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Volume 2:

Assessment of Statewide Operations

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Project Director

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Executive Summary

This is the second volume of the final report of the Evaluation of the Expanded Off-Line Electronic Benefit Transfer (EBT) System in Ohio. As described in Volume 1, this system uses a smart card (i.e., an electronic transaction card with a built-in processor and memory) known as the Ohio Direction Card. Each food stamp transaction occurs through interaction between the smart card and the retailer's point-of-sale (POS) terminal. In contrast, 42 States and the District of Columbia use on-line EBT systems, in which the POS terminal communicates on-line with a central computer to obtain authorization for each transaction. The Food Stamp Act (as amended in 1996) requires all States to implement EBT systems by October 2002, but the Act allows the States to choose either on-line or off-line EBT technology.

Beginning in July 1996, the Ohio Direction Card system was designed, developed and implemented by the Ohio Department of Jobs and Family Services (ODJFS), its team of contractors led by Citicorp Electronic Financial Services Inc. (Citicorp EFS), and the 88 County Departments of Jobs and Family Services (CDJFS). Since February 2000, all recipients in the Food Stamp Program (FSP) in Ohio have received their benefits via the Ohio Direction Card, except for certain recipients of Supplemental Security Income (SSI) who receive their FSP benefits as cash supplements to their SSI checks.

This volume presents the evaluation's findings regarding the operations of the Ohio Direction Card system after the completion of the design, development and implementation stages described in Volume 1. These findings are based on an extensive array of data collected from existing reporting processes, special reports for the evaluation, and interviews with system officials. The data used in this report represent the Ohio Direction Card system as it operated in March through June 2000. As of March 1, 2000, 82 percent of food stamp recipients were in counties that had been fully converted to EBT for at least three months. The principal data collection for this volume took place from May through July 2000, although additional data were collected in the summer and winter of 2001. The evaluation results were compared with findings from the three most recent EBT system evaluations—the studies of the statewide Maryland on-line EBT system, the Dayton, Ohio off-line EBT pilot system, and the Wyoming off-line EBT pilot system. Comparisons with the coupon issuance system were not included, because of the mandate for all States to implement EBT.

Patterns of Statewide EBT System Use and Recipient Service

Reports produced by the Ohio Direction Card system provide insights into the patterns of system use by recipients. The system served an average of 257,600 FSP households per month during the evaluation period. About $44 million in food stamp benefits were made available each month. Recipients loaded about $43 million in benefits per month onto their cards, and $1 million in benefits per month were returned after reaching their expiration dates. On average, each recipient household made 6.8 purchases per month using retailer point-of-sale (POS) terminals, with an average value of $24 per POS purchase. Only 0.06 percent of transactions were manual purchases authorized by the EBT vendor's customer service unit when the retailer could not perform a regular POS transaction. About 0.3 percent of POS transactions were blocked by system security measures, mostly because the cardholder entered the wrong personal identification number (PIN).

At the local CDJFS offices, one of the major recipient service tasks was issuing Ohio Direction Cards to new food stamp households and as replacements for lost, stolen or damaged cards. On average,

about 9,100 cards for new households and 8,500 replacement cards were issued each month. The statewide monthly replacement rate was 35 cards per thousand cases, but it ranged among the counties from 14 per thousand cases to 89 per thousand cases. The counties that implemented first tended to have the highest replacement rates. Over time, cards are increasingly likely to be replaced because of damage or loss. At the time covered by these data, the CDJFS often replaced recipients' cards when they transferred, but subsequent system improvements eliminated this source of card replacements.

Customer service statistics provide a window on the needs for assistance encountered by recipients and retailers. The customer service center received, on average, about 157,000 calls per month from EBT recipients and 10,000 calls from retailers. About 84 percent of all recipient calls to the center were balance inquiries handled by the system's audio response unit (ARU), which also handled 15 percent of retailer calls. Customer service operators handled the remaining calls. Balance inquiries made up the vast majority (89 percent) of the recipient calls handled by customer service operators. The most common reasons for retailer calls to customer service operators were equipment and communications problems (43 percent) and inquiries about settlement (31 percent).

Operational Costs

For the period analyzed, the estimated total operational cost of the statewide Ohio Direction Card system averaged $1.7 million per month, or $6.56 per month per participating case. This cost includes both the expenses incurred directly by ODJFS and those billed by Citicorp EFS and the CDJFS to ODJFS, as shown in Exhibit ES-1. The estimated cost of ODJFS activities, including EBT unit staff and technical support, was $0.20 per case month. The estimated average operational cost billed to ODJFS by Citicorp EFS was $4.48 per case month. The estimated average CDJFS cost for EBT services was $1.88 per case month. ODJFS reimburses the CDJFS for FSP administrative costs, including EBT costs.

ODJFS paid Citicorp EFS $3.99 per case month for basic EBT services provided by Citicorp EFS and its subcontractors. (All costs presented on a per-case month basis were computed using the number of participating cases. Citicorp EFS' monthly fee for these services was $3.80 for each household to which ODJFS issued benefits, including participating and non-participating households.) ODJFS also paid Citicorp EFS $0.49 per case month for costs added to the basic EBT service contract, including leases and maintenance on supplemental equipment and telecommunications fees. To address retailer concerns, ODJFS paid to equip 2108 more checkout lanes than required by the Federal formula for equipping FSP retailers. The billed vendor cost includes depreciation of the one-time cost of the supplemental equipment leases and an estimated monthly average cost of the maintenance and supplies for the equipment, both over a five-year period.

The largest functional component of the vendor costs as billed to ODJFS was the estimated cost of $2.66 per case month for providing all POS and administrative terminals used in the system. This portion of the billed vendor cost covered leases, supplies and maintenance for both the equipment mandated by the basic contract and the supplemental equipment requested by ODJFS. (Evaluation data on vendor resource costs were used to break down the billed vendor costs into functional components.) The other components of billed vendor costs were administration and reconciliation

Exhibit ES-1
Ohio Direction Card Operational Costs

Cost Category	Average Monthly Cost	Average Cost Per Case Month[a]
Billed Vendor Costs		
Basic Monthly Fees[b]	$1,028,304	$3.99
Additional Equipment for 2108 lanes[c]	$47,618	$0.18
Maintenance and Supplies for Additional Equipment[d]	$76,591	$0.30
Toll-free Access to Customer Service	$2,035	$0.01
Total Billed Vendor Costs	$1,154,547	$4.48
Local Costs		
Labor	$338,653	$1.31
Overhead	$144,384	$0.56
Total Local Costs	$483,038	$1.88
ODJFS Costs	$50,989	$0.20
Total Costs	**$1,688,574**	**$6.56**

a The number of cases used is 257,600, the average caseload between March and June 2000.

b The basic charge per case is $3.80, but the higher cost per case reflects the fact that, on average, about 5 percent of cases with st aged issuances do not pick up benefits.

c The cost of equipment represents straight-line depreciation of lump-sum lease payments over a 5-year period.

d Maintenance cost is an average over a 5-year period, rather than just over the evaluation period.

($0.52 per case month), smart cards ($0.46 per case month), data center operations ($0.34 per case month), communications ($0.29 per case month), customer service ($0.14 per case month), and other costs ($0.07 per case month).

The estimated CDJFS cost of $1.88 per case month for Direction Card operations included labor costs and associated overhead. This figure represents a statewide average estimated from data collected in interviews with staff in five large CDJFS and five small CDJFS. The vast majority of this cost ($1.54 per case month) was for specialized staff who issued cards, trained new recipients, and resolved problems. Supervisors to these staff accounted for $0.30 per case month, and the remaining $0.04 per case month was for the occasional assistance of caseworkers.

The CDJFS costs included three categories of activity: card services, benefit services, and administration. Time spent on card-related activities (including recipient training, card issuance, and card trouble-shooting) cost $1.30 per case month. Dealing with benefit-related needs cost $0.30 per case month, and local administration cost $0.28 per case month. Large counties had an average cost of $1.76 per case month, whereas small counties had an average cost of $2.01 per case month, mainly because of differences in efficiency attributable to economies of scale.

The estimated operational cost per case month of the statewide Ohio Direction Card system was 29 percent less than the $9.22 per case month operational cost of the Dayton, Ohio off-line EBT pilot

system (as estimated in 1992 and adjusted to FY2000 dollars). The dramatically larger size of the Ohio Direction Card system enabled ODJFS to realize substantial economies of scale, particularly in project administration and data center operations. In addition, the Ohio Direction Card was a more mature and stable system than the Dayton pilot system (on which it was based). The costs of smart cards and other off-line EBT technology had declined since the time of the pilot. The overall CDJFS cost for the Ohio Direction Card was very similar to the $1.95 per case month CDJFS cost for the Dayton pilot, because greater efficiencies in the larger counties were offset by the addition of the smaller counties with their higher costs.

The operational cost per case month for the Ohio Direction Card system was 56 percent more than the $4.20 per case month cost of the Maryland on-line EBT demonstration system. The Maryland demonstration costs were estimated in 1993 by the last empirical evaluation of on-line EBT costs; the original results have been adjusted to FY2000 dollars. Both vendor and local agency costs were substantially less in the Maryland on-line demonstration system than in the Ohio Direction Card system. One reason is that off-line EBT hardware and software are more sophisticated and expensive than on-line EBT technology. Another reason is that the 1993 FSP caseload in Maryland was much higher, relative to the number of retailer checkout lanes and other key parameters, than the 2000 FSP caseload in Ohio. In addition, the Maryland demonstration system served cash assistance programs as well as the FSP, so POS equipment costs, card-related expenses and technical support costs were shared. Local agency costs were higher in the Ohio Direction Card system than in the Maryland demonstration system, because more problems in off-line EBT systems require the assistance of the local office.

On the other hand, the Ohio Direction Card operational cost per case month was 43 percent less than the inflation-adjusted cost of $11.61 per case month for the FSP portion of the Wyoming off-line EBT demonstration system. The Wyoming demonstration served both the FSP and the WIC program in a single county when it was evaluated in 1995; six other counties had only the WIC portion of the demonstration system. (Wyoming has since implemented a statewide off-line EBT system for the FSP and WIC on a multi-vendor contracting model.) Much of the difference in cost between these two systems can be attributed to the small scale and novelty of the Wyoming demonstration system. These effects were partially offset by the sharing of card and POS equipment costs in the Wyoming demonstration between the FSP, WIC, and the use of the smart card as a portable health record.

Analysis of vendor fees in three States with recent on-line EBT contracts suggests that the Ohio Direction Card is more expensive for a vendor to operate than comparable on-line EBT systems, under current conditions. The three States in the analysis were Maryland, Pennsylvania and Virginia, all of which have contracts that are similar to Ohio's in size, prime contractor, and recipient service requirements. The size of the cost premium is uncertain, but it is likely $1 per case month or more.

The largest factor explaining the observed cost differences is the cost of providing POS equipment to all FSP retailers. In on-line EBT systems, vendors equip only a fraction of the FSP retailers, because many retailers use multi-purpose POS terminals to accept credit and debit cards as well as EBT. ODJFS' formula for providing retailer equipment is more generous than the FNS regulations, and ODJFS requires a higher standard for timeliness of equipment repair than most States. Card costs also contribute to the higher vendor costs in the Ohio Direction Card system, but these costs may be partially offset by the substitution of processing on the card for on-line processing by telecommunications networks and the host computer.

Although there are only a few full-service on-line EBT vendors, there has been even less competition in off-line EBT procurements, at least until the most recent solicitation by New Mexico and Texas. Thus, current on-line EBT vendor fees may be more competitively priced than the current fees for the Ohio Direction Card. There are concerns, however, that declining competition may lead to increased prices for on-line EBT services, relative to the level of service provided. Further analysis beyond the scope of this study, including sensitive vendor cost data for both types of systems, would be required to discern the cost impacts of differences in technology, level of service, and the vendor marketplace.

Projections of FSP Costs Under Various Conditions

To probe the factors that shaped the FSP administrative costs of the Ohio Direction Card system, and to investigate how the system's costs might be reduced, projections of costs were made for a series of hypothetical scenarios. These scenarios provide insights into how EBT cost savings for the FSP might occur with increases in the caseload served, addition of other benefit programs to the system, decreases in POS and administrative terminal costs, and changes in recipient services. For most scenarios, "high" and "low" projections were made, using different assumptions for critical parameters.

The scenario with a FSP caseload of 600,000 (the level for which the Ohio Direction Card system was designed) yields the lowest operational cost, $4.31 per case month for vendor, local and State operations with the more optimistic assumptions. The other scenarios with the most impact on FSP operational costs are (a) the addition of WIC benefits to the EBT system on a statewide basis; (b) the addition of Temporary Assistance to Needy Families (TANF) benefits on a statewide basis; and (c) the use of integrated POS equipment to accept commercial debit cards, credit cards and EBT cards in multi-lane stores. All of the scenarios with the most impact on FSP costs achieve much of their results through the sharing of POS terminal costs, and these scenarios generally achieve additional savings through the sharing of fixed central costs. On the other hand, none of the scenarios reduces local office costs to the level estimated for on-line EBT systems.

None of the scenarios reduces the FSP EBT cost to the $3.92 per case month level that would represent cost-neutrality (i.e., total cost less than under the coupon system, after adjusting for inflation). FNS standards (based on prior coupon issuance costs in Ohio) capped FY2000 Federal reimbursements of FSP EBT costs at $1.96 per case month or 50 percent of actual costs, whichever was less. Thus, to the extent that FSP EBT costs exceeded $3.92 per month, ODJFS bore all of the additional costs, and the system was not cost-neutral. It is possible, but not certain, that some combination of the scenarios in this report might reduce FSP EBT costs to the cost-neutrality level. The Food Stamp Reauthorization Act of 2002 eliminated the cost-neutrality requirement for EBT systems, but the underlying issue of high costs for the Ohio Direction Card system remained.

Benefit Loss and Diversion

The evaluation assessed the vulnerabilities of the Ohio Direction Card system to benefit loss and diversion, and it compared these vulnerabilities to those of the Dayton, Ohio off-line EBT pilot system and the Maryland on-line EBT demonstration. As in the Dayton and Maryland evaluations, the risks were assessed for five categories of vulnerabilities: excessive authorizations of benefits to recipients, excessive redemption credits to retailers or banks, production and handling losses, benefits lost or stolen from recipients, and benefits used in an unintended manner (e.g., trafficking). The

assessments were based on nine interviews with a range of stakeholders and security specialists with knowledge of EBT, the Ohio Direction Card system, or off-line system and smart card technologies.

In general, the Ohio Direction Card system was judged to pose less risk of benefit loss to the FSP than either of the previously evaluated EBT systems or the current on-line EBT systems. The security features of the smart card environment contributed to the reduction in risk, as did Ohio Direction Card policies and procedures shaped by system features.

The total estimated losses for the Ohio Direction Card system are just under 0.19 percent of benefits, including all potential losses to the FSP, retailer losses, and recipient losses. This figure is substantially less than the estimated total losses for the Maryland on-line demonstration, at 0.47 percent of food stamp benefits, and it also represents a lower level of risk than in the Dayton, Ohio off-line pilot, which was estimated at less than 0.25 percent of benefits. The estimated FSP loss for the Ohio Direction Card is less than 0.01 percent of benefits, essentially the same as the 0.005 percent estimate for the Maryland on-line demonstration and less than the 0.03 percent estimate for the Dayton off-line pilot.

The most significant reductions in estimated loss were in the areas of excessive authorizations and excessive redemptions. The estimated reduction in vulnerability was attributed to procedural changes and additional system safeguards. A key factor in the reduction in estimated vulnerability for the authorization process is the addition of message authentication codes. The card uses the message authentication code to check whether it has already processed the authorization, thereby preventing duplicate posting of benefits, and whether the authorization data have been altered. Causes for reductions in redemption losses include the Direction Card system requirement that retailers obtain an authorization code before clearing daily transactions from their POS terminals. This control reduces the risk of a retailer losing sales by clearing a batch from the terminal before uploading the transactions to the processor. (This vulnerability represents a loss to the retailer, but it is included in the total estimated risk of redemption losses.)

Two factors virtually eliminated loss-prone manual voucher transactions. First, the off-line technology eliminated communication problems as a reason for manual vouchers. Second, ODJFS adopted a policy requiring retailers to bear liability for this type of transaction, because of the difficulty of verifying the recipient's balance at the time of authorization. The off-line technology also eliminated another source of risk, the on-line systems' option of key-entering the card number instead of electronically reading the card.

On the other hand, the estimated risk of benefit diversion to unintended purposes is between 2.18 and 3.67 percent of benefits, a range that is higher than the estimates from the previous EBT evaluations for a combination of historical and methodological reasons. Since the previous evaluations, there has been an extended period for perpetrators of fraud to learn how EBT systems operate and adapt their methods of trafficking and other forms of benefit diversion. Meanwhile, the available estimates of the overall rate of FSP trafficking have increased considerably. A 2000 FNS study of data on retailer characteristics and compliance investigation results estimated the rate of trafficking at 4.0 percent of benefits in the paper coupon system and 3.5 percent with a combination of paper coupons and EBT.

When the previous evaluation findings are updated to incorporate the new trafficking estimates, the estimated rate of benefit diversion in the Ohio Direction Card system is slightly less than the updated estimate of 3.69 percent of benefits for the Maryland on-line demonstration. This difference reflects a

smaller risk of redemption by unauthorized retailers in the Ohio Direction Card. Because of the increased experience of recipients and retailers, the benefit diversion estimate for the Direction Card is equal to or greater than the updated estimate of 2.18 percent for the Dayton off-line pilot. Study respondents believed that the familiarity of recipients and retailers with the system enables them to find methods of trafficking that are harder to detect.

The Ohio Direction Card system has a slightly lower risk of retailer loss than the Dayton pilot or the Maryland on-line EBT demonstration. This difference reflects an expectation of fewer processing errors, but it also reflects the greatly reduced incidence of manual transactions. During their respective evaluation periods, the Ohio Direction Card system had far fewer manual transactions (as a percent of all transactions) than the Maryland on-line EBT demonstration. Retailers are always liable for manual transactions in the Ohio Direction Card system, whereas these transactions are guaranteed under most conditions in on-line EBT systems. It is unclear whether the difference in manual transactions reflects a reduced need (because of the off-line technology), reluctance of retailers to process manual transactions because of liability, or a combination of these factors.

The experts interviewed for the study felt that, on balance, retailers in the Ohio Direction Card system are less likely to experience losses from manual sales than in on-line systems, despite the lack of a guarantee of funds for manual sales. The retailers' liability for manual sales in the Ohio Direction Card system is offset by two factors: the elimination of technological problems that cause retailers to process manual sales and the policy restricting when manual sales are authorized.

Feasibility Assessment

Overall, the Ohio Direction Card system has successfully met the needs of recipients, retailers and FSP agencies. Recipients have been able to load benefits and redeem them for food with relatively few problems. Retailers have been provided sufficient equipment and training, and problems with POS equipment and system access are rare. FSP agencies have successfully adapted to their new roles and processes for card issuance, benefit issuance, settlement, reconciliation, and retailer management.

From the perspective of recipients, the Ohio Direction Card system has both advantages and disadvantages relative to on-line EBT systems as they operate in most States, particularly those States that have streamlined local operations to reduce costs. The Ohio Direction Card system offers a high level of recipient service, but recipients must go to local offices for card issuance, training, card replacement, and unlocking cards that have been flagged as suspicious. Many on-line EBT systems offer these services both in-person and by telephone or mail. Ohio recipients are less likely to encounter transaction delays and the need for manual transactions. On the other hand, they must wait longer for benefits to be available after new or replacement card issuance. Each recipient has a limited number of sites to load benefits, which expire if not picked up by the end of the month (as required bo ODJFS policy). Ohio Direction Cards cannot be used when traveling or moving out of state. Compared with recipients in on-line EBT States, Ohio recipients can expect a slightly lower risk of benefit loss or theft, but differences between card and host balances increase the likelihood of recipient confusion.

Retailers also face both advantages and disadvantages under the Ohio Direction Card system, as compared with the typical on-line EBT environment. Unlike in many on-line States, all retailers

receive free EBT equipment and on-site training, including low-volume stores, route vendors, and farmers' markets. The State's formula for providing this equipment is more generous than FNS regulations require. On the other hand, retailers have found it too costly to integrate the Ohio Direction Card system with their credit/debit terminals and cash registers, and the dedicated EBT equipment requires extra space and special training for personnel. Like the recipients, Ohio Direction Card retailers gain from not being dependent on telecommunications networks and host computers to complete transactions. Ohio retailers can accept out-of-state EBT cards only if they have suitable direct-connect or third-party processor commercial POS systems, and out-of-state retailers wishing to accept Ohio Direction Cards are constrained by the system's lack of interoperability with their States' EBT systems. The EBT vendor provides a high level of service, but retailers are dependent on the vendor because of the reliance on dedicated equipment. As previously discussed, the Ohio Direction Card system has a slightly lower risk of retailer loss from overdrafts on manual transactions. This difference may result from a reduced need for manual transactions, policies limiting when they can be authorized, reluctance of retailers to process manual transactions because of liability, or a combination of these factors.

