the Washington Financial Center (WFC) to reimburse DHR through an ACH transfer from the New York Federal Reserve Bank.

As with the Deluxe settlement of food stamp credits, settlement of POS cash and ATM transactions is theoretically vulnerable to certain losses that create excessive redemption situations. Retailers and banks can be credited in excess of the amount due because of the EBT vulnerabilities described earlier for food stamp redemptions. In addition, ATM card acquirers could be credited for amounts exceeding what was dispensed if a fraudulent or inadvertent action corrupted the MOST settlement process. Daily system reconciliation by retailers, banks, the MOST network, and ATM card acquirers are the primary controls against excessive EBT redemption of cash program benefits.

ATM misdispenses were considered with excessive authorization losses (Section E.1) because ATM card acquirers are reimbursed for the full withdrawal amount, including any misdispensed amount.

D.3 VULNERABILITIES TO PRODUCTION AND HANDLING LOSSES

Vulnerabilities associated with production and handling losses consist of incidents where benefits are lost or stolen before issuance and are later redeemed.

Food Stamp Coupon Vulnerability to Production and Handling Loss

The FNS contracts with a vendor to print food stamp coupons and distribute them to state and county agencies. Coupons are printed in denominations of \$1, \$5, and \$10 and are packaged in booklets of \$2, \$7, \$10, \$40, \$50, and \$65. Coupons are printed with serial numbers, but these numbers are used only for inventory purposes and not to identify the recipient. Coupons have no expiration date and circulate only once before they are destroyed after redemption by the Federal Reserve Bank. Prior to the EBT system in Maryland, coupons were delivered by armored car from the vendor to county DSS offices, where they were stuffed in envelopes and mailed, issued over the counter, or distributed to check cashing agencies for ATP redemption.

Production and handling losses of food stamp coupons can occur at various points prior to their issuance to recipients. Coupons can be lost or stolen from the inventories of the producer, county, or issuance agent, while being transported to distribution points, or during the issuance process itself. Other types of losses considered in this section include counterfeit coupons and coupons that are taken from the redemption process and recirculated.

Most of the vulnerabilities considered in this section are controlled by physical security measures, personnel screening, and daily physical counts of coupon inventories and other reconciliation measures. Counterfeit coupons are detected by the Federal Reserve Bank's use of ultraviolet screening and investigated by the U.S. Secret Service.

Food Stamp EBT Vulnerability to Production and Handling Loss

The Maryland DHR transmits regular issuance information, which authorizes benefits for all program recipients, to Deluxe once a month. In addition, DHR transmits supplementary authorization information to Deluxe daily to cover recipients who apply and are found eligible to receive expedited food stamp benefits or whose changing household circumstances warrant a supplemental or other one-time authorization.

One or two days before the last business day of the month, DHR data processing staff initiate a monthly batch process on the AIMS system to generate the regular authorizations. When the process is complete, the data are transmitted to the Deluxe data center in Wisconsin. All batch transmissions include header and trailer records that allow Deluxe to verify when the transmission is completed and that all records are received.

At Deluxe, benefit authorization files are first validated to ensure that the data reconcile. If an error threshold is exceeded, the entire benefit file is held for review. If the data are in balance, client accounts are updated with the amounts on the file. A comparable procedure processes daily expedited issuances, supplemental benefits, and other one-time authorizations.

The only vulnerability associated with the authorization process could occur if benefits are lost or tampered with during the transfer of the authorization file from AIMS to Deluxe. As mentioned above, however, if the corrupted data resulted in an out of balance situation, the entire file would be rejected and reviewed.

Another vulnerability considered in this section could occur if counterfeit EBT cards are used to transact food stamp benefits. Given that the Maryland EBT system processes transactions on-line, a counterfeit card could not be used to process on-line transactions through POS terminals unless it was encoded with a valid account number and the encoding was formatted according to system specification. This would result in theft from a recipient account, which is considered in Section E.4 (Lost or Stolen Benefits). Counterfeit EBT cards could be used to process transactions with route vendors or by regular stores when voucher transactions are performed because the system is not accessible.