For local FSP offices, the Ohio Direction Card system provides a high level of equipment and support, and the equipment is in some ways more efficient than equivalent equipment for on-line EBT systems. On the other hand, the Ohio Direction Card system requires local staff to use costly supplemental equipment or hotline assistance to replace cards, change personal identification numbers, or change recipients' issuance sites. The requirement to load benefits at a local site before they expire serves as a check on recipients who may move without reporting or may be participating fraudulently. On the other hand, the steps required to make benefits available to new recipients make this process less efficient and slower than in on-line EBT systems, and updates to the benefit issuance history are slower.

From the broader perspective of all FSP administrative agencies, the principal advantage of the Ohio Direction Card system is the lack of reliance on on-line transaction processing by third-party processors, retailers' in-house processing systems, telecommunications networks and host computers. As a result, the Ohio Direction Card system as a whole is operationally more stable and less prone to downtime than on-line EBT systems. Its cost structure is likely to be more stable as well, because it is less sensitive to variability in the volume, timing and routing of transactions. In addition, the Ohio Direction Card system appears to offer a slightly lower risk of benefit loss and diversion. Compared with on-line EBT systems, the Ohio Direction Card system is less vulnerable to interruption of benefit redemption in a short-term (1-3 day) disaster, because retailers can continue to process transactions without access to the EBT host computers (and even without regular electrical power). On the other hand, the Ohio Direction Card system is more likely to encounter problems with benefit issuance in a disaster, and mass card issuance for widespread disaster relief is more difficult.

The principal disadvantage of the system to FSP agencies is that it has higher costs for implementation and operations due to the greater requirements for dedicated POS terminals, in-person recipient service, and card technology. The Ohio Direction Card system provides less timely information on card activity for program monitoring. The process of disconnecting terminated retailers is also slower, leaving more opportunity for retailer abuse. Some procedures for conducting retailer investigations in on-line EBT systems are more cumbersome or not feasible in the off-line environment.

The Ohio Direction Card system appears to be able to operate in its current form for the foreseeable future, but there are some important challenges to be faced. The greatest issue is whether ODJFS will have more than one off-line EBT vendor team available in the future. The extent of competition will affect both future costs and the ability to continue operations if one firm left the market. In the longer term, developments in enhanced EBT and other smart card applications may provide ODJFS (and other States) more contracting options, such as a combined procurement for an off-line EBT and electronic service delivery (ESD) system. ODJFS also needs to address the obsolete operating system and telecommunications interface used in the CMS terminals, which are vital to card issuance and other recipient services.

There are a number of issues that would have to be addressed to adapt the Ohio Direction Card system to serve the FSP in another state. The main issue is that, like Ohio, other States adopting off-line EBT would have to build the off-line POS terminal infrastructure largely from scratch, either on their own or in partnership with major retailers. Another issue is the lack of interoperability with on-line EBT systems. The rise of self-checkout systems may pose a problem for Ohio and other States, because self-checkout procedures are more dependent on integrated electronic payment systems than conventional procedures involving a cashier.

Similarly, there are important issues affecting the feasibility of extending the Direction Card system to other programs administered by ODJFS and similar agencies, particularly TANF. The cost-effectiveness of off-line EBT is the largest issue for all of these programs. For TANF, the other key issue is finding a way to make cash available, when the most widely available systems for dispensing cash (ATMs) are not equipped to accept smart cards. The use of smart cards for child care assistance and other ODJFS programs is an interesting but unproven possibility.

For the WIC program, the technical feasibility of off-line EBT has been demonstrated in Wyoming, but there is still the challenge of bringing costs down to that of paper checks and vouchers. The WIC program has not yet demonstrated that an off-line EBT system will be acceptable to WIC retailers when implemented in a large state such as Ohio, with its numerous urbanized areas containing large concentrations of participants. Retailers' acceptance will depend on the balance of two factors: the challenges of integrating WIC EBT processing with checkout counter operations and the gains from eliminating paper WIC food instruments. The FSP/WIC EBT pilot in Ohio and other States' WIC EBT initiatives offer new opportunities for solutions to these problems.

Aside from the issue of cost, the Ohio Direction Card system appears to be a viable alternative to the prevalent on-line EBT systems. Neither type of system has a clear overall advantage in effectiveness. On balance, the Ohio Direction Card system appears to have more advantages than disadvantages for recipients. For retailers and FSP agencies, the preference depends on the importance attached to each system's advantages and disadvantages.

The evaluation results indicate that achieving costs at the level of the standard based on paper issuance costs would require major changes in the FSP caseload or other fundamental parameters. The cost difference between the Ohio Direction Card system and comparable on-line EBT systems may be smaller than the gap between the Ohio Direction Card system's costs and the paper issuance cost standard, but the evidence is far from clear. If concerns about diminishing competition among on-line EBT vendors are realized, the cost difference between off-line and on-line EBT systems could diminish.

The evaluation results pose a challenge for Federal and State decision-makers considering the future of off-line EBT systems for the FSP. The choices could be made clearer through acquisition of more information on the reliability and user acceptance of the Ohio Direction Card system and current on-line EBT systems, and on the relationship of costs to service levels in on-line EBT systems. Unless the results point to a clear and considerable preference for the Ohio Direction Card system, there would remain the challenge of weighing and valuing the differences in effectiveness between the Ohio Direction Card system and on-line EBT systems. The evaluation results suggest that, in the near term, the net value of the Direction Card system's advantages would have to be quite substantial to offset the current cost difference. Future public and private developments in smart card applications and in the marketplace for transaction processing services may change the balance and offer a more attractive environment for pursuing this robust but still emerging technology.

Chapter 1
Introduction

This is the second volume of the final report of the Evaluation of the Expanded Off-Line Electronic Benefit Transfer (EBT) System in Ohio. As described in Volume 1, this system uses a smart card (i.e., an electronic transaction card with a built-in processor and memory) known as the Ohio Direction Card. Each food stamp transaction occurs through interaction between the smart card and the retailer's point-of-sale (POS) terminal. In contrast, 42 States and the District of Columbia use on-line EBT systems, in which the POS terminal communicates on-line with a central computer to obtain authorization for each transaction. The Food Stamp Act (as amended in 1996) requires all States to implement EBT systems by October 2002, but the Act allows the States to choose either on-line or off-line EBT technology.

Beginning in July 1996, the Ohio Direction Card system was designed, developed and implemented by the Ohio Department of Jobs and Family Services (ODJFS), its team of contractors led by Citicorp Electronic Financial Services Inc. (Citicorp EFS), and the 88 County Departments of Jobs and Family Services (CDJFS). Since February 2000, all recipients in the Food Stamp Program (FSP) in Ohio have received their benefits via the Ohio Direction Card, except for certain recipients of Supplemental Security Income (SSI) who receive their FSP benefits as cash supplements to their SSI checks.

This volume presents the evaluation's findings regarding the operations of the Ohio Direction Card system after the completion of the design, development and implementation stages described in Volume 1. These findings are based on an extensive array of data collected from existing reporting processes, special reports for the evaluation, and interviews with system officials. The data used in this report represent the Ohio Direction Card system as it operated in March through June 2000. As of March 1, 2000, 82 percent of food stamp recipients were in counties that had been fully converted to EBT for at least three months. The principal data collection for this volume took place from May through July 2000, although additional data were collected in the summer and winter of 2001. The evaluation results were compared with findings from the three most recent EBT system evaluations—the studies of the statewide Maryland on-line EBT system, the Dayton, Ohio off-line EBT pilot system, and the Wyoming off-line EBT pilot system. Comparisons with the coupon issuance system were not included, because of the mandate for all States to implement EBT.

Chapters 2 through 5 present the results of each line of analysis regarding Ohio Direction Card system operations, as follows:

- Chapter 2 provides statistical information on the patterns of system usage, problems experienced and requests for assistance by recipients and retailers.

- Chapter 3 provides estimates of the administrative costs of operating the Ohio Direction Card system. The chapter compares these estimated costs to those of the Dayton, Ohio off-line EBT pilot project, the Maryland on-line EBT demonstration, the Wyoming off-line WIC/FSP EBT demonstration, and current on-line EBT systems.

- Chapter 4 presents projections of how the operational costs of the Ohio Direction Card system might be reduced under a variety of scenarios, highlighting the factors with the most impact on these costs.

- Chapter 5 describes the differences in vulnerability to benefit loss and diversion between the Ohio Direction Card system, the Dayton off-line EBT pilot system, the Maryland on-line EBT demonstration system, and current on-line EBT systems. This chapter presents expert estimates of the expected levels of FSP losses, participant losses, and benefits diverted to unintended use.

Chapter 6 offers an overall assessment of the feasibility of the Ohio Direction Card system. This assessment summarizes and weighs the evidence from the evaluation regarding how well the system meets the needs of recipients, retailers, and FSP agencies. The chapter also discusses the sustainability of current operations, the potential for transferring the system to other States, and the possibilities for delivering other assistance programs via the Direction Card. The chapter concludes with an assessment of the system's cost-effectiveness.

The appendices to this volume provide supporting information on the data collected and analysis methods used. Appendix A provides information on vendor cost data. Appendix B presents information on county-level cost data. Appendix C provides explanations and additional detail regarding the projections of system costs under alternative scenarios.

Chapter 2
EBT System Use and Recipient Service

2.1 Introduction

This chapter examines patterns of use of the Ohio Direction Card system and recipient service during the evaluation period, March - June 2000, using statistics from system reports. As seen in Exhibit 2-1, by the beginning of the evaluation period, all counties had completed recipient conversion, and 80 percent of the counties, representing 82 percent of the food stamp caseload, had at least 3 months of operating experience. Almost 25 percent of the counties, with 37 percent of recipient households, had a year or more of experience. Thus, it is expected that operational activity during the evaluation period is a good indicator of future operational activity.

Exhibit 2-1

Number of Months Since Completion of Recipient Conversion as of the Start of the Evaluation Period (March 1, 2000)

Time Since Conversion Completed	Number of Counties	Percent of Counties	Percent of Caseload
2 or more years	9	10%	16%
18 months – 2 years	10	11%	7%
12-18 months	3	3%	14%
6-12 months	16	18%	29%
3-6 months	32	36%	17%
Less than 3 months	18	20%	18%

2.2 Benefit Issuance and Loading Activities

During the evaluation period, approximately $44,000,000 in food stamp benefits were issued each month electronically in over 320,000 issuance transactions, averaging $138 per issuance. (See Exhibit 2-2.) The regular monthly issuance of food stamp benefits was staggered over the first one to fifteen days of the month, depending on the schedule chosen by the county. On any business day during the month, supplemental benefits and other non-recurring benefits were issued in separate issuance transactions.

Once benefits were issued, it was the client's responsibility to load benefits onto the card by making a balance inquiry or purchase request at a POS terminal. Benefits could be loaded at the County Department of Jobs and Family Services (CDJFS) office or at one of three retailer sites selected in advance by the recipients. Under ODJFS policy, all benefits had to be loaded by the last day of the

Exhibit 2-2

Statewide Benefit Issuance and Loading, Average Per Month, March – June 2000

Issuance Status	Number of Transactions	Total Value of Benefits	Percentage of Issued Benefits Loaded	Average Benefit Amount
Total issuances staged	320,140	$44,153,709	n.a.	$138
Loaded on issuance date	101,672	$19,148,016	46.4%	$188
Loaded within 1-2 days	79,289	$12,464,382	30.2%	$157
Loaded within 3-5 days	49,809	$6,082,513	14.7%	$122
Loaded within 6-10 days	27,709	$2,522,995	6.1%	$91
Loaded within 11-20 days	15,974	$928,322	2.2%	$58
Loaded within 21-30 days	4,510	$160,160	0.4%	$36
Loaded over 30 days[a]	1	$40	0.0%	$40
Issued but not loaded during month	41,009	$2,889,787	n.a.	$70
Issued prior month(s), loaded during month[b]	14,456	$1,718,196	n.a.	$119
Expired (returned to state)[c]	22,090	$1,004,821	n.a.	$45
Proportion of issuances expired	4.5%	3.9%		

a Benefits may be loaded over 30 days after the issuance date if issued on the first day of a 31-day month.

b Benefits issued after the 15th day of the month can be loaded until the end of the next month, at which time they expire.

c Includes benefits issued in current and prior months that expired during the month. Benefits issued in the first 15 days of the month expire at the end of the month if they are not loaded by then.

month, although the benefits did not have to be used during the month. That is, once posted to the card, unused benefits could be carried over from one month to the next. However, if a benefit was not loaded to the card by the end of the month, that benefit expired and was returned to ODJFS.[1] The ODJFS policy on expiration of authorized benefits was essentially the same as it had been for recipients who were required to pick up benefits in person under the food stamp coupon system.[2]

As displayed in Exhibit 2-2, on average, 4.5 percent of issuances were not loaded each month, thereby expiring, which led to 3.9 percent of total benefits being returned to ODJFS. As in the coupon system, households may have failed to participate for a variety of reasons, such as moving out of state or feeling that they did not need the benefits. In some cases, issuances were not loaded up because recipients had initial benefits authorized but did not obtain Direction Cards. According to ODJFS, review of case records indicated that these instances were rare but no count was available.

1 Benefits issued after the 15th of the month expired at the end of the next month.

2 ODJFS did not have data on the proportion of benefits that expired under the coupon system.

Benefit loading activity most often occurred within two days of issuance, although recipients continued to load their benefits throughout the month. The average issuance amount decreased as the loading period lengthened, suggesting that recipients with larger food stamp issuances loaded their benefits closer to the issuance date than those with smaller benefit allotments.

2.3 Card Issuance

Ohio Direction Cards were issued to households that were newly determined eligible for food stamps and as replacements for existing cards, as shown in Exhibit 2-3. During the evaluation period, on average approximately 17,600 cards were issued each month. Of these, approximately 9,100 cards were issued for new households and 8,500 were issued as card replacements. Nearly 88 percent of the cards replaced were reported as lost or stolen, while less than 2 percent of cards replaced were reported as damaged. However, county officials speculated that recipients who damaged their cards often reported them as lost or stolen. Interviews with ODJFS and county officials identified several types of situations when functioning cards were replaced when there was a problem with the assignment of the payee or a transfer from one county to another.[3]

Exhibit 2-3

Statewide Card Deployment, March – May 2000

Reason for Card Issuance	Average Number of Cards Issued Per Month	Percent of Cards Issued/Replaced
Total number of cards issued	17,623	100.0%
New card setups	9,097	51.6%
Card replacements	8,526	48.4%
Card replacements detail:		
Card chip failure	131	1.5%
Out of balance: not correctable	2	0.0%
Lost and stolen	7,472	87.6%
Other/Unknown[a]	921	10.8%

a Functionin g cards were sometimes replaced as the easiest way to effect a transfer for a recipient moving to a new county or to solve certain problems with access to benefits. An unknown portion of the "other/unknown" replacements involved these situations.

On average, 72 cards were issued per thousand cases each month during the evaluation period, including 37 cards for new entrants and 35 for card replacements (see Exhibit 2-4). Among individual counties, the minimum monthly rate of card issuance was 39 per thousand cases and the maximum was 201 per thousand cases. The higher card issuance rates typically occurred in smaller counties, where small changes in the absolute number of cases receiving food stamp benefits had large impacts on the card issuance rates.[4] As Exhibit 2-5 shows, the top two quartiles of counties (by caseload) had card issuance rates below the statewide average, while the bottom two quartiles had

[3] See Volume 1 for discussion of this issue.

[4] Examples of situations that might cause high rates of new entrants in small counties include plant closings or seasonal influxes of migrant farm workers in rural communities.

Exhibit 2-4

Monthly Issuance and Replacement Rates for Counties, March – June 2000

	Number of Cards Issued Per County Per Month	Number of Cards Issued Per 1,000 Cases	Number of New Entrants Per 1,000 cases	Number of Replacements Per 1,000 Cases
Minimum	14	39	0	14
Maximum	2,715	201	134	89
Average	211	72	37	35

Exhibit 2-5

Card Issuance Rates by County Quartile, March – June 2000

	Range of Cases	Average Total Cards Issued per 1,000 Cases	Average New Cards Issued per 1,000 Cases	Average Replacement Cards Issued per 1,000 Cases
First Quartile	2,402-34,459	71	37	33
Second Quartile	1,024-2,399	70	42	27
Third Quartile	566-1,008	77	48	29
Fourth Quartile	220-558	90	60	31

card issuance rates well above the statewide average. This difference was more pronounced for new card issuance rates, with a clear trend from a monthly rate of 37 cards per 1,000 cases for the largest quartile to a rate of 60 cards per 1,000 for the smallest.

The minimum number of card replacements per month per county was 14 per thousand cases, and the maximum was 89 per thousand cases. The counties that had been operating on the Direction Card system the longest had the highest card replacement rates. There are two factors that may have contributed to this trend. First, the replacement rate is likely to increase with the age of the card base because of cumulative exposure to damage and loss. Second, as the length of time for operations grows, increasing numbers of "new" cases are really returning households that have previously had Direction Cards. According to local staff, these returning households often need replacements for lost or damaged Direction Cards. (Data to differentiate between these factors associated with age were not available.) As indicated in Exhibit 2-5, the smallest and largest counties had the highest replacement rates, but the average replacement rates varied less among quartiles than the average new card issuance rates.

2.4 Recipient Transactions

This section examines data on the five most common types of recipient transactions involving credits or debits to recipient accounts. These transactions are described below.

- **Purchase Transactions** , in which recipients used their food stamp benefits to pay for program-eligible food items.

- **Issuance Transactions** , in which recipients loaded their food stamp benefits to their Direction Cards. Recipients could pick up more than one issuance in a month, if a one-time issuance was authorized in addition to the regular monthly benefits.

- **Refund Transactions** , in which retailers paid back to recipients the value of returned items originally purchased with food stamp benefits.

- **Manual Purchase Transactions** , in which retailers obtained authorization for purchases through customer service operators. These transactions were used only when EBT terminals were not working. Recipients were limited to one manual purchase transaction not to exceed $50 outstanding at any given time.

- **Purchase Reversal Transactions** , in which cashiers negated just-completed purchase transactions while the cardholders were present.

As seen in Exhibit 2-6, purchase and issuance transactions represented the vast majority of recipient transactions. On average, recipient households made 6.85 purchase transactions and 1.03 issuance pickup transactions each month. The average purchase was for $24. Each recipient household received at least one issuance each month, and the additional 3 percent represents supplementary or other non-recurring issuances to recipients. A very small percentage of total purchase transactions (0.06 percent) were performed manually. Factors contributing to this low rate included the restrictive policy regarding when retailers could process some manual transactions, the requirement that retailers assume liability for manual transactions, and the fact that retailers needed only to have a working POS terminal to process a regular POS transaction.[5]

Exhibit 2-6

Statewide Recipient Transactions, March – June 2000

	Average Number of Transactions Per Month	Percent of Total Transactions	Average Dollar Value Per Transaction	Average Number of Transactions Per Case
Purchase Transaction	1,763,815	86.68%	$24	6.85
Issuance Pickup Transaction	266,098	13.08%	$145	1.03
Refund Transaction	3,667	0.18%	$14	0.01
Manual Purchase Transaction	1,198	0.06%	$29	0.00
Purchase Reversal Transaction	138	0.01%	$38	0.00
Total	2,034,916			7.90

[5] The Ohio Direction Card policy permitted manual transactions only when all of the retailer's POS terminals were not operational and a service request had been placed. In on-line EBT States, retailers with operational POS terminals can conduct manual transactions if the host computer or telecommunications connection is down, as well as when POS terminals are down.

2.5 Blocked Recipient Transactions

One important type of problem encountered by recipients was having transactions blocked because their cards were locked. Direction Cards were locked for one of three reasons: 1) the card could be locked due to three consecutive invalid PIN attempts; 2) the card could be "stale dated" if it has not been used for 90 consecutive days; or 3) the card could be locked due to a "negative file" flag if it was reported lost or stolen.

- **Invalid PIN Attempt** - As a security measure to protect a recipient from unauthorized card access, the EBT system locked Direction Cards after three consecutive unsuccessful PIN attempts. If a recipient entered the PIN unsuccessfully two times, the card reader displayed INVALID PIN - REMOVE CARD. If the recipient did not remember the correct PIN, he or she could get help from the CDJFS to select a new PIN. If the recipient tried unsuccessfully to enter a PIN a third time, the card locked.

- **Stale Dated** - If a Direction Card was presented after it had not been used for 90 consecutive days, the POS terminal locked the card. The EBT host system transmitted a message to the CRIS-E system indicating which cards had not had any activity for the last 60 days. CRIS-E issued a notification to the recipients stating if the card was not used or reported lost or stolen in the next 30 days, the cards would be locked. If the card remained inactive for an additional 30 consecutive days, the EBT host system transmitted a second message to CRIS-E that the card was stale dated.

- **Negative Lock** - If a card was reported lost or stolen, a negative file flag was placed on the recipient's account number and transmitted to the appropriate POS terminals[6] at the next settlement. Flagged cards that were presented at POS terminals were locked. A negative flag (or card block) could also be placed on a suspect card if customer service noticed unusual card activity.