Cash Program Check Vulnerability to Production and Handling Loss

Prior to the EBT system in Maryland, DHR extracted benefit issuance data for cash programs from client data files that were stored in the AIMS system and processed at the Baltimore Data Center (BDC). All cash benefit checks were printed at the BDC and mailed from the AIMS mail room. Child support payments for non-public assistance participants in Baltimore were also printed at the BDC, but these checks were mailed by staff at the Baltimore City Office of Child Support Enforcement. In the rest of the state, non-public assistance child support checks were printed and mailed from local child support enforcement offices.

The only cash program vulnerability considered in this section occurs when counterfeit checks are produced and redeemed for cash. Retailer and bank check cashing policies, such as those that record identifying information of the check bearer on a check, control against this type of vulnerability, as do bank reconciliation procedures.

Maryland EBT staff instruct clients to safeguard their PINs, however, and inform clients that benefits will not be replaced if they are stolen by unauthorized use of a card and PIN. As with food stamp coupon benefits, grocer overcharges are not reimbursed to the recipient.

Another type of vulnerability that could result in stolen EBT benefits could occur when a retailer processes a fraudulent backup transaction voucher or inflates the value of a voucher for a legitimate sale. This type of theft has been reported in Maryland and involved route vendors who waited until the beginning of a month to submit false or inflated vouchers, knowing that the recent benefit authorization would cover the amount recorded on the voucher. To control against this type of theft, the Maryland DHR and Deluxe have redesigned the voucher form to include a date field. It is hoped that having the transaction date recorded on the form will compel merchants to obtain same day authorization and deter unscrupulous merchants from inflating voucher amounts and submitting them only after monthly benefits are authorized to accounts.

Other reported incidents of stolen food stamp benefits involved store employees that learned client card numbers and PINs and obtained client funds without authorization by manually entering the numbers into a POS terminal. This type of theft had been facilitated by retailer knowledge of client card numbers, which until recently had been printed on store receipts. A programming change in the receipt printing function of the Maryland EBT system now prints a client's program identification number (which is not used to process transactions) rather than the card number on store receipts.

A final type of stolen EBT benefit involves client trainers who might activate cards and access the benefits of clients who have not yet picked up their cards. This type of theft could go undetected as long as a client did not attempt to access his or her benefits, but is rather unlikely unless the trainer has prior knowledge that a client would not notice the loss.⁴ Moreover, given that access to food stamp benefits through the Maryland EBT system requires interaction with store personnel, it is more likely that this type of theft would affect cash program benefits (which allows more anonymous access through an ATM).

4. One variation of this type of theft would involve employee access to dormant account benefits. Each month, as allowed by program regulations, the Maryland EBT system "ages" (i.e., expunges) recipient accounts that have been inactive for one year. In January 1994 there were about \$290,000 in food stamp benefits and \$133,000 in cash program benefits aged from the Maryland EBT system.

Cash Program Check Vulnerability to Lost and Stolen Benefits

Cash program participants in Maryland received their benefits in the form of a monthly check before the EBT system was implemented. If a check was lost or stolen after receipt and prior to cashing, recipients were instructed to report the event to their caseworker who ordered a stop payment placed on the check. In most situations the DHR would issue a replacement check. If the original check had already been cashed and DHR staff could establish that the authorized recipient had cashed the check, then no replacement check would be authorized. The only cash program vulnerability examined in this section occurs when no replacement check is issued even though a recipient had not cashed a check that they reported lost or stolen. Loss situations due to duplicate check issuance were considered in Section D.1 (Vulnerabilities to Excessive Authorizations).

E.5 BENEFIT DIVERSIONS

The Food Stamp Program restricts the use of food stamp benefits to the purchase of eligible food items. Food stamp benefits are used in an unintended manner, or diverted from their intended use, when they are used to purchase items other than food. Benefit diversions have no analog in cash programs because the use of cash benefits is not similarly restricted.

Food Stamp Coupon Vulnerability to Benefit Diversion

Recipients may use food stamp benefits at any food retailer establishment that is authorized by FNS to accept food stamp payments. Recipients may use benefits only to purchase eligible food items, which excludes any non-food products and some prepared food items that a store may sell. Food stamp benefits are diverted from their intended purpose when they are not used to purchase eligible products.

Food retailers are authorized to accept food stamp benefits by FNS field offices. In order to qualify, "staple" food products such as meat, produce, and dairy products must make up 50 percent of a retailer's *total food sales*. Staple food products exclude supplementary food items such as coffee or soda, even though these items are eligible for food stamp purchases.