As can be noted from Exhibit 2-7, 52 percent of card locks were caused by invalid PIN attempts. While it was probably common for authorized users to enter an invalid PIN one or two times, less than 10 percent of invalid PIN attempts led to cards locking. Many of the invalid PIN locks probably resulted from attempts at unauthorized usage. Additionally, 34 percent of card locks were caused by stale dating, and 13 percent were caused by negative locks. During the evaluation period, approximately 2.7 percent of the average caseload of 257,600 experienced card locks each month. Overall, an average of 6,984 transactions per month were blocked, representing 0.3 percent of all recipient transactions. Recipients were instructed to bring locked cards to a CDJFS office, where Direction Card workers could unlock the cards, after verifying the cardholder's identity and determining the cause of the problem.

[6] Multi-lane stores, which were equipped with a personal computer with sufficient memory and processing capacity, received the entire statewide negative file during each daily settlement. However, single-lane stores received a regional negative file, which included only those cards reported as lost, stolen or damaged by recipients in the same or nearby counties.

Exhibit 2-7

Statewide Blocked Recipient Transactions, March – June 2000

Type of Transactions	Average Number of Transactions Per Month	Percent of Total Reasons for Lock
Invalid PIN Attempts	47,817	
Locks due to Invalid PINs	3,665	52%
Stale Date Locks	2,404	34%
Negative Locks	915	13%
Total Locks	6,984	
Percent of Transactions Blocked[a]	0.3%	

a Base includes purchases, benefit loading, and purchase refunds

2.6 Customer Service

SVS maintained a customer service center for the Direction Card system at its telephone center in El Paso, Texas. Customer service was available 24 hours a day, seven days a week. Separate toll free numbers connecting to the center were provided to Direction Card recipients, retailers, and county staff. Examining the incidence of calls to the customer service center provides a good source of information on the types of assistance needed by recipients.

When food stamp recipients called the customer service center, they were connected to an audio response unit (ARU). Callers were given three menu options: obtain card balance or other benefit information; report a card as lost, stolen, or damaged; or connect to a customer service agent. There were two groups of customer service agents. SVS had general customer service agents who responded to both EBT and non-EBT related issues. Additionally, SVS had specialized customer service agents who only responded to EBT-related calls and were more knowledgeable about the detailed aspects of the Direction Card system. Recipient calls to agents were either handled by a generalist or by a specialist, depending on the nature of the call and the call volume. Calls from county staff and retailers were always handled by the specialized customer service staff.

The ARU menu for retailers focused on requests for information about the last settlement processed by the system. By connecting to a customer service agent, retailers could obtain settlement information, report equipment problems,[7] or request documentation of prior EBT transactions. County staff could call customer service to request assistance with any of the Direction Card functions for which they were responsible. Most often they called to request authorizations for card replacements.[8]

7 The SVS customer service representatives forwarded any reports of equipment problems to CACI for response. Retailers directly contacted CACI to requests supplies.

8 The number of calls from county staff to the customer service center to request authorizations was available in system reports. However, there were no complete data on all county calls to the customer service center.

Each month during the evaluation period, the customer service center received, on average, approximately 157,000 calls from Ohio EBT recipients (see Exhibit 2-8). Customer service agents answered 98 recipient calls for every 1,000 recipient households.[9] The ARU handled the remaining calls, which amounted to 511 calls per 1,000 cases. Virtually all of the calls handled by the ARU were balance inquiries. Lost or stolen cards were very rarely reported via the ARU, according to SVS and ODJFS.

Exhibit 2-8

Number of Recipient Calls Received Statewide, by Type of Assistance Received, March – June 2000

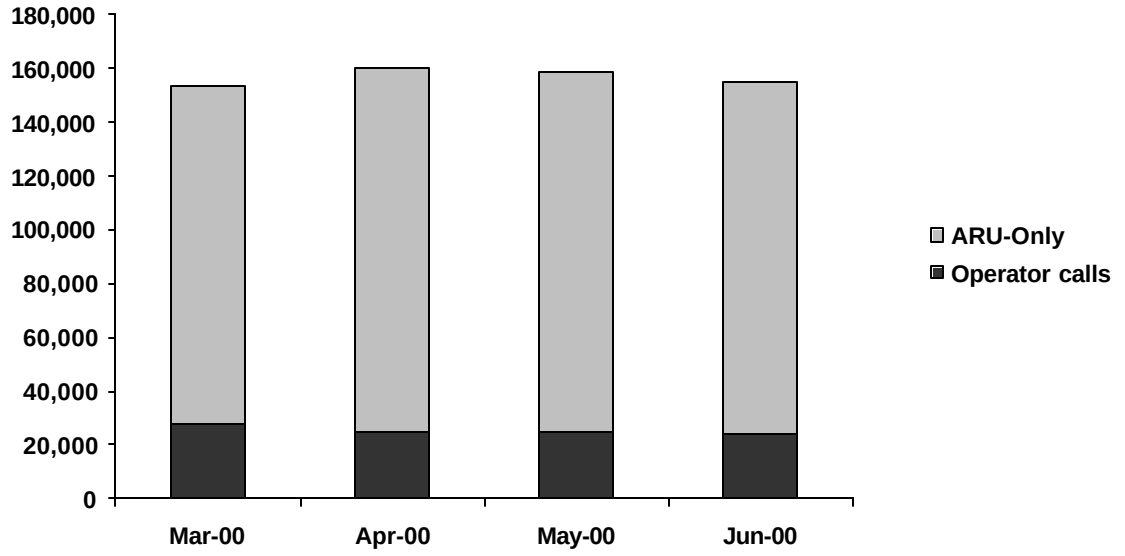

Exhibit 2-9 lists the reasons for recipient calls handled by customer service operators during the evaluation period, based on tracking data kept by the Direction Card system. Calls reporting lost or stolen cards represented 7.5 percent of calls to operators, and requests to change issuance sites were 3.3 percent of the total.

Despite the availability of the ARU, balance inquiries represented, by far, the most common reason for calls to customer service operators, 89 percent. This situation is found in on-line EBT systems as well. Officials believe that most of these calls were made by recipients checking to see whether their next benefits were available for pickup. Another cause for these calls may have been the incidence of discrepancies between the balance reported by the ARU and recipients' expectations, based on their known transactions and expected issuances. Recipients in off-line systems may be more likely to be confused about their balances, because the information provided by the ARU (based on the host balance) sometimes lags behind the activity on the card.

[9] The available data may slightly underestimate the proportion of recipient calls handled by operators. If a recipient call did not have a defined reason code or require an operator authorization, it was not counted in the source used for this analysis. According to SVS, such calls were rare.

Exhibit 2-9

Statewide Recipient Calls to Customer Service Operators, by Reason, March – June 2000

Major Reasons for Recipient Calls	Percent of Total Reasons for Calls[a]
Balance inquiry	89.0%
Report lost card	6.4%
Change issuance site	3.3%
Report stolen card	1.2%
Transaction inquiry	0.1%
Report returned card	0.1%

a The percentages presented are based on the frequencies of calls to the customer service operators by reason. In actuality, some calls involve more than one reason.

As shown in Exhibit 2-10, the customer service center received about 10,000 retailer calls per month. The specialized agents handled about 85 percent, and the ARU handled the rest. Retailers used the ARU to check their settlement totals.

Exhibit 2-10

Number of Retailer Calls Received Statewide, by Type of Assistance Received, March – June 2000

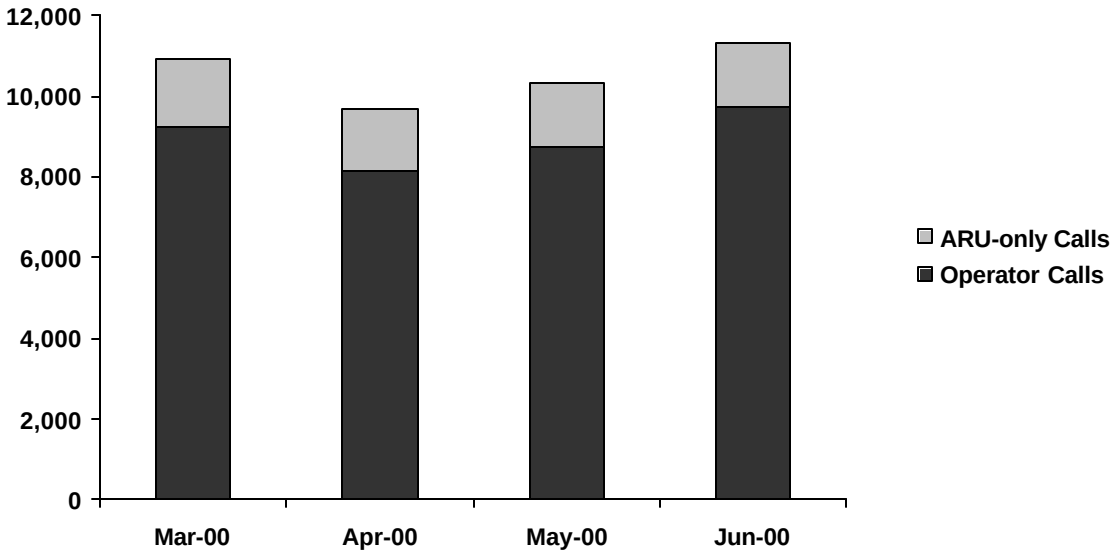

Exhibit 2-11 lists the known reasons for retailer calls handled by customer service operators during the evaluation period. Reporting of equipment and communications problems represented 43 percent of retailer calls to the customer service center; retailer settlement inquiries represented 31 percent of calls; and authorization for manual transactions represented 26 percent of calls. These data are based on the retailer calls to operators for which the reason was recorded. Due to limitations of the tracking system in place at the time of the evaluation, only 18 percent of operator calls had a recorded reason.[10] According to SVS, most calls that were not tracked involved requests for information that did not require a lookup on the EBT host, or else they were follow-up calls from retailers about previously reported problems.

Exhibit 2-11

Statewide Retailer Calls to Customer Service Operators, by Reason, March – June 2000

Major Reasons for Retailer Calls	Percent of Total Reasons for Calls[a]
Equipment/Communications Problems	43%
Retailer Settlement Inquiry	31
Manual Transactions	26%

a The percentages presented are based on the frequencies of calls to the customer service center by reason. In actuality, some calls involve more than one reason. About 82 percent of total retailer calls did not have a reason code at the time covered by the data.

[10] SVS later installed new call management software that provides more complete and consistent data on retailer calls.

Chapter 3
Operational Costs

3.1 Introduction

A primary objective of this evaluation was to quantify the administrative costs associated with the statewide expansion of the off-line EBT system in Ohio. The evaluation examined design, development, implementation and operational costs of the Ohio Direction Card system. An analysis of the Direction Card operational costs is the subject of this chapter. Although this chapter presents descriptive results for actual operations, the following chapter presents cost projections under various operating conditions.

For the period analyzed, the estimated total operational cost of the statewide Direction Card system in Ohio was $1.7 million per month, or $6.56 per case month, including the shares of costs funded by the State and FNS.[1] All operational costs presented for the Ohio Direction Card are averages over the period March - June 2000,[2] the operational period for which data were obtained, unless otherwise noted. In the next section, the research design and data sources for the Ohio Direction Card system are discussed.

Following the presentation of research design and data sources, operational costs for the statewide Direction Card system are presented and compared to the costs of the off-line EBT pilot in Dayton. A comparison with the Dayton pilot system was one of the major objectives of this evaluation. The operational cost per case month of the statewide Ohio Direction Card system was 29 percent less than the operational cost per case month of the Dayton pilot, after adjusting for inflation.[3] Furthermore, vendor costs, local costs, and State costs for the Ohio Direction Card system were each lower than the costs for the pilot system (on a per-case month basis). The reduction in unit costs in the statewide system is due to the increased scale and maturity of the system, and to the decreased cost of technology. These comparisons help to shed light on the changes that took place in the expanded statewide system and the impact of these changes on operational procedures and costs.

Next, the operational cost estimates for the Ohio Direction Card system are compared to the findings of the two most recent empirical studies of EBT costs. The FSP operational costs of the off-line Ohio Direction Card system were compared to those of the Maryland on-line EBT demonstration from 1993 and to those of the Wyoming off-line EBT demonstration from 1995, both of which were multi-program systems. After adjustment for inflation, the total FSP operational cost of the Ohio Direction Card system was 56 percent more than the cost of the on-line Maryland EBT demonstration and 43 percent less than the cost of the off-line Wyoming EBT demonstration (on a per-case-month basis).

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1 For FY2000, FNS' food stamp cost cap for Ohio was $3.92 per case month. For reported costs up to this cap, FNS reimburses 50 percent to the State. The evaluators did not rely on costs reported to FNS because of limitations in the underlying data. Refer to Appendix B.

2 Operational costs presented on a case month basis represent the cost per month over 257,600 cases, the average FSP caseload in Ohio between March and June 2000.

3 All inflation adjustments in this report use the Gross Domestic Product price deflator, which is used by FNS to adjust EBT cost caps. See the discussion of the research design for further information.

Finally, operational costs for the Ohio Direction Card system are compared to the 2000 costs of on-line EBT systems. Among the major policy issues for the expanded off-line EBT system in Ohio was the question of whether it is more or less expensive to implement and operate than the on-line FSP EBT systems now used in most states and the District of Columbia. As the first large-scale off-line EBT system for the FSP, the Direction Card system provided a far better test of this question than its off-line predecessors. Vendor operational costs of the off-line Ohio Direction Card system were compared to those of the on-line EBT systems in Maryland, Pennsylvania, and Virginia. The cost difference ranged from $1.03 to $2.24 per case month, suggesting that the Ohio Direction Card system was more expensive for a vendor to operate than comparable on-line systems, under the conditions at the time of the evaluation. These comparisons are not definitive, because they reflect only three States, and there are notable differences between Ohio and the other three States in important parameters other than technology. As discussed later in this report, comparisons of operational cost must be weighed against other differences between EBT systems, such as the ability to support additional applications. Nevertheless, these comparisons provide the most current information on the relative vendor costs of the Ohio Direction Card system and comparable on-line EBT systems.

3.2 Research Design and Data Sources

Operational cost data for the Ohio Direction Card system included costs incurred by the Ohio Department of Jobs and Family Services (ODJFS), the County Departments of Jobs and Family Services (CDJFS), and the state's contractors for the Ohio Direction Card system, but they did not include any expenses incurred by FNS for oversight.[4] The prime contractor was Citicorp Electronic Financial Services Inc. (Citicorp EFS); the subcontractors were CACI (the owner of the former Century Technologies Inc., or Centech), and Stored Value Systems Inc. (SVS).

Vendor Data

The vendor data presented in this chapter for the Ohio Direction Card system are the vendor charges that were billed to the state. Citicorp EFS' fee for all operational EBT services covered by the basic contract with ODJFS was $3.80 per month for each recipient household credited with a food stamp issuance.[5] This fee was presumably intended to include a margin of revenue over steady-state operational costs to recover implementation costs. (For the tasks accomplished in the design and development phase, Citicorp EFS received separate fees, as discussed in Volume 1.) ODJFS paid Citicorp EFS for leases, maintenance and supplies for additional POS equipment that was not required by Citicorp EFS' original contract. ODJFS also reimbursed Citicorp EFS for the fees due to pay telephone owners for calls to the toll-free customer service number provided for recipients and retailers. Billed costs were obtained from Citicorp EFS invoices and supporting detail for the purchase of additional POS equipment, as provided by ODJFS. Vendor costs for the Dayton pilot

[4] All comparisons in this study exclude FNS costs, which were considered to be immaterial to future decisions about the choice of EBT technology. Previous EBT evaluations measured FNS costs, but these costs are excluded in comparisons presented in this report.

[5] The fee schedule provided for reductions if the FSP caseload increased to 400,000 or more.

were based on the pilot evaluation conducted for FNS.[6] Costs for the Dayton pilot were billed on a cost-plus-fixed-fee basis.

In order to understand how the money was expended and to make comparisons between the statewide system and the pilot, the costs billed to ODJFS by Citicorp EFS were also broken down by functional components. This allocation of billed costs was based on the distribution of the estimated resource costs for the vendor team (i.e., the value of the resources used to operate the EBT system, as opposed to the price billed to ODJFS). Therefore, the functional components of vendor costs for the Ohio Direction Card system (such as equipment maintenance) represent shares of billed costs, not actual resource costs.

To estimate the resource costs, all of the labor and non-labor resources used to operate the EBT system were identified, the best available information on the costs of these resources was collected, and cost estimates from these data were compiled. The primary source of data used in the estimates of resource costs was the financial reporting information for Citicorp EFS, SVS, and CACI. Citicorp EFS provided this information on a monthly basis. The resource cost estimates for Citicorp EFS' labor and communications were based on actual reported costs, whereas additional analysis was conducted to estimate the resource costs of equipment depreciation, equipment maintenance, and smart cards. The resource cost estimate for equipment depreciation represents the lump-sum lease cost of equipment depreciated over a five-year life cycle. To take into account the increasing repair expense for aging equipment, the resource cost estimate for equipment maintenance represents an average cost over a five-year period for services provided by CACI and equipment manufacturers. SVS and CACI resource costs represent costs billed to Citicorp EFS; SVS used the expected resource costs for operations to break down the cost billed to Citicorp EFS into functional components. The basis for the resource costs is described in greater detail in Appendix A, which also presents the resource cost estimates.

CDJFS Data

Each county in Ohio administers the Food Stamp Program through its own CDJFS, under the supervision of ODJFS. Estimates of county operational costs were based on cost data gathered from CDJFS offices in ten sample counties where the evaluators conducted on-site post-implementation interviews.

The sample counties included five large and five small counties. They were distributed among the different regions of the state with a mix of urban and rural areas.

In the sample counties, EBT and other staff members were interviewed between May and July 2000. The two primary goals of each visit were: (1) to describe EBT operational processes, and (2) to determine the staffing level and associated labor costs. In each interview, the evaluators documented how the county was performing its role in EBT operations and identified the staff time to perform EBT functions. Overhead costs for each county's EBT activities were imputed based on the distribution of labor costs, other direct costs, and total direct and indirect costs obtained from county cost allocation reports. Appendix B provides county-level cost detail based on the interview data, the

[6] G. Glickman *et al.*, "The Impacts of the Off-line EBT Demonstration on the Food Stamp Program, Volume 1—Impact on Administrative Costs", Project Officer: M. Andrews. U.S. Department of Agriculture, Food and Nutrition Service, Office of Analysis, Nutrition and Evaluation, Alexandria, VA, 1994.

data used to impute non-labor and overhead costs for county EBT activities, a discussion of other data sources considered, and a description of the methodology used to estimate a statewide local operational cost.

ODJFS Data

ODJFS costs were obtained primarily through interviews with EBT and fiscal unit staff. ODJFS prepared a special summary of labor costs for regular employees and contract labor. State non-labor costs were obtained through interviews and through review of Central Accounting System (CAS) reports supporting the EBT costs reported by ODJFS to FNS. The available data did not provide a basis to estimate ODJFS overhead.

Caseload Data

The total statewide count of FSP cases on EBT was based upon the FNS-388 reports entitled "Food Stamp Program Integrated Information System Issuance and Participation Analysis." County-level operational caseloads were based on ODJFS' Public Assistance Monthly Statistics (PAMS) reports.

Inflation Adjustments

Cost data from previous studies were adjusted for inflation between the time of the original data collection and 2000, the year of operational data collection for the Ohio Direction Card system. The index of inflation was the price deflator for the Gross Domestic Product (GDP). FNS uses this measure of inflation annually to adjust each State's EBT cost cap from its pre-EBT coupon issuance costs. For each set of previous EBT cost estimates, the inflation adjustment was equal to the percent change in the GDP price deflator from the original date to 2000. The tables in this chapter indicate the date of the original costs and the amount of inflation from that date to 2000.

3.3 Overview of Operational Costs for Statewide Direction Card System and Comparison to Costs for Dayton Pilot

Operational Costs for Ohio Direction Card

For the period analyzed, the average operational cost for the Ohio Direction Card system was $1.7 million per month, or $6.56 per case month, as shown in Exhibit 3-1. The majority of the cost, $1.2 million per month, or $4.48 per case month, was incurred for activities performed by the EBT vendor team. The cost of activities performed by the CDJFS was about $483,000 per month, or $1.88 per case month. The balance of about $51,000 per month, or $0.20 per case month, was for ODJFS activities. The components of each of these costs are discussed later in this chapter.

Comparison of Ohio Direction Card and Dayton Pilot

The operational costs of the statewide Direction Card system were compared with those of the off-line EBT pilot conducted by FNS in Dayton (as shown in Exhibit 3-2).[7] Costs for the Dayton pilot

[7] All costs are presented in FY2000 dollars. The Dayton pilot costs were adjusted by an inflation factor of 15.8 percent.