Due to resource limitations, FNS field office staff rarely visit stores that apply for food stamp authorization. Instead, retailers are provided with educational literature and a copy of relevant program regulations that inform retailers about products that are eligible for food stamp

purchase. Field office staff also make retailers aware of the penalties for allowing food stamp purchases of non-eligible items, and the penalties for trafficking food stamp coupons, or exchanging coupons for cash.

Retailer compliance with program regulations is monitored by two federal organizations. Although some overlap exists, the Compliance Branch of FNS is responsible for investigating stores suspected of allowing non-eligible purchases and the Office of the Investigator General of the USDA investigates suspected food stamp trafficking activities. Both organizations employ undercover operations in their investigations of stores suspected of program violations.

In addition to non-eligible purchases and trafficking, we include in this category of vulnerabilities purchases of non-food items with cash change from food stamp purchases. Retailers are allowed to provide up to \$0.99 in cash change for food stamp purchases (even dollar amounts of change can be provided only in \$1 denominated food stamp coupons). This action does not violate program regulations unless a recipient makes repeated small purchases to generate change. This action diverts benefits from their intended use, however, because some part of the change is assumed to be used for non-food purchases.

Estimating the amount of benefit diversion resulting from cash change is somewhat complicated and involves economic theory about how people spend their cash and food stamp benefits. We start by assuming that food stamp recipients consume food out of a marginal increase in cash income according to a marginal propensity to consume food—that is, food stamp recipients spend some percentage of a \$1 increase in cash income on food purchases. The remaining percentage of the dollar increase in cash income, or one minus the marginal propensity to consume food, is spent on non-food purchases. Multiplying the remaining percentage by the amount a recipient receives in cash change provides an estimate of the amount of cash change that the recipient will spend on non-food items.

$$BD = [1 - MPC(\text{cash})] * (\text{cash change})$$

where:

BD = benefits diverted;

MPC(cash) = marginal propensity to consume food out of cash;

1 - MPC(cash) = marginal propensity to consume non-food out of cash; and

cash change = amount of cash change from food stamp coupon purchases.

This equation is incomplete, however, because it fails to account for coupon spending behavior that would have occurred in the absence of cash change, i.e., cash change can be viewed as a simultaneous increase in cash and decrease in coupons. Recipients possess fewer food stamp coupons because of cash change, which results in a decrease in the food consumption according to a marginal propensity to consume food out of food stamp benefits. Cash change causes a simultaneous increase (out of cash) and decrease (from the reduction in coupons) in food purchases. The difference between these two marginal propensity determines the amount of benefits, at the margin, that are diverted from food to non-food purchases. Therefore, the revised benefit diversion equation is:

$$BD = [MPC(\text{coupons}) - MPC(\text{cash})] * (\text{cash change})$$

where:

BD = benefits diverted;

MPC(coupons) = marginal propensity to consume food out of food stamp coupons;

MPC(cash) = marginal propensity to consume food out of cash; and

cash change = amount of cash change from food stamp coupon purchases.

Marginal propensities to consume out of cash and food stamp benefits have been estimated among participants in demonstration projects that issue cash instead of food stamp coupons. Evaluations of two of these demonstrations (in Alabama and San Diego) arrived at comparable estimations of marginal propensities to consume. Given the methodological similarities between these two studies, we use the simple arithmetic mean of the MPC estimates in our computation of benefit diversion. Thus, the MPC out of food stamp coupons is assumed to equal 0.295, and the MPC out of cash is 0.068.⁵

5. Estimates of 0.073 for MPC out of cash and 0.31 for MPC out of food stamp coupons were calculated among Alabama participants. See Thomas Fraker *et al.*, *The Evaluation of the Alabama Food Stamp Cash-Out Demonstration*. Princeton, NJ: Mathematica Policy Research, April 1992, p. F11.

For the San Diego cash-out demonstration, researchers estimated an MPC out of cash to equal 0.063 and an MPC out of food stamp coupons to equal 0.28. See James C. Ohls *et al.*, *The Effects of Cash-Out on Food Use by Food Stamp Program Participants in San Diego*. Princeton, NJ: Mathematica Policy Research, September 1992, p. F10.

Assuming that an average of 50 cents is provided in cash change for each food stamp coupon purchase, the average amount of cash change that is *not* spent on food items equals 11.35 cents $[(0.295 - 0.068) * \$0.50]$ per purchase, and the average amount that is spent on food would be 38.65 cents $(\$0.5000 - \$0.1135)$. Also, assuming that the average number of monthly food stamp coupon transactions equals the average number of EBT food stamp transactions,⁶ about 0.331 percent of food stamp coupon benefits were diverted to non-food items.

Another type of benefit diversion occurs when a retailer who has not been authorized by FNS accepts and receives cash credit for food stamp coupon purchases. The main control against this diversion is the requirement that a Redemption Certificate accompany each coupon deposit. To avoid the Redemption Certificate requirement, unauthorized retailers can either redeem the coupons through another store that is authorized to accept food stamp coupons, or they can use the coupons themselves to make purchases.

Food Stamp EBT Vulnerability to Benefit Diversion

With the exception of cash change, food stamp vulnerabilities to benefit diversion did not change with introduction of the EBT system in Maryland. Cash change, of course, is eliminated in an EBT system, but coupon diversions associated with ineligible purchases and food stamp trafficking have counterparts in the EBT system.

The Maryland EBT system currently possesses no technical feature to control the purchase of ineligible items with food stamp benefits. Product information, even if it is recorded by store scanner systems, is not transmitted and analyzed by the system processor. Some retailers or store clerks may not be aware of this limitation of the system, however, and this may act to reduce ineligible purchases.

With respect to food stamp trafficking, the Maryland EBT system undoubtedly makes trafficking transactions more complicated and presumably requires greater organization among traffickers. Food stamp participants no longer can simply complete a trafficking transaction on the street, unless they plan to report their card as lost or stolen and go to the trouble of getting a replacement card. Moreover, the availability of other benefits on the card discourages clients

6. This assumption is required because no information is available on the average number of food stamp coupon transactions conducted by recipients. In Maryland, food stamp participants processed an average of 5.64 EBT transactions in September 1993.

from physically turning over their card and PIN. Trafficking food stamp benefits in this manner creates the risk of losing cash benefits from other programs (unless those benefits had already been exhausted).

A more likely scenario involves a store that recipients visit to complete trafficking transactions. This approach allows recipients to hold onto their cards, but the extra effort that is required might deter marginal recipients from trafficking. Similarly, impulse trafficking, or trafficking that occurs because a recipient is approached by a trafficking middleman (or runner) and impulsively decides to sell his or her benefits, is made more difficult because the recipient has to either give up the card or wait for the runner to return.

Moreover, the EBT system in Maryland generates transaction level reports that investigators analyze for trafficking patterns. Upon identifying a store that they suspect of trafficking, undercover investigators begin surveillance operations and attempt to complete trafficking transactions. EBT systems allow investigators to target resources at the greatest offenders, generate evidence of trafficking activity, and identify clients as well as retailers that may engage in trafficking. Some believe that a few well-publicized trafficking arrests using information from the Maryland EBT system will serve as a strong deterrent to trafficking activity.

An unauthorized store also could process food stamp transactions in the Maryland EBT system, most simply by telephoning a card number and PIN to an authorized store for manual entry.

APPENDIX F

ANALYSIS OF FOOD STAMP TRAFFICKING

Food stamp trafficking is the illegal exchange of food stamp benefits for cash or non-program-eligible items. This appendix presents survey evidence that examines trafficking in the coupon and EBT issuance systems.

F.1 TRAFFICKING MECHANISMS

The nature of the trafficking exchange under the coupon issuance system is easy to imagine. Recipients might traffic their benefits in any one of several different ways. They might sell their food stamp coupons to friends or middlemen at a discounted price, or they might sell the coupons directly to a food retailer. Coupons could also be traded for goods or services rather than sold for cash. Buyers of food stamp coupons could, in turn, use them in trade or sell them to a food retailer. Ultimately, the coupons can be redeemed for full face value only by program-authorized food retailers.