Exhibit 3-1

Ohio Direction Card: Overall Operational Costs and Level of Effort

Cost Category	Average Monthly Cost	Average Cost Per Case Month[a]
Billed Vendor Costs		
Monthly Case Month Billing[b]	$1,028,304	$3.99
Additional Equipment for 2108 lanes[c]	$47,618	$0.18
Maintenance and Supplies for Additional Equipment[d]	$76,591	$0.30
Toll-free Access to Customer Service	$2,035	$0.01
Total Billed Vendor Costs	$1,154,547	$4.48
Local Costs		
Labor	$338,653	$1.31
Overhead	$144,384	$0.56
Total Local Costs	$483,038	$1.88
Local FTE's Per Month[e]	135.2	
State of Ohio Costs		
EBT Staff Labor	$15,543	$0.06
Contract Labor	$31,853	$0.12
Fiscal Labor	$788	$0.00
Miscellaneous	$324	$0.00
Data Processing	$1,237	$0.00
Travel	$1,245	$0.00
Total State Costs	$50,989	$0.20
State FTE's Per Month[e]	5.9	
Total Costs	**$1,688,574**	**$6.56**

a The number of cases used is 257,600, the average caseload between March and June 2000. Costs per case month less than $0.005 are shown as $0.00.

b The basic charge per case is $3.80, but the higher cost per case reflects the fact that, on average, about 5 percent of cases with staged issuances do not pick up benefits.

c The cost of equipment represents straight-line depreciation of lump-sum lease payments over a five-year period.

d Maintenance cost is an average over a five-year period, rather than just over the evaluation period.

e A full-time equivalent (FTE) represents 160 staff hours per month.

Exhibit 3-2

Comparison of Total Operational Costs Per Case Month for Ohio Direction Card and Dayton Pilot

Cost Category	Adjusted Costs in Year 2000 Dollars[a]		Percent Change from Dayton Pilot to Ohio Direction Card
	Ohio Direction Card (Mar-June 2000)	Dayton Pilot (Aug-Dec 1992)	
Billed Vendor Costs[b]			
Administration/Reconciliation	$0.52	$1.26	–59%
Customer Service	$0.14	$0.42	–66%
Data Center Hardware/Software	$0.34	$2.56	–87%
POS/Administrative Terminals	$2.66	$0.95	181%
Communications	$0.29	$0.56	–48%
ACH Expenses	$0.06	$0.05	35%
Card Costs	$0.46	$1.02	–55%
Total Billed Vendor Costs	$4.48	$6.81	–34%
Local Costs[c]			
Loaded Labor Costs	$1.88	$1.95	–4%
Total Local Costs	$1.88	$1.95	–4%
State Costs[d]			
Labor	$0.19	$0.41	–55%
Non-Labor	$0.01	$0.05	–76%
Total State Costs	$0.20	$0.46	–57%
Total Costs	**$6.56**	**$9.22**	**–29%**

a The Dayton pilot costs were adjusted by an inflation factor of 15.8 percent.

b Vendor costs for the Ohio Direction Card cost represent an allocation of billed costs based on a resource cost distribution. Vendor costs for the Dayton pilot were billed on a cost-plus-fixed-fee basis.

c Local costs for the Dayton pilot include a subcontractor for card issuance and training. All local labor costs include loading for indirect costs.

d State labor cost for Ohio Direction Card represent labor costs for all EBT staff, contract staff, and fiscal staff. Nonlabor costs for the Ohio Direction Card include data processing, travel and miscellaneous direct costs.

represent average operational costs over the evaluation period, August to December 1992, following the completion of the pilot conversion.[8] Similarly, as mentioned above, costs for the Direction Card system represent average operational costs over the period March - June 2000, following the completion of the statewide conversion.

The estimated operational cost for the Ohio Direction Card system, $6.56 per case month, was 29 percent less than the operational cost for the Dayton pilot of $9.22 per case month. There are three intrinsic differences between the Ohio Direction Card system and the pilot system that were expected to lead to lower costs in the Ohio Direction Card system.

- *Larger Scale* ? First, the Ohio Direction Card system, which operated in all 88 counties in Ohio, was a much larger system than the Dayton pilot, which operated in less than one full county. The statewide system served almost 25 times the number of cases as the pilot system. Cost savings were expected from the statewide rollout due to economies of scale, particularly in the areas of project administration and data center costs.

- *More Mature System* ? Additional cost savings in the statewide system were expected due to the fact that it was a more mature system, having been built on the Dayton pilot system[9] and having had a longer period to determine and implement more effective systems for managing operations. Moreover, "learning curve" effects would be expected to lead to a higher level of efficiency for county, state and vendor workers.

- *Decreased Cost of Technology* ? Finally, since the time of the Dayton pilot, technological developments have led to reductions in the cost of the administrative equipment used to read smart cards, the cost of the cards themselves, and the cost of operating the data center.

On the other hand, whereas the statewide system served all regions of the state, including many rural areas, the Dayton pilot served a densely populated urban area, and thus had a higher level of utilization for retailer terminals.

The following section describes in more detail specific differences between the systems and how these differences affected vendor costs.

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[8] Although the evaluation report notes that the EBT operating costs fell substantially in the months following the evaluation period, this period is the only period for which complete, concurrent cost data were collected, and the pilot evaluation places primary emphasis on the costs for this period.

[9] The Ohio Direction Card system was built on the Dayton pilot project system, known as the PayEase system, which was used to deliver FSP benefits to a segment of the food stamp population in Montgomery County. The PayEase EBT system became operational in March 1992 and ran through December 31, 1996, when the area was converted to the Direction Card system. Before the State and vendors could begin statewide expansion, they needed to modify the design of the existing EBT system and develop new software, as discussed in Volume 1 of this report.

3.4 Vendor Operational Costs for Statewide Direction Card System and Comparison to Costs for Dayton Pilot

Operational Costs for Ohio Direction Card Vendor Team

For the period analyzed, the billed operational cost for Citicorp EFS and its subcontractors was, on average, $4.48 per case month, as shown in Exhibit 3-2. The Ohio Direction Card billed costs include four components: (1) the monthly case month billings for the services and equipment covered in the original contract between ODJFS and Citicorp EFS, (2) depreciation for the additional POS equipment that the State chose to provide beyond FNS' equipment requirements, (3) maintenance and supplies for the additional equipment, and (4) the fee for calls from pay telephones to the toll-free customer service number.

Citicorp EFS' monthly fee was $3.80 for each household, with an issuance credited to the Direction Card.[10] Approximately 5 percent of these issuances, however, were never picked up. FNS defines the number of cases to be the number of households that pick up their benefits for the month. Therefore, the basic vendor cost per case, counting only households that pick up their benefits in the caseload, was not $3.80, but rather $3.99.

In addition to its case month billings, Citicorp EFS billed ODJFS for additional equipment and maintenance costs for retailer equipment beyond the level specified in the contract. Under its deployment formula, FNS calculates the minimum number of EBT-only POS terminals that States must provide to food stamp retailers that do not choose to provide their own equipment. The quantity of retailer equipment specified in the contract was based on this formula. For many retailers, however, this leads to less than full-lane coverage for food stamp EBT purchases. In order to help satisfy the concerns of the Ohio Grocers Association (OGA), the State of Ohio agreed to provide 2108 additional terminals to retailers under an alternate formula. The monthly depreciation of the additional equipment over a five-year life cycle was $0.18 per case month.[11] The average monthly cost of maintenance and supplies for the additional equipment over a five-year period was $0.30 per case month.

The final component of billed vendor costs was $0.01 per case month to defray the fees paid to telephone owners for calls to the toll-free customer service lines. This charge was not a component of the original contract, because the Federal Communications Commission (FCC) established this requirement after the contract was awarded.

Comparison of Vendor Operational Costs for Ohio Direction Card and Dayton Pilot

Vendor costs for the Ohio Direction Card system and the Dayton pilot each represented over two-thirds of total system operating costs. Thus, in examining the evolution of costs from the Dayton

[10] At the beginning of the contract, Citicorp EFS' monthly fee was $2.99 for each household with an issuance credited to the Direction Card. In September 1998, due to a substantially reduced FSP caseload, Citicorp EFS' fee was raised to $3.80 for future billed cases. Because most counties had not yet been converted, the number of cases billed at $2.99 accounts for less than 3 percent of the expected total billed cases throughout the contract.

[11] Because the State made lump-sum payments to lease the terminals, the lease cost was treated the same as a purchase that was depreciated over five years.

pilot system to the statewide Direction Card system, it is crucial to compare the components of vendor costs for the systems.

The vendor operational costs of the Ohio Direction Card system were 34 percent less than in the Dayton pilot. Furthermore, whereas the vendor fee for the statewide system included a component to recover implementation costs, the pilot system vendor billed separately for implementation costs. As discussed in the overview section above, a lower overall cost was expected for the statewide system.

Exhibit 3-3 provides a detailed comparison of billed vendor costs between the Ohio Direction Card system and the Dayton pilot, using functional breakdowns derived from resource costs. Of the total vendor operational cost of $4.48 per case month for the Ohio Direction Card, $2.66 was estimated to cover the cost of the leases, installation,[12] and maintenance for the retailer POS equipment and administrative terminals for CDJFS offices. The next largest component of the vendor cost was administration and reconciliation at $0.52 per case month. The remaining components of this cost, sorted in order of expense, were as follows:

- EBT smart cards;
- Data center hardware, software, maintenance, and labor for programmers and operators to support the EBT host computer;
- Communications charges including telecommunications equipment and charges for the host, POS terminals, and customer service;[13]
- Customer service labor costs for support to recipients, retailers, and CDJFS offices; and
- Automated clearinghouse (ACH) expenses for credits to retailers' depository institutions.

A comparison of the primary components for the Ohio Direction Card system and the Dayton pilot system follows. These components are ordered as in Exhibit 3-3.

The cost per case month of *administration and reconciliation* for the Ohio Direction Card system was 59 percent less than for the Dayton pilot. This category includes project management, reporting, and reconciliation to account for both issued and expired benefits. The cost difference in this category may be explained by both scale and system maturity. Administration and reconciliation functions are particularly affected by scale, because there is a certain amount of administration and reconciliation that must occur regardless of the size of the project. The cost to do these tasks is a smaller portion of a statewide project than of a pilot project. The maturity of the system also probably led to decreased costs for the Ohio Direction Card system because administration and reconciliation functions were likely able to be performed more efficiently. The evaluators, however, did not have the data to differentiate the effects of scale and system maturity on costs.

There was also a significant reduction in the cost per case month of *customer service* for the Ohio Direction Card system from the pilot system. In this category, there was a 66 percent reduction in

[12] Installation of POS terminals was only for new retailers. The cost of installation of terminals for statewide rollout was included in implementation costs.

[13] Retailers paid for the local telephone service linking POS terminals to the EBT host.

Exhibit 3-3

Comparison of Total Vendor Operational Costs Per Case Month for Ohio Direction Card and Dayton Pilot

Cost Category	Adjusted Costs in Year 2000 Dollars[a]		Percent Change from Dayton Pilot to Ohio Direction Card
	Ohio Direction Card Cost Per Case Month (Mar-June 2000)[b]	Dayton Pilot Cost Per Case Month (Aug-Dec 1992)[b]	
Administration/Reconciliation	$0.52	$1.26	–59%
Customer Service	$0.14	$0.42	–66%
Data Center Hardware/Software			
Labor	$0.16	$1.63	–90%
Hardware	$0.11	$0.49	–78%
Hardware Maintenance	$0.02	$0.09	–78%
Software Maintenance	$0.05	$0.35	–84%
Total Data Center Hardware/Software[c]	$0.34	$2.56	–87%
POS/Administrative Terminals			
Hardware	$0.88	$0.76	15%
Installation and Maintenance[d]	$1.78	$0.19	861%
Total POS/Administrative Terminals	$2.66	$0.95	181%
Communications	$0.29	$0.56	–48%
ACH Expenses	$0.06	$0.05	35%
Card Costs	$0.46	$1.02	–55%
Total Costs	**$4.48**	**$6.81**	**–34%**

a The Dayton pilot costs were adjusted by an inflation factor of 15.8 percent.

b Vendor costs for the Ohio Direction Card cost represent an allocation of billed costs based on a resource cost distribution. Vendor costs for the Dayton pilot were billed on a cost-plus-fixed-fee basis.

c Data center costs for the Dayton pilot include part of the POS maintenance costs.

d Ohio Direction Card billed maintenance cost reflects estimated average resource cost for 5-year period.

cost for the Ohio Direction Card. In the Dayton pilot, there were, on average, about 190 calls each month to customer service agents from recipients, retailers, and county staff per 1,000 cases during the operations period. In the statewide system, this number had decreased to approximately 121 calls per 1,000 cases per month. This change is consistent with the increased use of the Audio Response Unit (ARU) for balance inquiry calls. Furthermore, the statewide system used two levels of customer service—less expensive, temporary staff to respond to basic questions from recipients, and more

expensive and knowledgeable staff to respond to counties, retailers, and more complicated questions from recipients. In contrast, the Dayton pilot needed a more flexible and therefore expensive staff.[14]

The largest reduction in costs for the Ohio Direction Card system—87 percent—was seen in the *data center.* Part of the cost difference may be due to accounting differences: the Dayton pilot cost listed in this category may have included a portion of the POS maintenance. A significant cost reduction, however, was expected in the statewide system, because the total cost to operate the data center had a large fixed-cost component. Although the total caseload increased by almost 25 times, the data center cost increased by less than three times.

On the other hand, the cost per case month of *POS and administrative terminals* for the Ohio Direction Card system was significantly greater than for the Dayton pilot. Although the cost of the hardware for the Ohio Direction Card was only 15 percent higher than for the Dayton pilot, the cost of installation and maintenance of the POS and administrative terminals for the Ohio Direction Card system was over eight times greater than for the pilot system.

This apparent difference in costs reflects both actual operational conditions and differences in the approach to estimating the costs. As mentioned above, because the overall state of Ohio was less densely populated than the Dayton area, the number of retailer terminals required per case for the Ohio Direction Card system was significantly greater than the number required for the Dayton pilot.[15] Offsetting this difference, however, the cost of equipment decreased, particularly for single-lane retailers, and the proportion of single-lane retailers increased.[16]

The difference in the cost of the installation and maintenance of terminals was magnified by three differences in the way that these costs were defined and measured. First, the price of maintenance for the Dayton pilot reflected the cost of maintenance on terminals during their first year of use, whereas the cost of maintenance for the statewide system reflected an average over five years, the usual lifetime for POS equipment. As the terminals aged, they developed more problems and the cost of maintenance increased. For example, for the Ohio Direction Card, the resource cost of maintenance during the fifth year of life of the terminals was over eight times greater that the cost of maintenance during the first year. Second, over 20 percent of the cost of maintenance for the Ohio Direction Card was for off-site repair services. This aspect of maintenance was not identified in the data for the Dayton pilot, when equipment may have been covered under warranty during the initial post-implementation period. Third, some of the POS maintenance cost for the Dayton pilot may have been

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[14] The cost per call to customer service for the Dayton pilot was estimated to be $2.19, whereas the cost per call for the Ohio Direction Card system was estimated to be $1.01.

[15] In the Dayton pilot, each retailer terminal served, on average, 43 FSP households, whereas in the Ohio Direction Card system, each retailer terminal served only 25 households. The statewide decline in FSP participation from 1992 to 2000 contributed to the lower ratio of FSP households to terminals.

[16] Multi-lane retailers were more expensive to equip than single-lane retailers because they were provided with a local area network-based POS configuration. The average billed cost per lane decreased from $1,055 in the Dayton pilot to $837 in the Ohio Direction Card system. The cost to equip a single-lane retailer decreased from $1,100 in the Dayton pilot to $770 in the Ohio Direction Card system. The proportion of single-lane retailers increased from 62 percent in the Dayton pilot to 74 percent in the Ohio Direction Card system.

included in the costs for administration and reconciliation or data center operations, because some repairs were done by the prime contractor's technical staff.

There is anecdotal evidence that the number of EBT-equipped retailer lanes increased after the evaluation period. According to Citicorp EFS, major retailing chains built larger new stores and expanded older ones. Some retailers that had previously declined to participate in the Ohio Direction Card system requested equipment. These trends did not affect the billed costs, but they affected the resource costs and may influence billed costs under the State's next contract.[17]

Finally, the cost of *cards* for the Ohio Direction Card system was 55 percent less than for the Dayton pilot. This change can be explained by two factors. First, due to technological advances, it was less expensive to produce smart cards. Second, in the statewide system, the quantity of cards required was significantly greater than the number that was required for the demonstration project. These two factors made it possible for the Citicorp EFS to purchase the cards for the Ohio Direction Card system at a lower unit cost. The cards used during the Dayton pilot were purchased at almost $10 per card, whereas the cards used during the Ohio Direction Card system were purchased at $4 per card.

3.5 Local Operational Costs for Statewide Direction Card System and Comparison to Costs for Dayton Pilot

Local Operational Costs for Ohio Direction Card

In Ohio, the 88 CDJFS had direct responsibility for local FSP administration. Within the Ohio Direction Card system, CDJFS staff had three primary areas of responsibility: (1) training recipients, issuing cards, and solving card problems (including unlocking cards and replacing lost or stolen cards); (2) benefit maintenance and problem-solving related to the Direction Card;[18] and (3) Direction Card administration (including reporting and daily settlement of the administrative terminals). The primary local staff who administered the Ohio Direction Card program included the following:

- Assistance Control Office (ACO) workers, who provided EBT training to recipients and assisted those with account balance problems.[19] The ACO workers also provided authorization for replacement of cards and performed any administrative actions that changed the balance on a recipient's card. For example, ACO workers did coupon conversions as a way of facilitating return of benefits.

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[17] The evaluation did not attempt to quantify impact of changes in the number of retailer terminals on vendor resource costs. These changes would only affect the distribution of billed vendor costs, not the total.

[18] Benefit maintenance and problem solving includes tasks such as responding to benefit-related questions; helping recipients perform benefit inquiries, transaction histories, or issuance transactions; getting involved in disputed transactions between recipients and retailers; and performing coupon conversions or return of benefits. Benefit problems regarding eligibility for benefits or amounts authorized were directed to caseworkers. Questions regarding the non-receipt of authorized benefits were directed to county Direction Card staff or to the customer service unit.

[19] One county used a contractor to train recipients during EBT implementation, as described in Volume 1. All other recipient training in Ohio was conducted by CDJFS personnel.

- Fiscal Control Office (FCO) workers, who performed all terminal-based transactions that updated the Direction Card or the EBT host computer, including card issuance, card unlocks, and card replacement.

- Direction Card Supervisors, who oversaw the Direction Card program and performed monthly reporting. Supervisors also assisted with troubleshooting and provided backup to the ACO/FCO staff as necessary.

Many Direction Card staff were trained to perform both ACO and FCO functions, and these staff sometimes alternated between roles. Furthermore, in small counties, there often was one Direction Card staff member who did most ACO and FCO functions. The Accounting Office was usually responsible for the security and accountability of the inventory of smart cards maintained in the office. In some counties, this was handled by the FCO or supervisor. Other local support staff (such as receptionists and clerks) also assisted the ACO and FCO staff with operational functions and provided backup as necessary. Finally, in some counties, caseworkers provided assistance solving benefit problems related to the Direction Card.[20]

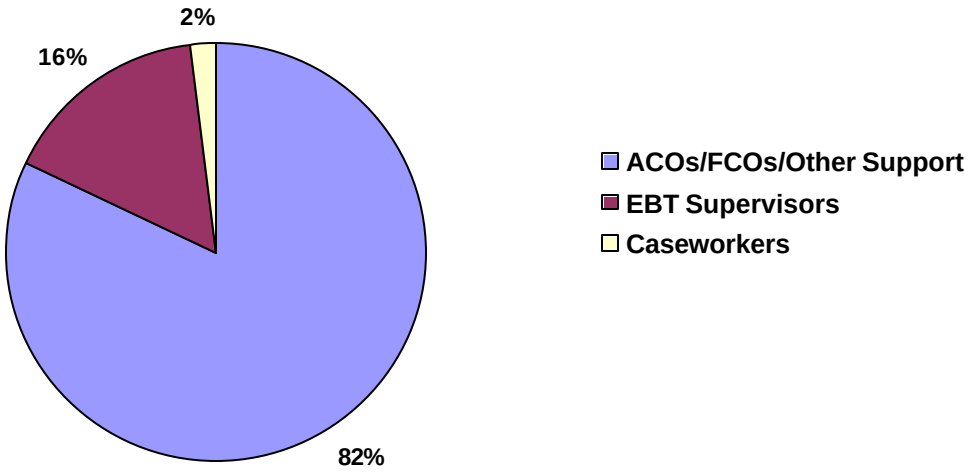
Referring back to Exhibit 3-1, the average EBT operational cost for all counties in the Ohio Direction Card system was $1.88 per case month. This cost was a weighted average of total operational costs, including labor and overhead, from ten sample counties where interviews were conducted. Appendix B provides data on operational costs and labor hours for the ten sample counties and the data that were used to impute overhead costs for county EBT activities. Of the total, $1.30 per case month was for recipient training, card issuance, card replacements, and card unlocks; $0.30 was for benefit maintenance and problem solving; and the remaining $0.28 was for administration.