Food stamp trafficking would seem to be more difficult under an EBT system, though certainly not impossible. As with coupons, a recipient could still go to a willing program-authorized store to fraudulently convert his or her EBT benefits to cash. The store would simply process an EBT purchase transaction, retaining part of the proceeds and returning the rest in cash to the recipient. Selling EBT benefits to a friend or middleman would be more cumbersome, because the recipient's Independence card and PIN are needed to access the cash value of the benefits. A greater level of trust between the seller and buyer would be needed as well. The buyer does not know how many benefits can be accessed with the card unless the seller and buyer jointly check the recipient's EBT account balance. The buyer also has to trust the seller not to report the Independence card as lost or stolen before the buyer can access the benefits; such reports result in card deactivation. In addition, if the recipient is trying to sell only part of that month's allotment, the recipient has to trust the buyer to return the card after just the agreed-upon benefits have been withdrawn.

Not only do the mechanisms of trafficking appear to be more difficult with EBT, recipients, middlemen and retailers may view trafficking as more risky under EBT. The EBT

system maintains a log of all EBT transactions conducted at retailer's checkout terminals. If potential buyers and sellers of benefits believe that system records would increase their chances of being caught, the level of trafficking might decrease. Alternatively, the total could remain the same, but the discounted price could be lower to reflect the buyer's perceived increase in risk.

F.2 MEASURES OF THE TRAFFICKING ENVIRONMENT

To better understand the possible impacts of EBT on trafficking behavior, the evaluation included a series of questions about trafficking on the pre- and post-implementation surveys of recipients and retailers.¹ In view of the sensitivity of the topic, respondents were asked only about their general knowledge of trafficking, with emphasis that no information was being sought about any one person's behavior. Furthermore, the goal was not to derive estimates of the magnitude of trafficking with coupons or the EBT system; rather, the surveys sought information that would help indicate whether trafficking was more or less prevalent under EBT than with coupons.

On the recipient surveys, the first set of questions dealt with recipients' knowledge of the market for trafficking. In particular, did recipients know where or to whom benefits could be sold? We also asked whether the respondents knew of any other recipients who had sold benefits in the last year or month. In the retailer surveys, we asked respondents how many of the three nearest supermarkets and other stores they believed were engaged in trafficking.

A second set of questions in the recipient surveys sought information on the difficulty and risk of selling benefits under the coupon and EBT issuance systems. These questions dealt with the length of time needed to find a buyer, the general difficulty of selling benefits, the likelihood of getting caught, and the likely penalties faced if one were caught selling food stamp benefits.

1. These surveys are described in Beecroft *et al.*, *Evaluation of the Expanded EBT Demonstration*, Volume 3, Appendices A and F.

F.3 RECIPIENTS' KNOWLEDGE ABOUT TRAFFICKING MARKETS

Exhibit F.1 presents recipients' responses to questions about the market in which trafficking occurs. These questions were asked of all food stamp recipients interviewed in the pre- and post-implementation surveys. For comparison purposes, however, only responses of recipients residing in areas sampled for both surveys were tabulated. In addition, a pre-test of the post-implementation survey indicated that some respondents were clearly confused by our questions, apparently believing that trafficking with EBT benefits just was not possible. During the survey itself, interviewers were instructed to indicate, after this first set of questions was concluded, whether the respondent failed to understand how benefits could be sold. For these recipients (representing 13.3 percent of the sample), the remaining questions on trafficking were skipped. Inasmuch as responses to the first set of questions by this group of recipients would not be informative, the EBT results in Exhibit F.1 exclude responses by these individuals.

A suggestive pattern of EBT effects emerges from the responses in Exhibit F.1. A somewhat larger percentage of EBT recipients than coupon recipients knew of a food store where a recipient could trade food stamps for cash (11.3 percent versus 8.2 percent), but fewer EBT recipients knew of dealers or middlemen who regularly buy food stamps or of anyone who bought food stamps occasionally from a friend or retailer. This switch in where and with whom trafficking occurs is repeated in Question 4, which asked where the "anyone else" reported in Question 3 usually bought his or her food stamps.² The large increase (15.2 percent to 38.0 percent) in the response "store other than a food store" is a bit puzzling, because very few non-food stores were equipped with EBT terminals. It may be that the survey respondents were referring to these terminal-equipped stores, or that dealers were simply working out of local shops and stores. Regardless, the data suggest that EBT is perhaps moving trafficking "off the streets" and into stores.