The evaluators also examined the division of labor for the Ohio Direction Card. Of the total $1.88 per case month, 82 percent of the cost was attributable to ACO, FCO, and other support staff; 16 percent of the cost was attributable to EBT supervisors; and the remaining 2 percent of the cost was attributable to caseworkers (see Exhibit 3-4). The ACO and FCO staff did the vast majority of direct client interaction for issues related to the Direction Card. The cost for EBT supervisors reflects only the time that they spent performing direct EBT operational functions, such as assisting the ACO and FCO staff or performing end-of-day settlements. The time that EBT supervisors spent performing overhead functions such as managing the ACO and FCO staff or Direction Card reporting was not directly included, because it was assumed to be included in overhead charges.

[20] Although caseworkers were instructed to direct all Direction Card questions to EBT staff, caseworkers in some counties assisted with Direction Card questions. Most counties reported that the time spent by caseworkers on Direction Card issues was negligible. Of the ten CDJFS that provided cost data, only two CDJFS identified caseworker costs.

Exhibit 3-4

County Operational Costs for Ohio Direction Card, by Labor Category



Comparison of Ohio Direction Card Local Operational Costs for Small and Large Counties

To examine the relationship of caseload size to local operational costs, the evaluators compared CDJFS costs for the Ohio Direction Card between small and large counties.[21] As presented in Exhibit 3-5, large counties had a smaller average cost per case month than small counties: $1.76 and $2.01, respectively. This difference held true for each of the functions of Direction Card operations.

In larger counties, Direction Card workers were usually able to work more efficiently, because they tended to have a relatively steady flow of work on Direction Card issues. These counties often trained several recipients at once, and there were dedicated staff members who worked exclusively on solving card problems. In smaller counties, there was typically only one primary Direction Card worker, who might only see five to ten recipients sporadically throughout the day. Recipients were typically trained individually, and staff had less experience with solving card problems.

In fact, the difference in productivity between small and large counties was even greater than the difference in cost. This is due to the fact that the average pay rate for local staff was higher in large counties than in small counties.[22] Small counties worked 0.62 person-months per 1,000 cases on operational functions, whereas large counties only worked 0.44 person-months per 1,000 cases. Thus, there was a 41 percent difference in productivity, but only a 19 percent difference in cost.

[21] Small counties were defined as having fewer than 10,000 cases, and large counties were defined as having greater than 10,000 cases based on caseloads as of April 1997.

[22] The average monthly pay rate was $3,387 per full-time equivalent in small counties and approximately $4,000 in large counties.

Exhibit 3-5

Comparison of Local Operational Costs Per Case Month for Ohio Direction Card by Function

Function	Small Counties (<10,000 Cases as of Apr 1997)	Large Counties (>10,000 Cases as of Apr 1997)	Statewide
Card Issuance, Maintenance, and Problem Solving	$1.35	$1.25	$1.30
Benefit Maintenance/Problem Solving	$0.33	$0.27	$0.30
Administration	$0.33	$0.24	$0.28
Total	$2.01	$1.76	$1.88
Level of Effort (person-months per 1000 cases)	0.62	0.44	0.52

The general association between cost and size can also be seen in Exhibit 3-6, which displays the cost per case month of the ten sample counties sorted by their size. Five out of ten counties had costs between $1.50 and $1.75 per case month. Two small counties had costs above $2.00 (as did one large county), and two large counties had costs below $1.50.

Although the size of the caseload served by the county does seem to have affected operational cost, there were other factors that influenced the cost as well. Among the ten sample counties, the county with the largest caseload had the second largest cost per case. This county is in a high-density, high-poverty urban region. As part of its recipient service strategy, this county had numerous CDJFS offices, which in some respects were similar to smaller county offices in terms of EBT staffing productivity.

To determine the effects that such outliers may have had on the estimate of the statewide operational cost, a sensitivity analysis was performed on the data, as discussed in the following section.

Sensitivity Analysis

Because the statewide estimates of county costs were based on data from only 10 out of 88 counties, the data were analyzed to determine the sensitivity of the results to excluding the counties with the highest and lowest costs per case month. In addition to performing the analysis on the statewide data, the analysis was performed on the subgroups of small and large counties (see Exhibit 3-7).[23] For the small and large county groups, the evaluators examined the effects of excluding: (1) the county with the highest cost per case month, (2) the county with the lowest cost per case month, and (3) the counties with the highest and the lowest costs per case month. The statewide analysis examined the overall effects of dropping the specified counties from each of the subgroups.

[23] The evaluators estimated statewide costs and costs for the small and large county subgroups by weighting the sample county data to each of the group totals. Each large sample county had less influence than each small sample county, because the large sample counties represented a larger proportion of the large county subgroup than the small sample counties did of the small county subgroup.

Exhibit 3-6

Relationship of Ohio Direction Card Operational Costs for Sample Counties to County Caseload

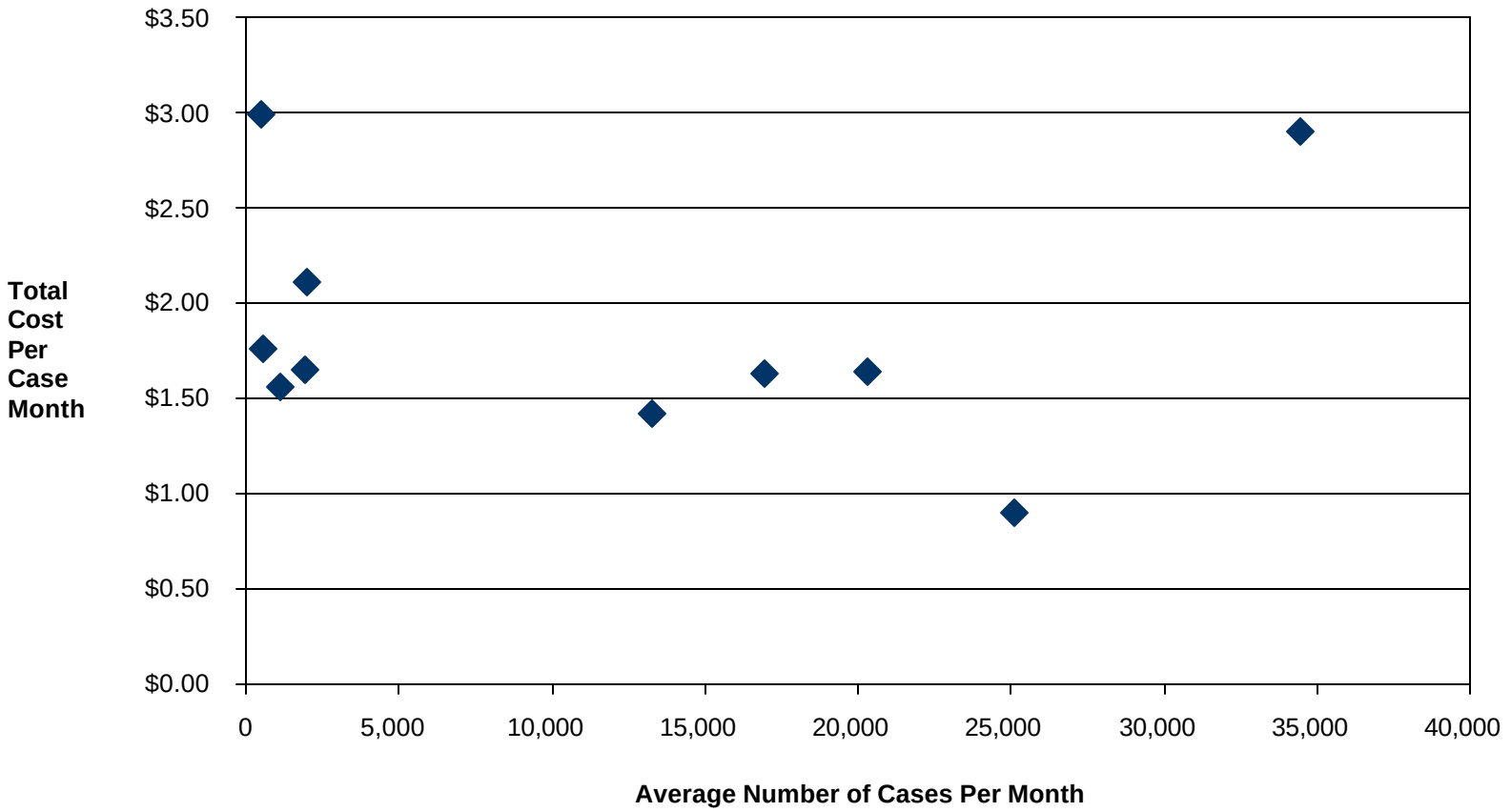


Exhibit 3-7

Ohio Direction Card Comparison of Total County Operational Costs Per Case Month Excluding Extreme Sample Counties from Groups

Sample Counties Used for Estimation[a]	Small Counties (<10,000 Cases as of Apr 1997)	Large Counties (>10,000 Cases as of Apr 1997)	Statewide
Based on All Sample Counties	$2.01	$1.76	$1.88
Excluding Counties with Highest Cost Per Case Month	$1.77	$1.40	$1.57
Excluding Counties with Lowest Cost Per Case Month	$2.13	$1.89	$1.99
Excluding Counties with Highest and Lowest Cost Per Case Month	$1.84	$1.57	$1.69
Median Cost per Case Month of Sample Counties	$1.76	$1.63	$1.69

a Counties with the highest or lowest cost per case month within the small county group and within the large country group were excluded. Statewide costs represent a weighted average of costs in the small and large counties included in each estimate.

The first scenario examined the effects of excluding the county with the highest cost per case from each of the two subgroups. Excluding these two counties substantially reduced the estimated statewide cost, from $1.88 to $1.57 per case month. Both of the counties that were excluded were influential outliers. The small county that was excluded had a 40 percent higher operational cost than the next highest county in its group, and the large county that was excluded had a 77 percent higher operational cost than the next highest cost county in its group.

The second scenario examined the effects of excluding the county with the lowest cost per case from each of the two subgroups. Excluding these two counties modestly increased the estimated statewide cost from $1.88 to $1.99 per case month. The small county that was excluded only had a 5 percent lower operational cost than the next lowest cost county in its group. Although the large county that was excluded had a 37 percent lower operational cost than the next lowest county in its group, removing it did not have as great an impact on the statewide cost.

The final scenario examined the effect of excluding all four of the counties with the highest and lowest costs, three of which were influential outliers with operational costs at least 45 percent higher or lower than the median cost. This scenario resulted in decreasing the estimated statewide cost from $1.88 to $1.69 per case month.

The unweighted median operational costs for the large and small county subgroups were $1.63 and $1.76 per case month, respectively, with an overall median cost of $1.69 per case month. The medians provide additional perspective on the potential influence of outliers.

This analysis suggests that outliers in the sample data may have influenced the results. If the results were overly influenced by outliers, the actual statewide average from a larger sample might have been closer to the $1.69 per case month sample median. Nevertheless, the evaluators chose to rely upon the statewide estimates based upon all of the sample data for two reasons. First, the evaluators did not have sufficiently strong reasons to determine that the outlier values resulted from measurement error or unique circumstances. Second, the largest outlier was also the largest county in Ohio, with almost 40 percent more food stamp cases served than any other county in Ohio, and this county's cost could not be ignored. In weighting the sample data to estimate the statewide average, the evaluators treated this county as a separate stratum, so its influence was not exaggerated by the weighting procedure.

Comparison of Ohio Direction Card Local Operational Costs for Early and Late Implementers

To assess the possible influence of operating experience on operational costs, the relationship between cost and implementation completion date was examined. Because there is often a learning curve associated with working with new systems, it might be expected that counties with more operating experience would have lower operational costs on a per case basis. Exhibit 3-8 displays the cost per case of the ten sample counties in relation to the implementation completion date. As shown in the exhibit, seven of the ten counties, with implementation completion dates ranging from January 1998 to January 2000, have costs within or close to the $1.50 to $2.00 per case month range. Of the remaining three counties, the county that completed implementation the earliest had the highest operational cost ($2.90 per case month), and a county that completed implementation over a year later had the lowest operational cost ($0.90 per case month). The variation in the costs per case of the sample data independent of the implementation completion date is not indicative of operating experience influencing operational costs. Other factors may have offset learning-curve effects on county costs.

In order to determine with certainty the relationship of operating experience to operational costs, the analysis would have had to examine costs for the same counties at two different points in time. For this evaluation, this kind of analysis was not possible under this contract. Nevertheless, the evaluators suspect that, as operational experience increases, total cost decreases until a steady-state period is reached. This conclusion is based primarily upon anecdotal information from interviews with County Direction Card staff. Furthermore, the decrease in operational costs for Montgomery County from the pilot period to the current evaluation period (as discussed below) is another indication that operational experience may affect costs.

Comparison of Local Operational Costs for Ohio Direction Card and Dayton Pilot

Local EBT operations for the Dayton pilot were conducted by Montgomery County staff, as well as by two employees from a subcontractor organization that assisted with ACO and FCO functions.

The local operational cost for the Dayton pilot was only slightly higher than the statewide average local cost of the Ohio Direction Card system—$1.95 per case month versus $1.88 per case month (see Exhibit 3-9). This cost difference is negligible when considering two limitations of the data: first, that the cost for the Ohio Direction Card was estimated with sample data from 10 out of the 88 counties, and the actual cost may be slightly higher or lower, as the sensitivity analysis demonstrated. Second, there may have been differences between the two evaluations in how some of the costs were measured.

Exhibit 3-8

Relationship of Ohio Direction Card Operational Costs for Sample Counties to Implementation Completion Date

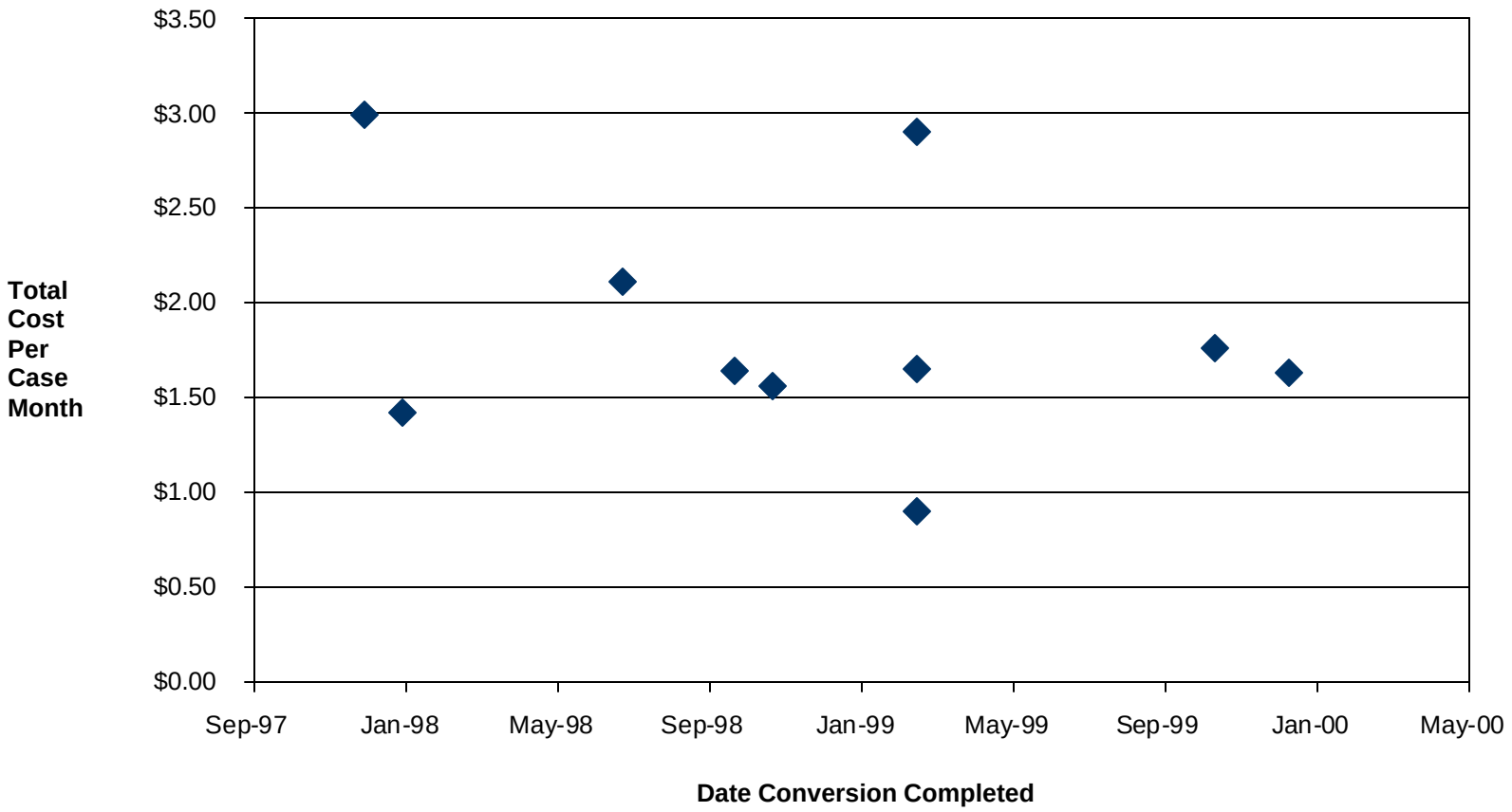


Exhibit 3-9

Comparison of Local Operational Costs Per Case Month for Ohio Direction Card and Dayton Pilot, by Labor Category

	Adjusted Costs in Year 2000 Dollars[a]		
Labor Category	**Ohio Direction Card (Mar-June 2000)**	**Montgomery County Direction Card (Mar-June 2000)**	**Dayton Pilot (Aug-Dec 1992)**
ACO/FCO/Other Support	$1.54	$1.42	$1.48
EBT Supervisors[b]	$0.30	$0.00	$0.05
Caseworkers[c]	$0.03	$0.00	$0.27
Subcontractor[d]	N/A	N/A	$0.16
Total Cost Per Case Month	$1.88	$1.42	$1.95

a The Dayton pilot costs were adjusted by an inflation factor of 15.8 percent.

b Supervisor cost reflects time performing direct EBT operational functions. Supervisor cost for management is included in loading for indirect costs. In Montgomery County, supervisors did not perform any direct EBT operational functions for the Direction Card system.

c In the Dayton pilot, caseworker costs may have included some eligibility-related costs.

d Subcontractor in Dayton pilot provided card issuance and client training services.

Although a larger cost difference may have been expected, because the procedures in the Ohio Direction Card system were probably more efficient than in the pilot system, two additional factors may account for the results. First, the statewide local cost for the Ohio Direction Card reflects a mix of large and small counties, whereas the Dayton pilot was conducted in a large urban county with substantial economies of scale. Second, Montgomery County (where Dayton is situated) has generally proven to be an efficient site among the large counties, with relatively low local costs ($1.42 per case month). It can be noted that Montgomery County's operational costs for the Ohio Direction Card system were significantly lower than for the Dayton pilot, suggesting an increase in efficiency within this county's operations.[24]

The cost of *EBT supervisors* providing direct EBT operational services was much lower for the Dayton pilot than for the Ohio Direction Card. The supervisor cost varied greatly among counties, depending on the level and structure of staffing. For example, small counties with only one primary Direction Card worker sometimes required significant supervisory support for assistance and backup. In Montgomery County, however, supervisors did not provide direct EBT services, and a lead Direction Card worker performed some of the supervisory duties. For the Dayton pilot, the project

[24] Although the Montgomery County Direction Card system included the entire county, and the Dayton pilot included only part of the county, there was not a substantial difference in the size of the caseloads served by the two systems. Due to the decline in caseload, the number of cases supported by the Montgomery County Direction Card system (13,035 cases) was approximately 20 percent greater than the number supported by the Dayton pilot (10,930 cases).

was still in an early phase, so some supervisory support may have been used for direct EBT operational services.[25]

Caseworker costs for the Ohio Direction Card were much lower than for the Dayton pilot. As mentioned above, caseworker costs for the Ohio Direction Card system were minimal, because caseworkers were instructed to direct all Direction Card questions to EBT staff. During the Dayton pilot, intake caseworkers spent a significant amount of time with clients discussing the EBT program in the intake interview and answering questions related to EBT issues. This role was turned over to the ACO in the statewide Ohio Direction Card system. Furthermore, for the Dayton pilot, caseworker costs may include some eligibility-related costs. A primary goal of the evaluation of the pilot system was to compare costs of the off-line system to those of the paper system, in which caseworkers had more responsibility for troubleshooting issuance problems. Therefore, the definition of issuance-related caseworker functions for the pilot evaluation probably included some activities that were treated as eligibility-related (and therefore unrelated to EBT) in the statewide evaluation. The data from the pilot do not permit separation of eligibility-related costs from issuance-related costs.

To compare the local costs associated with the performance of direct EBT operational functions for the Dayton pilot to those of the Montgomery County or statewide Direction Card systems, the cost of *subcontractor* support must be added to the cost of ACO, FCO, and other support staff. A subcontractor in the Dayton pilot provided card issuance and client training services. Including this element, the cost for the Dayton pilot of $1.64 per case month was 15 percent greater than the labor cost in Montgomery County with the Direction Card system, but just 6 percent greater than the cost of the statewide system.

Summary of Local Operational Costs

The total local operational cost did not change dramatically over time (a reduction for the statewide Direction Card system of $0.07 per case month, contrasted with a reduction in vendor costs of $2.33). The primary component of local costs was the cost of recipient training, card issuance, and card maintenance. On average, large counties had lower costs than small counties, but there was a good deal of variation within each group. There was mixed evidence regarding whether local operational costs decreased over time due to learning curve effects. Although the cross-county comparison did not support this hypothesis, the Montgomery County data did.

3.6 Ohio Department of Jobs and Family Services Operational Costs for Statewide Direction Card System and Comparison to Costs for Dayton Pilot

Operational Costs for Ohio Direction Card

The ODJFS administers the Food Stamp Program and handles all EBT contract management functions. During the evaluation period, the ODJFS EBT unit provided support and oversight for county operational activities, vendor oversight, and technical support for the CRIS-E/Direction Card systems interface. ODJFS fiscal staff performed EBT reconciliation and reporting functions.

[25] The available documentation does not make clear whether the supervisory costs for the Dayton pilot represent direct services, overhead functions, or a combination of the two.

The average EBT operational cost for ODJFS was about $51,000 per month,[26] excluding costs billed to the agency by Citicorp EFS and reimbursements to the CDJFS for their costs, as shown in Exhibit 3-10. The majority of this cost, approximately $32,000 per month, was for contract labor. Employees of the CRIS-E support contractor provided technical support for EBT operations at ODJFS. The next largest component was ODJFS EBT staff labor at about $16,000 per month. ODJFS' remaining direct costs were for fiscal staff labor, CRIS-E CPU usage, travel and miscellaneous items. The monthly level of effort was 5.9 full time equivalents, and the cost was $0.20 per case month.

Comparison of State Operational Costs for Ohio Direction Card and Dayton Pilot

During the Dayton pilot, ODJFS' primary involvement was in project management and oversight. ODJFS was also responsible for changes in Ohio's CRIS-E system to support the implementation of the EBT system, but a subcontractor was used for most of the programming necessary to develop the interface between CRIS-E and EBT system.

For the Ohio Direction Card System, ODJFS took on a much larger role and had a more formalized structure. ODFJS' additional responsibilities included providing dedicated county support, fiscal support, and contract management.

Despite its greatly expanded role, ODJFS' operational cost per case fell by over 50 percent, from $0.46 in the Dayton pilot to $0.20 in the Ohio Direction Card system. The primary reason for the cost reduction was the difference in scale between the systems. The Ohio Direction Card system served almost 25 times the number of cases as the Dayton pilot. State-level labor costs were not very sensitive to scale, so the State realized substantial economies of scale on a per-case month basis.

3.7 Comparison of Ohio Direction Card System with Other EBT Systems

The comparison of the Ohio Direction Card system with other EBT systems was one of the major objectives of this evaluation. The off-line Ohio Direction Card system was the first large-scale off-line EBT system for the FSP, and it was therefore an important benchmark of the cost of off-line EBT systems. As described below, the evaluators used both previous evaluation results and current reported EBT vendor fees from on-line EBT systems for comparison purposes.

[26] The ODJFS data center operates and maintains the State's integrated public assistance system (known as the Client Registry Information System – Enhanced, or CRIS-E). This system interfaces with the EBT service provider's computer system on a daily and monthly basis to effect the transfer of issuance data and other information necessary to operate the EBT system. The CRIS-E charges for EBT include only batch processing. All county CRIS-E utilization costs, including the modest requirements for EBT, are included in the State's reported Automated Data Processing (ADP) costs for the FSP.

Exhibit 3-10

Ohio Direction Card: Operational Costs for Ohio Department of Jobs and Family Services

Cost Category	Average Monthly Cost
ODJFS Labor	$15,543
Contract Labor	$31,853
Fiscal Labor	$788
Miscellaneous	$324
CPU Usage	$1,237
Travel	$1,245
Total Costs	$50,989
Total Cost Per Case Month[a]	$0.20
Total FTE's Per Month	5.9

a The number of cases used is 257,600, the average caseload between March and June 2000, the operational period for which data were obtained.

Comparisons to Other EBT Evaluation Results

From a methodological perspective, the evaluation of the on-line EBT system demonstration in Maryland offers perhaps the most comparable data.[27] Like the Ohio Direction Card system, the Maryland EBT demonstration was the first statewide implementation of its kind. In both states, all recipients were trained at local FSP offices and retailer equipment was installed exclusively for EBT use (although multi-purpose terminals were later installed after the evaluation period in Maryland.) The scope of the vendor contracts was essentially the same, encompassing terminal deployment and maintenance, host processing, telecommunications, customer service, and supplying cards. Furthermore, the Maryland evaluation used a similar resource cost method, a similar functional framework, and a sample designed to yield estimates of local office costs for metropolitan and non-metropolitan counties.[28]

Several important differences between the Maryland on-line EBT demonstration system and the Ohio Direction Card system also need to be considered in making comparisons. The Maryland costs came from 1993. Maryland's FSP caseload during the evaluation period was a little more than half of Ohio's 2000 FSP caseload (142,500 versus 257,600); thus, the Ohio EBT system provided greater economies of scale. This difference is offset, however, by the fact that Maryland included cash assistance in its EBT system, thereby reducing the FSP's share of the costs of EBT cards and other shared resources. In fact, the combined (duplicated) caseload of all programs in the Maryland EBT

27 C. Logan *et al.*, "The Evaluation of the Expanded EBT Demonstration in Maryland, Volume 2: System Impacts on Program Costs and Integrity", Project Officer: M. Andrews. U.S. Department of Agriculture, Food and Nutrition Service, Office of Analysis, Nutrition and Evaluation, Alexandria, VA, 1994.

28 The "metropolitan" counties in Maryland included both large and mid-sized counties located in metropolitan areas.

demonstration was nearly 257,000 during the evaluation period. Furthermore, in 1993, the FSP participation level was generally higher than in 2000 (both in Maryland and in Ohio), and therefore there was more intensive utilization of POS terminals and other resources.

It should also be noted that because the Maryland demonstration was the first statewide EBT system, the relationship between billed vendor costs and actual resource costs was likely tenuous, because the vendor had no prior experience in pricing. In Maryland's current EBT system, there is a new vendor, so the evaluation data are not representative of current vendor costs.

The other evaluation that was used for comparison is that of the Wyoming WIC/FSP off-line EBT demonstration.[29] This evaluation reflects a similar technology and a similar research methodology, and the data are more recent (from 1995). On the other hand, the Wyoming demonstration system was radically different from the Ohio system for two reasons. First, because the Wyoming system served WIC as well as the FSP, costs were shared by the programs and allocated accordingly. Second, the evaluation data reflected a demonstration that included just 2200 FSP households and 2200 WIC households.[30] Therefore, the Wyoming demonstration data will be used for comparison purposes with even more caution than the Maryland demonstration data.

Comparison of Overall Operational Costs for the Off-line Ohio Direction Card System with Maryland and Wyoming EBT Demonstration Systems

The total operational cost for the Ohio Direction Card system, $6.56 per case month, was 56 percent more than that of Maryland's on-line EBT demonstration system at $4.20 per case month (see Exhibit 3-11).[31] The reasons for this overall difference are examined below, as are the specific differences between the systems. The operational cost per case month for the Ohio Direction Card system was substantially lower than the operational cost for the Wyoming off-line EBT demonstration, which was $11.61 per case month. This result was not unexpected: as discussed above, demonstration projects in limited areas are typically more expensive than statewide systems due to their smaller scale and less mature systems.

Comparison of Vendor Operational Costs for Ohio Direction Card with Maryland and Wyoming EBT Demonstration Systems

Comparison of Ohio Direction Card and Maryland EBT Demonstration Systems—Off-Line Versus On-Line

The total vendor operational cost for the Ohio Direction Card system was higher than that of the Maryland EBT demonstration system, $4.48 per case month versus $3.15 per case month (see Exhibit 3-12). The component of cost that contributes most to this difference is the cost of the POS and

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[29] W. Hamilton *et al*., "Costs and Impacts of the Wyoming Smartcard EBT System", Project Officer: J. Kresge. U.S. Department of Agriculture, Food and Nutrition Service, Office of Analysis, Nutrition and Evaluation, Alexandria, VA, 1997.

[30] The Wyoming WIC/FSP off-line EBT system has since rolled out on a statewide basis, with the State serving as prime contractor.

[31] All costs are presented in current FY2000 dollars. The costs for the Maryland and Wyoming EBT demonstration systems were adjusted by inflation factors of 13.1 percent and 8.4 percent, respectively.

Exhibit 3-11

Comparison of Total Operational Costs Per Case Month for Ohio Direction Card and Maryland and Wyoming EBT Demonstration Systems

	Adjusted Costs in Year 2000 Dollars[a]		
Cost Category	**Ohio Direction Card (Mar-June 2000)**	**Maryland EBT Demonstration (Jul-Sep 1993)**	**Wyoming EBT Demonstration (Oct 1995)**
Billed Vendor Costs[b]	$4.48	$3.15	$8.01
Local Costs[c]	$1.88	$0.75	$2.51
State Costs	$0.20	$0.29	$1.09
Total Costs	**$6.56**	**$4.20**	**$11.61**

a The costs for the Maryland and Wyoming EBT demonstratio n systems were adjusted by inflation factors of 13.1 percent and 8.4 percent, respectively.

b Vendor costs for the Ohio Direction Card system include all operational costs billed to ODJFS. FSP vendor costs for Maryland demonstration were determined by allocating total billed costs in proportion to the program's share of resource costs. Vendor costs for Wyoming demonstration were billed on a cost-plus-fixed-fee basis; the evaluation allocated a share of billed vendor costs to the FSP in proportion to the program's share of resource use.

c Local costs for Maryland demonstration represented local Department of Social Service costs. Local costs for Wyoming demonstration included subcontractor for card issuance and training.

Exhibit 3-12

Comparison of Total Vendor Operational Costs Per Case Month for Ohio Direction Card and Maryland and Wyoming EBT Demonstration Systems

	Adjusted Costs in Year 2000 Dollars[a]		
Cost Category	**Ohio Direction Card Cost Per Case Month (Mar-June 2000)**	**Maryland Demonstration Cost Per Case Month (Jul-Sep 1993)**	**Wyoming Demonstration Cost Per Case Month (Oct 1995)**
Administration/Reconciliation	$0.52	$0.34	$0.46
Customer Service	$0.14	$0.58	$1.39
Data Center Hardware/Software	$0.34	$0.96	$2.69
POS/Administrative Terminals	$2.66	$0.60	$1.57
Communications	$0.29	$0.60	$1.55
ACH Expenses	$0.06	$0.03	$0.21
Card Costs	$0.46	$0.04	$0.15
Total	**$4.48**	**$3.15**	**$8.01**

a The costs for the Maryland and Wyoming EBT demonstration systems were adjusted by inflation factors of 13.1 percent and 8.4 percent, respectively. Vendor costs for Ohio Direction Card cost represented an allocation of billed costs based on a resource cost distribution. Vendor costs for Maryland demonstration were taxpayers' share of resource costs, not actual billed costs. Vendor costs for Wyoming demonstration were billed on a cost-plus-fixed-fee basis.

administrative terminals. The cost of the equipment and maintenance is over four times greater, or over two dollars more per case month, for the Ohio Direction Card system than the Maryland EBT demonstration system. Moreover, the cost of terminals in the Maryland EBT demonstration system also included the local telephone service linking retailers to the system's in-state telecommunications hubs, whereas the retailers bore the cost in the Ohio Direction Card system.

Two primary factors contribute to this large cost difference. First, the hardware and software necessary to support off-line technology is substantially more sophisticated, and thus more expensive, than that necessary to support on-line technology. Second, in 1993, when the Maryland evaluation took place, food stamp caseloads were almost twice as high as they were in 2000, during the evaluation period for the Ohio Direction Card system. In fact, the number of participants served by the average EBT terminal in the Maryland system was over three times the number in the Ohio Direction Card system.[32] Additionally, as with most of Maryland's demonstration costs, cost sharing with AFDC did lead to some additional cost savings.

Card costs for the Ohio Direction Card system were $0.46 per case month, whereas they were $0.04 per case month for the Maryland EBT demonstration. In the on-line Maryland EBT demonstration system, food stamp recipients were issued magnetic stripe cards, which held only the identifying information about the recipient needed for access to the account on the EBT host computer. On the other hand, the Ohio Direction Card system issues recipients more sophisticated smart cards with embedded microprocessor and memory chips. These cards have greater capabilities than magnetic stripe cards, but they also cost much more—$4 apiece for the smart cards versus $0.57 apiece for Maryland's magnetic stripe cards (in 2000 dollars). In the Maryland demonstration system, cost-sharing with AFDC led to further savings in the card cost, which was divided according to caseload at a time when about half of the food stamp caseload was on AFDC.

Other costs, however, were lower for the Ohio Direction Card system. For example, customer service costs for the Ohio Direction Card were significantly lower than for the Maryland demonstration system, $0.14 per case month versus $0.58 per case month. A lower level of customer service cost was expected relative to an on-line system, because there was less that customer service could do, with all card replacements and much of the problem-solving requiring assistance from the EBT staff at the local offices.

Similarly, data center and communications costs for the Ohio Direction Card were lower than for the Maryland demonstration, $0.34 and $0.29 per case month, respectively, versus $0.96 and $0.60 per case month.[33] In an on-line system, data are sent to the EBT system's host computer during each transaction over a regular or dedicated telephone line; in an off-line system, data are stored on the card, and no phone call to the host computer is needed to authorize a purchase transaction. Instead, the EBT terminal dials into the system host computer once a day to transmit information about that day's EBT transactions. This fundamental difference reduces the amount of communications network usage necessary and the hardware and labor requirements at the data center.

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[32] In the Maryland EBT demonstration, each EBT terminal served on average 85 participants, whereas in the Ohio Direction Card system, each EBT terminal served, on average, only 28 participants.

[33] For the Maryland EBT demonstration, there was some ambiguity as to what got classified as data center costs and what got classified as administration/reconciliation costs. A portion of the data center cost may represent administration/reconciliation activities.

Comparison of Ohio Direction Card and Wyoming EBT Demonstration—Statewide Implementation Versus Pilot Area System

The total vendor operational cost for the Ohio Direction Card system was much less than that of the Wyoming EBT demonstration, $4.48 per case month versus $8.01 per case month. Furthermore, the FSP cost for the Wyoming demonstration already accounts for cost reductions due to significant cost sharing with the WIC program. As discussed earlier in the comparison of the Ohio Direction Card system with the Dayton pilot, much of the difference in the cost between the two systems can be attributed to the demonstration effects of scale and system instability.

The role of scale is particularly important for the data center, which has a large fixed cost component, so that the cost per case of a project serving a pilot area tends to be much greater than that of a statewide project. During the demonstration, the Wyoming EBT system served only one pilot county for both FSP and WIC, plus six other pilot counties for WIC. The cost of the data center for the Wyoming demonstration was $2.69 per case month. This cost was almost eight times the $0.34 per case month cost for the Ohio Direction Card. The higher level of support for the less mature Wyoming demonstration system also contributed to this difference.

The communications costs were also substantially higher for the Wyoming demonstration—$1.55 per case month versus $0.29 per case month for the Ohio Direction Card. Most of this difference was probably due to the difference in scale between the systems. Both systems used leased lines for communicating FSP issuance authorizations from the state headquarters to the EBT host. Although it is likely that the cost per line was similar, the cost for the Ohio Direction Card system was spread over substantially more cases.[34]

Similarly, the cost of customer service was substantially higher in the Wyoming demonstration—$1.39 per case month versus $0.14 per case month in the Ohio Direction Card. This difference reflects the benefits of a more stable system, including less time per case spent answering calls for assistance and the ability to use less-expensive personnel to handle more routine calls. The greater scale of the Ohio Direction Card system may have contributed to this cost difference by enabling more efficient use of facilities, staff, and supervisors.

Conversely, some of the costs of the Wyoming demonstration were particularly low due to cost-sharing with other programs. For example, although card costs for a pilot system are typically much higher than for a statewide system due to quantity discounts, the cost in the Wyoming demonstration was only $0.15 per case month, much lower than the cost for the Ohio Direction Card of $0.46 per case month. Card costs in Wyoming were split among three programs that shared the card.[35] Half of the card cost was allocated to the Health Passport; of the remaining cost, WIC was allocated 50 percent of the cost of cards that were used by households enrolled in both the FSP and WIC. Additionally, 70 percent of administration and reconciliation costs were paid by WIC. Depreciation

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[34] The cost per leased line was not available to verify this interpretation.

[35] Wyoming's smart card was designed to work with the FSP, WIC, and the "Health Passport" program. A significant portion of the smart card's memory was also devoted to the storage of "Health Passport" information for up to four children (for example, immunization records). Although at the time of analysis the main function of the Health Passport capacity was to facilitate transfers between WIC clinics within the EBT demonstration area, more applications were planned for the future.

and maintenance of retail equipment in dual program stores were split between programs according to the number of POS transactions (82 percent FSP, 18 percent WIC).

Comparison of Local Operational Costs for Ohio Direction Card with Maryland and Wyoming EBT Demonstration Systems

Exhibit 3-13 presents the local operational costs for the Ohio, Maryland, and Wyoming EBT systems. As with vendor costs, the local operational cost for Ohio Direction Card, $1.88 per case month, was higher than the local cost of $0.75 per case month for the Maryland EBT demonstration, and lower than the local cost of $2.51 per case month for the Wyoming EBT demonstration. The comparisons between the Wyoming EBT demonstration and the other two EBT system must be viewed with care. The Wyoming cost data came from one local office, whereas the local cost data for Ohio and the Maryland demonstration came from representative statewide samples of local offices. Conclusions about these comparisons are tentative because of the limited data from Wyoming.

Exhibit 3-13

Comparison of Local Operational Costs Per Case Month for Ohio Direction Card and Maryland and Wyoming EBT Demonstration Systems, by Labor Category

	Adjusted Costs in Year 2000 Dollars[a]		
Labor Category	**Ohio Direction Card (Mar-June 2000)**	**Maryland EBT Demonstration (Jul-Sep 1993)**	**Wyoming EBT Demonstration (Oct 1995)**
Caseworkers[b]	$0.03	$0.23	$0.17
EBT Supervisors[c]	$0.30	N/A	N/A
ACO/FCO/Other Clerical	$1.54	$0.52	$1.59
Subcontractor[d]	N/A	N/A	$0.74
Total	**$1.88**	**$0.75**	**$2.51**

N/A = not applicable.

a The costs for the Maryland and Wyoming EBT demonstrations were adjusted by inflation factors of 13.1 percent and 8.4 percent, respectively.

b In the Ohio Direction Card system, only two counties were able to identify caseworker costs. The other eight counties reported that the time spent by caseworkers on Direction Card issues was negligible. The statewide estimate reflects the weighted average of these ten counties.

c Supervisor costs in Maryland and Wyoming demonstrations are included in other labor costs.

d Subcontractor in Wyoming demonstration provided card issuance and client training services.

In the Ohio Direction Card system, local agencies spent $1.13 per case month more than in the Maryland EBT demonstration. This difference in local costs accounts for approximately half of the overall difference between the systems. (The difference in vendor costs accounts for $1.33, and State costs for the Ohio Direction card system were slightly lower than those of the Maryland demonstration.)

The percentage difference in local costs between the two systems, however, was substantially greater than the percentage difference in the other cost components. The local cost for the Ohio Direction Card system was two-and-one-half times greater than that of the Maryland demonstration.

Local costs for off-line systems are likely to be significantly higher than local costs for on-line systems, because of several factors that require more in-person assistance. In many on-line EBT systems, the EBT contractor issues cards and provides training materials by mail, and the customer service center can solve the majority of recipients' problems. In contrast, off-line EBT systems virtually require in-person training and card issuance, because of the greater value and complexity of the card. In addition, if recipients are allowed to select their local issuance sites, this task must be done when the card is issued, and often requires the assistance of a knowledgeable local staff member. Lastly, problem-solving in off-line systems more often requires access to the card, either to diagnose a card problem or to check the card balance.

It can be noted, however, that the caseworker cost for the Maryland EBT demonstration was over seven times greater than that of the Ohio Direction Card system. As mentioned above, the caseworker cost for the Ohio Direction Card system was minimal, because caseworkers were instructed to direct all Direction Card questions to EBT staff. In the Maryland demonstration, it was the caseworkers' responsibility to make referrals for new recipients, authorize replacement cards, and to provide explanations on the system. Differences in measurement approach also may have contributed to the difference in these costs between the Ohio and Maryland off-line EBT systems.[36]

Although caseworker costs for the Wyoming EBT demonstration system made up a significantly smaller proportion of total local costs than the Maryland demonstration, they were greater than in the Ohio Direction Card system. The local office in Wyoming had less mature operations, so caseworkers may have been more actively involved in helping recipients with EBT issues. Constraints on the availability of specialized EBT staff in Wyoming may also have contributed to the higher level of caseworker costs. As previously noted, differences in measurement approach also may have contributed to the difference in these costs between the Ohio and Wyoming off-line EBT systems.