One should not make too much out of the responses in Exhibit F.1 because the clearest message from these responses is that, regardless of issuance method, most respondents said they did not know anyone who trafficked or where trafficking was occurring.

2. The question numbering in this and subsequent exhibits does not always reflect the order of questions in the survey. The numbers are added to aid the discussion of results.

EXHIBIT F.1
RECIPIENT KNOWLEDGE OF TRAFFICKING MARKET

Question	Coupon (%)	EBT (%)	Difference ^a (%)
1. Do you know of a <i>food store</i> where a recipient could trade food stamps for cash?			
Yes	8.2	11.3	3.1
No	91.4	86.6	
Don't know/Refused/No answer	0.3	2.2	
2. Do you know of anyone who hangs around the <i>welfare office</i> and regularly buys food stamps?			
Yes	5.3	2.7	-2.6
No	94.2	95.2	
Don't know/Refused/No answer	0.5	2.1	
3. Do you know of <i>anyone else</i> who regularly buys food stamps?			
Yes	14.1	7.6	-6.5
No	76.0	84.5	
Don't know/Refused/No answer	9.9	7.9	
4. If so, where does that person usually buy food stamps? ^{b,c}			
Store other than a food store	15.2	38.1	22.9
On the street	54.0	40.1	-13.9
Soup kitchen or shelter	1.3	0.0	-1.3
Other	33.4	25.7	-7.7
5. Do you know of anyone who will buy food stamps occasionally from a friend or relative?			
Yes	14.9	13.3	-1.6
No	84.5	85.0	
Don't know/Refused/No answer	0.6	1.7	

^a EBT percentage minus coupon percentage.

^b Asked only of those respondents who answered "yes" to Question 3.

^c Multiple answers allowed.

We next asked respondents to think of the three people they knew best who were receiving food stamp benefits. Of these three people, we asked how many they thought had sold benefits for cash in the past year. Many respondents (46.9 percent of coupon respondents and 29.8 percent of EBT respondents) said they did not know or simply refused to answer the question. Of those who answered, 37.6 percent of coupon recipients and 50.1 percent of EBT recipients said "none." For respondents who identified at least one person who trafficked in the past year, we asked how many of the people identified had trafficked in the past month.

EXHIBIT F.2
RECIPIENT KNOWLEDGE OF SELLERS

Question	Coupon (%)	EBT (%)
6. Of the three food stamp recipients you know best, how many have sold stamps for cash in the past <i>year</i> ?		
None	37.6	50.1
One	5.0	10.1
Two	2.9	4.8
Three	7.7	5.3
Don't know/Refused/No answer	46.9	29.8
7. How many of them have sold food stamps in the past <i>month</i> ? ^a		
None	26.0	18.8
One	26.4	41.5
Two	13.1	19.9
Three	32.8	17.5
Don't know/Refused/No answer	1.7	2.4
Estimated mean percentage of recipients selling food stamps for cash in the past <i>year</i> .	20.7	16.8
Estimated mean percentage of recipients selling food stamps for cash in the past <i>month</i> .	14.8	12.9

^a Asked only of recipients who identified a seller in Question 6.

Based on the non-missing responses to these questions, we estimated the percentage of coupon and EBT recipients who were trafficking under the coupon and EBT systems, as shown at the bottom of Exhibit F.2. While the results do suggest some reduction in trafficking behavior under EBT (on the order of 12 to 19 percent), these results should be viewed very cautiously. First, they are estimates of the percent of recipients trafficking, not of the percent of benefits being trafficked. Second, the accuracy of this approach to estimating levels of trafficking has not been validated. Third, the large number of nonresponses could lead to large errors in the estimates. As an illustration, if *all* nonrespondents knew three traffickers (among the three food stamp recipients they knew best), the estimated mean percentage of recipients selling *coupons* in the past year rises from 20.7 percent to 58.3 percent. In the EBT system, the mean percentage rises from 16.8 percent to 42.2 percent. Conversely, if the nonrespondents did not know any traffickers, the mean percentage of coupon users selling benefits in the past year drops to 10.9 percent, and the mean percentage of EBT users selling benefits drops to 11.7

percent. Finally, apart from the variation in potential estimated means due to nonresponse, if one believes that respondents were less likely to answer these questions if they knew recipients who were trafficking, then the estimates in Exhibit F.2 are biased downward (the coupon estimate more so than the EBT estimate).