Comparison of Vendor Costs for Ohio Direction Card with Current Contracts for Maryland, Pennsylvania, and Virginia

The preceding discussion does not address the question that may be of greatest interest to many EBT officials: How do the costs of the Ohio Direction Card system compare with those of current on-line EBT systems? This question is difficult to address, because there are no extant data on current on-line EBT costs derived from sources comparable to the information collected for this evaluation. States report their EBT operational costs to FNS, but examination of these data and the underlying cost reporting processes suggests that they do not provide comparable data to the complete array of vendor, local, and State costs obtained by the evaluation for the Ohio Direction Card system.

[36] The Maryland and Wyoming EBT evaluations defined EBT caseworker functions more broadly, including some types of problem-solving that were treated as eligibility functions in the Ohio evaluation. The definition reflected in the Ohio local EBT costs is more consistent with the usual State and local conceptions of EBT functions.

The following section provides a partial response to the need for comparison with current on-line EBT system costs. The discussion focuses on vendor fees, the main component of EBT operational costs and the one for which suitable data were available.[37]

Exhibit 3-14 summarizes the EBT vendor fees and related parameters in the Ohio Direction Card system and the on-line EBT systems in Maryland, Pennsylvania, and Virginia. The vendor fees are as of 2000. The contract terms and system features discussed below are current as of the date of this report. These three States were selected for comparison because they established their vendor fees in 1999 or later, so the EBT marketplace was similar to when Ohio's vendor fees were revised in 1998. Of equal importance, the principal parameters that shape the vendor fees were similar to those of the Ohio Direction Card system, as discussed below. (Several other States would meet these criteria, but their vendor fees were not available.) The Maryland fees also provide a perspective on the previous evaluation data from the Maryland demonstration. Virginia's EBT system was not operational in 2000, but the vendor fees had been finalized.

The exhibit and the following discussion provide some basic insights into the current cost differences between the Ohio Direction Card and the selected on-line EBT systems. This high-level analysis should be viewed with caution, because the selected States are not necessarily representative of all on-line EBT states. About half of the States with statewide on-line EBT contracts have, like the selected States, procured their contracts on their own. The other half of the States with statewide contracts have procured EBT contracts through multi-state alliances intended to obtain more favorable prices and other contract terms.[38] (Subsequent contract negotiations, however, have proceeded on a state-by-state basis.) Furthermore, each contract has a variety of supplemental fees and other provisions that affect the bottom-line cost of EBT services and the value of the services provided, although these fees are generally small relative to the basic per-case-month fee. Lastly, the discussion in this section relies on insights into the vendors' cost structure developed by past FNS evaluations and other studies of the economics of EBT. Lacking access to detailed and confidential vendor cost data from the three selected States, the discussion is somewhat speculative, but its basic assumptions are well established in the literature.[39]

Current vendor fees in the three on-line States range from $2.24 per case month in Pennsylvania, the largest of the three, to $3.45 per case month in Virginia,[40] which has the most recent pricing of the three. The current Maryland fee of $2.81 represents an 11 percent reduction from the $3.15 fee during the demonstration period (adjusted for inflation).

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[37] State Agencies report total EBT costs to FNS, including vendor charges and costs for state and local operations. The available data, however, do not support analysis of state and local costs.

[38] U.S. Department of Agriculture, Food and Nutrition Service, "Food Stamp Program Electronic Benefit Transfer Project Status, January 2002". Accessed on-line at http://www.fns.usda.gov/fsp/EBT Status Report – January 2002.htm.

[39] For a discussion of the factors shaping EBT vendor pricing, see Phoenix MAXIMUS, "Electronic Benefits Transfer Alternatives Analysis," Project Officer: Tim O'Connor. U.S. Department of Agriculture, Food and Nutrition Service, Office of Analysis, Nutrition and Evaluation, Alexandria, VA, 2000.

[40] The Virginia vendor fee applies to caseloads in the range of 150,000 to 200,000. Although the FY2000 FSP caseload average was 150,452, the caseload dropped to 149,595 in FY2001. At this level, the vendor fee is $3.70 per case month.

Exhibit 3-14

Comparison of Vendor Contracts for Ohio Direction Card and Selected On-Line States

Contract Feature	Ohio Direction Card	Maryland	Pennsylvania	Virginia
Vendor fee per case month[a]	$4.48[b]	$2.81	$2.24[c]	$3.45[d]
Average monthly FSP households, FY2000	279,174	101,048	352,491	150,452
EBT prime contractor	Citicorp EFS	Citicorp EFS	Citicorp EFS	Citicorp EFS
Year current fee set	1998	1999	2000	2001
Price per case month varies with caseload	Yes - tiered fee schedule	Yes - tiered fee schedule	Yes - combination of lump sum and fee per case month	Yes - tiered fee schedule
Programs served (FY2000)	FSP	FSP, TANF, other cash assistance	FSP, TANF, other cash assistance	FSP
Vendor implementation costs included in operational fee	Equip and train retailers, local offices	Replace recipient cards and local office equipment	Equip and train retailers, local offices; issue cards and train recipients	Equip and train retailers, local offices; issue cards and train recipients
EBT-only POS terminal deployment (free to retailer)	All retailers; greater of FNS or State formula amount provided	Retailers without multipurpose terminals; FNS formula	Retailers without multipurpose terminals; FNS formula	Retailers without multipurpose terminals; FNS formula with cap on total EBT-only terminals
Number of FSP households per retailer (FY2000)	50.0	42.7	51.8	35.8
Card issuance and PIN assignment/ selection	Cards issued by local office staff; PIN selected at issuance	Cards issued by local office staff; PIN selected at issuance	Cards issued by local office staff; PIN selected at issuance	Cards issued by mail with assigned PIN; PIN changed at local office if desired

a On-line State vendor fee calculations may have varied in terms of how case counts are calculated. The actual fee per participating case, as defined by FNS, may have been slightly higher to the extent that fees were charged for cases that received some EBT services but did not receive benefits during the month (e.g., cases with debits against previous months' benefits).

b Includes base fee of $3.99 per participating case per month, $0.01 per case month for toll-free access from pay phones, and $0.48 per case month for supplemental equipment depreciation and maintenance.

c Includes base fee of $1.623 per case month (FY2000) and estimated cost of $0.621 per case month for lump-sum adjustment to base fees. For this estimate, the total lump sum adjustment of $18.4 million was spread over the 84 months of the entire contract term and divided by the FY2000 average FSP caseload.

d Base fee per case month for caseload of 150,000 to 200,000. Base fee for 100,000 to 150,000 cases is $3.70 per case month. FY2001 caseload was 149,595.

The basic parameters of the Ohio, Maryland, Pennsylvania, and Virginia vendor contracts are similar in a number of important respects.

- All four States are relatively large, with 100,000 or more FSP cases.
- All four States use the same prime EBT contractor.
- All four States operate under prices established in 1998 or later, when the decline in FSP caseloads and its impact on EBT costs was already well-recognized. These contracts also reflect diminished competition among EBT vendors.
- Three of the four States have tiered pricing schedules tied to caseloads. Pennsylvania does not, but the effective cost per case varies with caseload because its pricing includes lump sum adjustments in addition to the base fees established in its original contract terms.

The Ohio and Virginia EBT systems serve only the FSP; the Maryland and Pennsylvania systems serve both the FSP and cash assistance programs. Thus, the Maryland and Pennsylvania fees for FSP EBT reflect some cost-sharing with the cash assistance programs, although this cost-sharing does not necessarily reflect resource use as did the previous Maryland evaluation results.

One key element of vendor fees shared by Ohio, Pennsylvania, and Virginia is the recovery of implementation costs that were not separately billed by the vendor. In all three States, the vendor provided equipment and training for local offices and retailers. In addition, the vendor in Pennsylvania and Virginia issued cards and trained recipients for EBT conversion. In contrast, the current Maryland vendor entered a State where all recipients and retailers had already been converted. Therefore, the vendor provided much more modest implementation services to replace current recipients' cards and convert local offices to use new administrative terminals and software. Thus, like the Ohio Direction Card vendor fees, the Pennsylvania and Virginia vendor fees presumably include a profit factor to recover at least part of the vendor's implementation cost. This cost probably was similar to or greater than the vendor's implementation cost in Ohio (on a per-case basis), because the vendor (not the local offices) provided initial card issuance and recipient training.

Independent of the greater cost per terminal of off-line technology, there are three reasons why POS terminal costs for the Ohio Direction Card are greater than for the three on-line States. First, all three on-line States use a combination of multi-purpose and EBT-only terminals, and the EBT vendor does not pay for the use of multipurpose terminals deployed by or on behalf of merchants. In contrast, the Ohio Direction Card system uses no multi-purpose terminals, so the vendor has to provide EBT-only terminals to all authorized merchants. Second, the three on-line States provide EBT-only terminals according to the minimum standards set by FNS regulations,[41] whereas Ohio provides these terminals according to a more generous State formula. This formula led the State to deploy 2108 additional terminals, and contributed $0.48 per case month to the billed vendor cost for Ohio. Third, ODJFS requires the vendor to repair or replace malfunctioning POS equipment within three hours, whereas the three on-line States have less stringent requirements.

[41] The Virginia vendor contract stipulates a maximum number of EBT-only POS terminals covered by the basic fee per case month, with a monthly charge for each additional POS terminal above the maximum.

The impact of these differences is partially offset by the fact that Ohio has a somewhat greater density of recipients relative to retailers than Maryland and Virginia. In 2000, Ohio had about 50 FSP households for every retailer, only a little less than Pennsylvania's ratio of 51; Maryland's ratio was 43, and Virginia's was 36. Thus, the cost of equipping each retailer in Ohio is spread over more FSP households than in Maryland and Virginia, and about the same number as in Pennsylvania.

The difference between the State deployment formula and the FNS formula accounts for $0.48 of the difference in the cost per case month. This factor suggests that the cost differences associated with the lack of multipurpose POS equipment and the repair time standard are also substantial, but that the available data did not permit a quantitative estimate.

Card costs are probably another factor contributing to the difference in vendor fees between the Ohio Direction Card system and the three sample on-line EBT systems. The card costs in the original Maryland on-line EBT system were $0.42 per case month less than the Ohio Direction Card system, after adjusting for inflation. This difference was due both to the lower cost of magnetic stripe cards and the sharing of card costs between the FSP and cash assistance programs in Maryland. Card costs in the current on-line systems may be slightly more or less than the Maryland demonstration estimates, but there is almost certainly a similar difference in card costs between current off-line and on-line systems.

Ohio, Maryland, and Pennsylvania issue all recipient cards with recipient PIN selection at local offices; Virginia issues cards by mail with assigned PINs and optional PIN selection at local offices. This difference probably has a very modest impact on the vendor's operational costs. The vendor supplies the cards in all four States. The Virginia system requires the vendor to bear the additional cost of mailing the cards to individual recipients. This cost may be offset by lower requirements for supplying EBT equipment to local offices, given their reduced role.

Without a good deal of additional data, it is not possible to pinpoint which of the other significant differences between off-line and on-line EBT systems contribute to the difference in vendor fees. There are several factors that may contribute to lower costs in current on-line systems.

- Administration and reconciliation costs for on-line EBT systems may be reduced by the fact that the overall scale of EBT operations (including all States served by the vendor team) is much greater.
- Differences in system configuration might make on-line system costs for administration and reconciliation higher or lower, depending on the relative importance of two factors: the time lags in transaction processing and settlement in off-line systems, and the greater number of processors involved in on-line systems.
- Cards, POS terminals and other resources in on-line systems are shared between the FSP and cash assistance programs.

Although there are only a few full-service on-line EBT vendors, there has been even less competition in off-line EBT procurements, at least until the most recent solicitation by New Mexico and Texas. Thus, current on-line EBT vendor fees may be more competitively priced than the current fees for the Ohio Direction Card. There are concerns, however, that declining competition may lead to increased prices for on-line EBT services, relative to the level of service provided. This potential factor is particularly difficult to assess without access to vendors' sensitive internal cost data.

On the other hand, some of the differences between off-line and on-line EBT systems may offset these factors. The differences in POS and card costs may be partially offset by lower costs for telecommunications and data processing, because off-line technology eliminates resource requirements for on-line processing.

The original Maryland evaluation data suggest that centralized customer service costs may be higher in on-line EBT systems, perhaps because the vendor's customer service unit can resolve more problems than in the off-line environment. Further evidence that customer service costs are substantial in on-line systems comes from the concern cited by on-line EBT vendors about the unexpectedly high level of these costs.

The preceding discussion suggests the following conclusions:

- Under current conditions at the time of the evaluation, the Ohio Direction Card system is more expensive for a vendor to operate than comparable on-line systems.
- These data alone do not provide a definitive indication of the size of the cost premium for the Ohio Direction Card system. The cost difference ranges from $1.03 to $2.24 per case month. These differences are only suggestive, because there are notable differences between Ohio and the other three States in important parameters other than technology.
- The POS equipment depreciation and maintenance costs associated with the need to equip all FSP retailers probably represent the largest single explanation for the observed cost differences. These differences reflect the differences in technology, the exclusive use of EBT-only terminals, and ODJFS' decision to provide more than the minimum mandated number of terminals. The POS terminal repair time standard in Ohio is probably another factor contributing to the cost differences.
- Card costs also contribute to the higher vendor costs in the Ohio Direction Card system, but these costs may be partially offset by the substitution of processing on the card for on-line processing by telecommunications networks and the host computer.
- Further analysis beyond the scope of this study, including sensitive vendor cost data, would be required to discern the cost impacts of other differences in technology, level of service and the vendor marketplace.

The vendor cost difference between the Ohio Direction Card and the regional EBT system alliances may be more or less than the difference discussed above. On the one hand, the larger scale of the regional alliances reduces some costs. On the other hand, compared with both the Ohio Direction Card and the States in the preceding comparison, the alliances generally shift more operational responsibility to the vendor, particularly for card issuance and replacement, through the application of waivers to recipient service requirements. States have adopted centralized recipient service methods permitted under waivers, such as issuing cards and providing training by mail, to reduce the overall costs of EBT implementation and operations. Nevertheless, the shift of these services from local offices to the vendor increases the vendor's share of the costs, albeit modestly.

Chapter 4
Projections of FSP Costs Under Various Conditions

4.1 Introduction

The previous chapter of this report examined the FSP administrative costs of the Statewide Ohio Direction Card system as it operated in 2000, after the completion of recipient conversion. This chapter probes the factors that shaped those costs and how the system's operational costs might be reduced under a series of alternative scenarios. Unlike the estimates of actual costs in the preceding chapter, the projections in this chapter are explicitly hypothetical and subject to greater uncertainty.

One purpose for the cost projections is to explore the relative impacts of the numerous dimensions on which the Ohio Direction Card system differs from other EBT systems. The comparisons in the preceding chapter indicate that the FSP operational costs of the Ohio Direction Card system are greater than those of comparable on-line EBT systems. Too few data points were available, however, to discriminate among the effects of differences in scale, technology, cost-sharing among programs, and retailer equipment requirements. Instead, by varying those factors individually, the projections in this chapter provide insights into the potential impact of each factor on the off-line system's operational costs for the FSP.

The other purpose of this chapter is to explore the conditions most likely to reduce FSP costs for the Ohio Direction Card and achieve cost-neutrality. Until 2002, the Food Stamp Act (as amended) required EBT systems to be cost-neutral to the federal government, using the issuance costs of the paper coupon system as the benchmark. FNS set an annual cap on Federal reimbursements for each State's EBT costs based on the State's pre-EBT coupon issuance costs, adjusted for inflation. In general, FNS reimbursed 50 percent of allowable State FSP administrative costs. Thus, if the FSP EBT costs incurred by the State were less than or equal to twice the amount of the FNS EBT cost cap for the State, then the State's EBT system was operating on a cost-neutral basis. For Ohio in FY2000, the FNS EBT cost cap was $1.96 per case month, so the cost-neutrality standard was $3.92 per case month. The Food Stamp Reauthorization Act of 2002 eliminated the cost-neutrality requirement for EBT systems, but the inflation-adjusted paper issuance cost remains a useful benchmark.[1]

The estimated administrative costs for the Direction Card system substantially exceeded the $3.92 per case month level that would represent cost-neutrality (i.e., cost per case month less than under the coupon system, after adjusting for inflation). For the period analyzed, the estimated operational cost of the Ohio Direction Card system was $6.56 per case month, about 67 percent more than the cost-neutral level. Although the cost cap protected FNS from absorbing any excess administrative costs, changes to the system to reduce operational costs would clearly be beneficial to the State.

EBT cost savings for the FSP might occur for four main reasons. First, increases in the caseload would lead to decreased costs on a per case basis among both fixed and quasi-fixed program components. In 1994, the time of the Direction Card RFP, the FSP caseload was 522,528, over twice the level of 257,600

[1] The FY 2002 cost-neutrality standard for Ohio is $4.12.

at the time of the current evaluation. Second, if additional benefit programs were added to the EBT system, some of the costs would be shared with the other programs. Sharing individual components, such as cards, or system-wide functions, such as management, would reduce the cost to each program. Third, decreases in the cost of POS and administrative terminals, the largest component of cost for the Ohio Direction Card system, would lead to direct FSP savings. Finally, changes in recipient services, such as implementing card replacement fees, might lead to savings as well as changed recipient behavior.

The specific conditions examined in this chapter are listed below.

- ***Larger FSP caseload,*** at the level for which the Ohio Direction Card system was designed.
- ***Addition of WIC to EBT system*** on a statewide basis in Ohio.
- ***Addition of TANF to EBT system*** on a statewide basis in Ohio.
- ***Quantity of retailer terminals*** based on the FNS formula, so that the state does not pay for additional retailer equipment.
- ***Reduction in cost of terminals***, including POS and administrative terminals.
- ***Retailers with multi-lane stores have integrated equipment*** (capable of working with commercial debit and credit cards as well as EBT smart cards) in lieu of EBT-only equipment provided at the State's expense.
- ***Reduction in cost of Direction Card.***
- ***Implementation of a card replacement fee*** for lost and stolen cards, and for cards damaged by users.

The projections of EBT administrative costs in this chapter were made using a series of spreadsheets to construct "what-if" scenarios, where each of the operational cost components[2] was examined individually to simulate the expected impact of the above conditions. Each of these "what-if" scenarios examined the effect of a single condition on off-line EBT costs. In practice, multiple single-condition scenarios occurring simultaneously might lead to even greater cost savings, but the effects of these conditions are not necessarily independent. The analysis did not address the possible interactions.

For most scenarios, the chapter presents "low" and "high" projections. In order to determine a range of potential cost savings for each of the conditions, optimistic assumptions that would be favorable to the FSP were used to provide the "low" estimates of costs. More conservative, but still optimistic assumptions were used to provide the "high" projections. Those assumptions were chosen to highlight the influence of substantial changes in critical parameters, even when such changes may not be likely in the near future.

[2] These costs were based on the operational cost estimates presented in the previous chapter, which used billed costs as the basis for the vendor costs. Thus, the vendor costs in this chapter are projections of what the vendor would bill to the State.

Highlights

The specific results of the cost projections are sensitive to the underlying assumptions, but several key points emerge from the analysis.

- The scenario with the FSP caseload at the level for which the Ohio Direction Card system was designed yields the lowest operational cost, $4.31 per case month with the more optimistic assumptions.
- The other scenarios with the most impact on FSP operational costs are those that involve the addition of WIC or TANF and the scenario with integrated POS equipment for multi-lane stores.
- All of the scenarios with the most impact on FSP costs achieve much or all of their results through the sharing of POS terminal costs, the largest component of vendor costs.
- The lowest-cost scenarios generally achieve additional savings through the sharing of fixed costs for central management, technical support and data processing facilities, highlighting the importance of the system's operational scale (including FSP caseload and non-FSP uses, if any).
- None of the scenarios reduces local office operational costs to the level estimated by on-line EBT system evaluations. This portion of the system's cost may be the most difficult to reduce.
- None of the individual scenarios reduces the FSP operational cost to the $3.90 per case month level that would represent cost-neutrality. It is possible, but not certain, that some combination of these scenarios might have this result.

In the following section, each of the "what-if" scenarios is described including the major assumptions used, the line items that were affected, the estimates of cost savings, and the projected total cost to the FSP. The first three scenarios (larger caseload, addition of WIC, and addition of TANF) deal with changes that affect many of the cost elements. The remaining scenarios primarily affect one cost element. The results of the scenarios are discussed in the chapter's final section. Appendix C provides more detailed information about the assumptions used in each of the scenarios.

4.2 Scenarios to Reduce Costs for the FSP

Larger Caseload

The analysis of FSP administrative costs was based on costs from the spring of 2000, the latest period for which data were available, at which time Ohio's FSP caseload was 257,600. In FY 1994, the time of the expansion RFP, Ohio's average monthly FSP caseload was 522,538. All systems for the Ohio Direction Card were designed to support a caseload of 600,000. Many of the support systems—including POS and administrative terminals, the largest component of the administrative costs—have virtually fixed costs, in the sense that the resources required to serve the FSP in Ohio would not vary if the caseload were substantially larger. As a result, the decrease in caseload has led to a significant increase in the costs per case month.