EXHIBIT F.3

"very hard" and "somewhat hard." The average of the reported length of time needed to find a buyer is also greater under EBT issuance, 12.0 hours versus 4.1 hours, but the EBT average (and to a lesser extent the coupon average) is sensitive to outliers at the high end of the distribution.

As shown in Exhibit F.4, sampled recipients also perceived a somewhat greater likelihood that someone selling EBT benefits would be caught, compared to someone selling coupons. The distributions of responses to the question of likely penalties were similar.

**EXHIBIT F.4
EXPECTED PENALTIES FOR TRAFFICKING**

Question	Coupon (%)	EBT (%)
12. Likelihood that someone who sells food stamps will get caught:		
Very likely	14.7	18.3
Somewhat likely	10.5	16.6
Somewhat unlikely	9.0	12.4
Very unlikely	27.5	20.0
Don't know/Refused/No answer	38.3	32.9
13. Likely penalty if caught selling food stamps for cash: ^a		
Jail	38.4	33.7
Disqualified from Food Stamp Program	32.8	39.6
Fine	16.7	13.6
Nothing happens	3.1	4.1
Food stamp benefits reduced	1.9	3.4
Other	4.8	5.3
Don't know/Refused/No answer	25.9	22.3

^a Multiple answers allowed.

Though not reported in an exhibit, we also asked respondents what the exchange rate was when selling benefits for cash. Most of the respondents (over 70 percent in each survey) reported that they did not know. Of those who gave an answer, the most common response in both samples was \$0.50. The average exchange rate for food stamp coupons was \$0.60; for EBT the average exchange rate was \$0.57, which certainly does not support the hypothesis that exchange rates might go down to reflect a perceived increase in risk associated with the transaction.

F.4 RETAILERS' KNOWLEDGE ABOUT TRAFFICKING ACTIVITIES

Retailers in the pre- and post-implementation surveys were asked the following question: "Of the three supermarkets that are located nearest to you, how many do you believe illegally traffic food stamp coupons (benefits)?" Retailers were then asked, for the supermarkets that had been identified, about what percentage of total food stamp redemptions were due to trafficking. Finally, a second set of parallel questions asked about trafficking in the three nearest non-supermarket stores.

Of the 210 retailers interviewed in the pre-implementation survey, 57 percent did not answer the first question about supermarkets. Of those that did, 93 percent said that none of the three supermarkets were engaged in trafficking. With regard to non-supermarkets, 95 percent of those answering said that none of the non-supermarkets was trafficking; 51 percent answered the question. No useful information was collected regarding the percentage of redemptions due to trafficking.

There were 170 retailers in the post-implementation survey. About 25 percent did not answer the first question. Ninety-six percent of the remaining retailers said that none of their three nearest supermarkets was engaged in trafficking. For the non-supermarket question, 70 percent answered the question, with 87 percent of this group saying they knew of no trafficking in these stores. Again, given the very limited number of respondents saying they believed nearby stores were trafficking, the data on percentage of redemptions due to trafficking are not very reliable and are not reported.

It seems that large numbers of retailers were reluctant to answer our questions regarding trafficking. Given the paucity of data, we would not draw any conclusions on the basis of this evidence.

F.5 CONCLUSIONS

Keeping in mind the sensitivity of some of the questions we were asking and the general difficulty faced when trying to collect valid information on illegal activity, one must be cautious not to overinterpret the results of the evaluation's investigation of food stamp trafficking under the coupon and EBT systems. Nevertheless, it appears that the introduction of EBT may be reducing trafficking behavior somewhat. Respondents to the recipient surveys reported knowing slightly fewer recipients, on average, who were selling benefits under the EBT system than the

coupon issuance system. More EBT respondents than coupon respondents also reported that it would be hard to sell food stamp benefits, and the average reported time needed to find a buyer was greater under EBT than with coupons. Such differences in the market for food stamp benefits, if they truly exist, could dissuade some recipients from trying to sell their EBT-issued benefits. Those recipients who are determined to convert benefits to cash, however, will probably make the effort to learn how to do so.