To simulate the effects of the decline in the Ohio FSP caseload on the operational costs of the Direction Card system, scenarios representing high and low expected costs were constructed. Both scenarios assumed a FSP caseload of 600,000. This level of participation could occur in the future if the eligible population increased (e.g., in a major recession) or if the rate of participation rose. The estimated participation rate of eligible persons in Ohio was 80 percent in 1994 versus 58 percent in 1998 (the latest data available).[3]

To project the FSP costs with a caseload of 600,000, the actual EBT operational costs were divided into three categories: fixed, quasi-fixed and variable. In these projections, as in other projections in this chapter, all fixed costs stay constant with the increased caseload, so that there is a decrease in the costs per case. Variable costs increase proportionately with the additional cases, so that the cost per case is not affected. Quasi-fixed costs have cost components that could be fixed or variable. The high scenario assumes that some components of the quasi-fixed costs are variable, whereas the low scenario holds quasi-fixed costs constant. For example, in the high scenario, State and vendor administration costs are treated as 50 percent fixed and 50 percent variable, as are vendor reconciliation and data center labor. These costs are treated as fully fixed in the low scenario.

The high scenario also assumes that the number of POS and administrative terminals increases by 10 percent, because additional food stamp revenue in retail stores might lead to increased equipment allowances under the FNS formula.[4] The low scenario assumes that the level of POS and administrative terminals stays constant, and that any increases in equipment mandated by the FNS deployment formula are met by the additional equipment already purchased by the State beyond FNS' required level.

As shown in Exhibit 4-1, the high scenario results in an estimated cost reduction of $1.70 per case month, bringing the total cost per case month to $4.86. The low scenario results in an estimated cost reduction of $2.25 per case month, bringing the total cost per case month to $4.31.

The high scenario vendor cost of $2.84 per case month may somewhat optimistic as the upper bound of the cost that the vendor might bill at the larger caseload. In contrast, the contract between Citicorp EFS and the State of Ohio originally set the vendor fee at $2.99 per case month, before the decline in the FSP caseload and the State's decision to deploy additional POS terminals.[5] Thus, the high scenario appears to be more optimistic than Citicorp EFS' original pricing assumptions for the Ohio Direction Card system, particularly because the high scenario includes the additional POS terminals. Furthermore, Citicorp EFS has indicated that the vendor team's costs would have been higher than its projections, even if the Ohio FSP caseload had not declined. Citicorp EFS identified customer service and POS terminal replacement as two areas of greater-than-expected costs. For the long run, the projections are more plausible, as long as increases in efficiency can be expected.

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[3] Allen Schirm, "State Food Stamp Participation Rates in 1998," Project Officer: Christine Kissmer. U.S. Department of Agriculture, Food and Nutrition Service, Office of Analysis, Nutrition and Evaluation, Alexandria, VA, 2001.

[4] The FNS deployment formula determines the minimum number of EBT POS terminals that States must provide to food stamp retailers that do not choose to provide their own equipment. The formula allocation for a store is a non-linear function of the number of lanes, the FSP sales, and the total food sales.

[5] As noted in Chapter 3, Citicorp EFS' basic fee was increased to $3.80 per case month in 1998, not including the charges for the additional equipment requested by ODJFS.

Exhibit 4-1

Impact of Larger Caseload on Food Stamp Program (Costs per Case Month)

Cost Category	Actual Conditions	600,000 Cases[a]		Difference Between Actual Costs and High Scenario	Difference Between Actual Costs and Low Scenario
		High Scenario	Low scenario		
Local Costs					
Labor for Card Related Issues	$1.295	$1.295	$1.295	$0.000	$0.000
Labor for Benefit Related Issues	$0.300	$0.300	$0.300	$0.000	$0.000
Administrative Labor	$0.279	$0.279	$0.120	$0.000	$0.159
Total Local Costs	**$1.875**	**$1.875**	**$1.716**	**$0.000**	**$0.159**
State Costs					
EBT Staff Labor	$0.060	$0.043	$0.026	$0.017	$0.034
Contract Labor	$0.124	$0.088	$0.053	$0.035	$0.071
Fiscal Labor	$0.003	$0.002	$0.001	$0.001	$0.002
Miscellaneous	$0.001	$0.001	$0.001	$0.000	$0.001
CPU Usage	$0.005	$0.003	$0.002	$0.001	$0.003
Travel	$0.005	$0.003	$0.002	$0.001	$0.003
Total State Costs	**$0.198**	**$0.141**	**$0.085**	**$0.056**	**$0.113**
Vendor Costs					
Administration/Reconciliation	$0.517	$0.363	$0.290	$0.154	$0.227
Customer Service	$0.143	$0.143	$0.140	$0.000	$0.003
Data Center	$0.345	$0.298	$0.200	$0.047	$0.145
POS/Administrative Terminals	$2.664	$1.258	$1.144	$1.406	$1.520
Communications	$0.289	$0.289	$0.246	$0.000	$0.043
ACH Expenses	$0.062	$0.027	$0.027	$0.036	$0.036
Card Costs	$0.461	$0.461	$0.461	$0.000	$0.000
Total Vendor Costs	**$4.482**	**$2.840**	**$2.508**	**$1.642**	**$1.974**
Grand Total	**$6.555**	**$4.856**	**$4.308**	**$1.699**	**$2.247**

a See text for assumptions used in high and low scenarios.

Addition of a Benefit Program to the EBT System—WIC and TANF

Another way of reducing costs to the FSP would be to add other benefit programs to the Direction Card system. This would allow costs to be shared among programs. As discussed in the previous chapter, a WIC off-line EBT pilot that used the Direction Card began operations in Montgomery County in October 2000, and the State may expand the system to other counties and eventually statewide. Furthermore, the contract between ODJFS and Citicorp EFS also included an option to add TANF cash benefits to the Direction Card system. Other applications that might be considered for addition to the Direction Card system include portable health records (such as the Health Passport tested by the Western Governors Association), transit fares cards, and program attendance recording.[6] The following section focuses on the ways in which FSP cost elements would be affected by cost sharing with WIC and TANF.

Addition of WIC to Ohio Direction Card System

In October 2000, the Ohio Department of Health (ODH) and ODJFS began operating a combined WIC/FSP off-line EBT system in Montgomery County, as a pilot test for possible statewide implementation. The combined WIC/FSP pilot system was fully implemented in May 2001.

The state and local departments responsible for the WIC EBT program were different from those responsible for the FSP. The state-level organization responsible for the WIC EBT program was the ODH. Local WIC clinics were responsible for participant training, card issuances, card unlocks and replacements, and other problem solving.

Although there was not expected to be a cost impact to the FSP at the state level, there were cost-sharing opportunities at the local level. For the period analyzed, approximately 17 percent of FSP households also received WIC benefits. The relatively low number of joint participants (i.e., participants in both WIC and FSP) results in the expectation that a FSP/WIC EBT system would have a limited impact on the cost to FSP for recipient services.

The cost projections for the FSP/WIC EBT system in Exhibit 4-2 represent expectations for a statewide system. These projections reflect the structure of the FSP/WIC pilot and a limited amount of information about local FSP office effort in the pilot environment. Nevertheless, these projections are not intended to represent actual FSP costs for pilot operations. Furthermore, the projections allocate shared costs according to rules based on the usage of the affected resources; actual cost allocation rules might be quite different.

Joint participants could use either the WIC or FSP office for all card functions, as is the case in the current pilot. The high scenario assumes that half of the joint participants pick up their cards, get trained, and obtain card-related services at a local WIC clinic, so that WIC bears these costs. For the high scenario, the FSP cost savings at the local level were estimated to be $0.11 per case month. The low scenario assumes that WIC is the lead program and all joint participants pick up their cards, get trained, and obtain card-related services at a local WIC clinic. This scenario also assumes that WIC

[6] Wyoming's smart card was designed to work with the FSP, WIC, and the Health Passport program. Cleveland's rapid transport authority and ODJFS have discussed a possible test of a fare card using the Direction Card platform. Smart cards also have other potential uses such as a mechanism for recording program attendance in training or child care assistance programs.

Exhibit 4-2

Impact of Adding WIC on Food Stamp Program (Costs per Case Month)

Cost Category	Actual Conditions	WIC Included[a]		Difference Between Actual Costs and High Scenario	Difference Between Actual Costs and Low Scenario
		High Scenario	Low Scenario		
Local Costs					
Labor for Card Related Issues	$1.295	$1.190	$1.084	$0.105	$0.211
Labor for Benefit Related Issues	$0.300	$0.300	$0.300	$0.000	$0.000
Administrative Labor	$0.279	$0.279	$0.279	$0.000	$0.000
Total Local Costs	**$1.875**	**$1.770**	**$1.664**	**$0.105**	**$0.211**
State Costs					
EBT Staff Labor	$0.060	$0.060	$0.060	$0.000	$0.000
Contract Labor	$0.124	$0.124	$0.124	$0.000	$0.000
Fiscal Labor	$0.003	$0.003	$0.003	$0.000	$0.000
Miscellaneous	$0.001	$0.001	$0.001	$0.000	$0.000
CPU Usage	$0.005	$0.005	$0.005	$0.000	$0.000
Travel	$0.005	$0.005	$0.005	$0.000	$0.000
Total State Costs	**$0.198**	**$0.198**	**$0.198**	**$0.000**	**$0.000**
Vendor Costs					
Administration/Reconciliation	$0.517	$0.430	$0.393	$0.088	$0.125
Customer Service	$0.143	$0.140	$0.108	$0.003	$0.035
Data Center	$0.345	$0.345	$0.244	$0.000	$0.101
POS/Administrative Terminals	$2.664	$2.317	$1.388	$0.346	$1.276
Communications	$0.289	$0.287	$0.234	$0.001	$0.055
ACH Expenses	$0.062	$0.062	$0.062	$0.000	$0.000
Card Costs	$0.461	$0.441	$0.421	$0.020	$0.040
Total Vendor Costs	**$4.482**	**$4.023**	**$2.851**	**$0.459**	**$1.631**
Grand Total	**$6.555**	**$5.991**	**$4.713**	**$0.564**	**$1.842**

a See text for assumptions used in high and low scenarios.

pays the full cost of combined cards. For the low scenario, the cost savings at the local level are estimated to be $0.21 per case month.

Assuming that a single vendor would be responsible for providing both WIC and FSP EBT services, there would be more opportunities for sharing of vendor costs. The shared cost elements would include administration, customer service, data center operations, communications facilities, and cards. Customer

service costs would be shared to the extent that card-related calls from joint participants would involve both the FSP and WIC.

The largest area of potential vender cost savings to the FSP is in the cost of POS terminal depreciation and maintenance. The two programs share the same retailer equipment, although WIC requires scanners in addition. The cost projections assume that the cost of the retailer equipment and maintenance is split between the programs according to each program's share of total retailer transactions. In determining how to split the number of transactions, it is important to keep in mind that each WIC transaction involves significantly more information than an individual FSP transaction, because data on each food item purchased in a WIC transaction must be recorded on the POS system and later uploaded to the host computer during settlement. (There was an average of 7.7 food items purchased per WIC transaction.) The high scenario allocates POS costs to WIC based on WIC's share of total transactions (15 percent), whereas the low scenario allocates WIC's share of POS costs in proportion to the item-weighted WIC share of total transactions (58 percent).[7] The high scenario leads to a savings to the FSP of $0.35 per case month for POS terminal depreciation and maintenance, whereas the low scenario leads to FSP savings of $1.28 per case month.

With the combined impact on local operations and vender cost, the high scenario leads to overall FSP savings of $0.56 per case month and a total cost to the FSP of $5.99 per case month. The low scenario leads to overall savings of $1.84 per case month and a total cost to the FSP of $4.71 per case month. Most of these savings are attributable to the sharing of POS equipment. Other important areas of cost-sharing include local card-related labor, vendor administration and reconciliation, and data center operations. The wide range of the savings projections indicates substantial uncertainty about the likely impact of adding WIC on FSP EBT costs. In particular, the FSP savings are quite sensitive to the rules by which shared costs are allocated.

Addition of TANF to EBT System

As mentioned above, the contract between ODJFS and Citicorp EFS included an option to add TANF cash benefits to the Direction Card system. Food stamp programs are commonly combined with TANF in on-line EBT systems. There would be challenges, however, associated with implementing TANF on the Direction Card system. For off-line EBT systems, TANF cash benefits are more difficult to deliver, because automated teller machines (ATMs) do not accept smart cards. Thus, the options for providing access to cash benefits via the current Ohio Direction Card are (a) retrofitting ATMs, (b) enlisting food stamp retailers as cash issuance sites, or (c) recruiting and equipping other cash issuance sites, such as check cashers or non-food retailers.[8] Settlement of cash benefit transactions is another area where off-line EBT systems face greater challenges than on-line systems, because of cash management issues around card balances. These challenges and funding constraints led ODJFS to choose not to add TANF to the

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[7] In the item-weighted calculations, each WIC transaction has a weight of 7.7, whereas each FSP transaction has a weight of 1, under the assumption that the data for a WIC item are comparable to the data for a FSP purchase. This is a hypothetical formula to approximate allocation of costs based on the programs' usage of POS terminal memory, telecommunications networks, and host computer resources.

[8] As discussed in Chapter 6, the system could use a hybrid card with a magnetic stripe for access to TANF benefits at ATMs and conventional POS terminals, but ODJFS does not want to introduce an on-line element to the system. In addition, a hybrid card would not allow the same opportunities for sharing the costs of cards, POS equipment, and other resources.

Direction Card, but such a multi-program system is technically feasible and may eventually be implemented. The development of commercial smart card payment systems would serve as a catalyst for this enhancement.

TANF, unlike WIC, is administered through the same local and state agencies as the FSP, so there is more potential for cost sharing. The Direction Card staff who work with FSP recipients would also provide EBT services to TANF recipients. In addition, a portion of the administration effort is assumed to be common to both programs. Only about 20 percent of FSP participants, however, also receive TANF benefits,[9] so as with WIC, cost sharing has a limited impact on the cost to FSP of recipient services.

The high scenario assumes that half of the cost for joint (FSP and TANF) participants to pick up their cards, get trained, and obtain card-related services is allocated to TANF. The scenario assumes that half of the local administration labor is program-specific, and half is common to both programs. Under both high and low scenarios, the cost of all administration, management, and technical support labor that is common to both programs is allocated between the programs according to each program's share of the total unduplicated caseload, with dual-program cases split evenly between programs for the calculation of shares. For the high scenario, the FSP cost savings at the local level are estimated to be $0.15 per case month, as shown in Exhibit 4-3.

The low scenario takes the "best case" assumption that TANF is the lead program, so the total cost for joint participants to pick up their cards, get trained, and obtain card-related services is allocated to TANF. This scenario also assumes that all of the local administration labor is common to both programs. For the low scenario, the FSP cost savings at the local level are estimated to be $0.30 per case month.

At the State level, the high scenario assumes that half of the cost for project management and technical support is program-specific and half is common to both programs. For the high scenario, the FSP cost savings at the State level are estimated to be $0.02 per case month. The low scenario assumes that the entire State cost for project management and technical support is common to both programs. For the low scenario, the FSP cost savings at the State level are estimated to be $0.05 per case month.

The opportunities for vendor cost savings with the addition of TANF would be parallel to the savings with WIC. As with WIC, the largest area of savings to the FSP is in the cost of POS terminal depreciation and maintenance. The FSP and TANF would use the same retailer equipment in locations that delivered both types of benefits. To estimate the cost savings to the FSP, it is assumed that the cost of the retailer equipment and maintenance is allocated between the programs according to each program's share of total retailer transactions.[10] Other shared vendor costs include

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[9] The caseload data obtained from ODJFS for March through June 2000 data imply a higher-than-expected number of TANF-only participants, but they are the best available data.

[10] In order to estimate the FSP share of total transactions, the evaluators assumed that TANF households would use their Direction Cards twice a month to withdraw funds for rent or other large payments and twice a month to withdraw smaller amounts. These assumptions are based on cash transaction patterns in the Maryland EBT demonstration. The high scenario assumes that one of the large monthly withdrawals would occur at a check casher and the other three withdrawals would occur in food retailers. Taking into account the 7.9 FSP transactions per case and the relative numbers of FSP and TANF cases, this scenario leads to an FSP share of total transactions of 88 percent. The low scenario assumes that all four cash withdrawals per month occur in food retailers. This scenario leads to an FSP share of total transactions of 85 percent.

Exhibit 4-3

Impact of Adding TANF on Food Stamp Program (Costs per Case Month)

Cost Category	Actual Conditions	TANF Included[a]		Difference Between Actual Costs and High Scenario	Difference Between Actual Costs and Low Scenario
		High Scenario	Low scenario		
Local Costs					
Labor for Card Related Issues	$1.295	$1.180	$1.065	$0.115	$0.231
Labor for Benefit Related Issues	$0.300	$0.300	$0.300	$0.000	$0.000
Administrative Labor	$0.279	$0.245	$0.211	$0.034	$0.069
Total Local Costs	**$1.875**	**$1.725**	**$1.576**	**$0.150**	**$0.299**
State Costs					
EBT Staff Labor	$0.060	$0.053	$0.045	$0.007	$0.015
Contract Labor	$0.124	$0.108	$0.093	$0.015	$0.030
Fiscal Labor	$0.003	$0.000	$0.003	$0.003	$0.000
Miscellaneous	$0.001	$0.001	$0.001	$0.000	$0.000
CPU Usage	$0.005	$0.004	$0.004	$0.001	$0.001
Travel	$0.005	$0.004	$0.004	$0.001	$0.001
Total State Costs	**$0.198**	**$0.174**	**$0.150**	**$0.024**	**$0.048**
Vendor Costs					
Administration/Reconciliation	$0.517	$0.457	$0.432	$0.061	$0.086
Customer Service	$0.143	$0.140	$0.120	$0.003	$0.024
Data Center	$0.345	$0.345	$0.319	$0.000	$0.026
POS/Administrative Terminals	$2.664	$2.316	$2.231	$0.348	$0.432
Communications	$0.289	$0.287	$0.266	$0.002	$0.023
ACH Expenses	$0.062	$0.062	$0.062	$0.000	$0.000
Card Costs	$0.461	$0.440	$0.374	$0.022	$0.087
Total Vendor Costs	**$4.482**	**$4.047**	**$3.803**	**$0.435**	**$0.679**
Grand Total	**$6.555**	**$5.946**	**$5.529**	**$0.609**	**$1.026**

a See text for assumptions used in high and low scenarios.

administration, customer service, data center operations, communications, and cards. The assumptions for these costs are the same as for the WIC scenarios. The high scenario leads to FSP vendor cost savings of $0.44 per case month, whereas the low scenario leads to FSP vendor cost savings of $0.68 per case month.

Overall, the high scenario yields an FSP cost of $5.95 per case month, and the low scenario yields a FSP cost of $5.53 per case month. The FSP savings projections are $0.61 and $1.03 per case month, respectively. Thus, adding TANF to the Ohio Direction Card system could substantially reduce FSP costs, but this approach alone appears unlikely to make the system cost-neutral. If the caseload overlap between the FSP and TANF were much greater, as it was before the 1996 welfare reforms, the savings from a shared EBT system would be greater.

Decrease in the Cost of POS and Administrative Terminals

The depreciation and maintenance of POS and administrative terminals accounted for the largest component of estimated operational costs for the Ohio Direction Card system? 40 percent of the total cost. Terminal cost could account for an even larger share in the future, because of the addition of new lanes in participating stores and the return or replacement of stores that initially did not participate in the Direction Card system. Thus, this is an important area to probe for potential cost savings. This report examines three scenarios in which equipment costs would be decreased: (1) basing the quantity of retailer terminals on the FNS formula; (2) a reduction in the unit cost of the equipment used to read and update cards; and (3) use of integrated equipment for EBT and commercial transactions, by retailers with multi-lane stores.[11]

Follow FNS' Formula for Number of Terminals

The FNS deployment formula determines the minimum number of EBT-only POS terminals that States must provide to food stamp retailers that do not choose to provide their own equipment. The quantity of retailer equipment required by Citicorp EFS' contract was based on this formula. The State of Ohio, however, agreed to lease an additional 2108 terminals to provide further lane coverage. If the State had not provided the additional equipment, the total depreciation and maintenance cost for POS and administrative terminals would have been reduced by $0.48, bringing the total cost per case month to $6.07. (This scenario is shown in Exhibit 4-4.)

Reduction in Cost of Terminals

As smart cards gain popularity in this country, technological developments and market forces may lead to reductions in the unit cost of the equipment used to read and update the cards. Exhibit 4-5 shows projections of the effects of 25 and 50 percent reductions in the unit cost of POS and administration terminals, assuming no change in the number of units. The 25 and 50 percent reductions lead to decreases in operational costs of $0.22 and $0.44 per case month, respectively, bringing the total operational cost per case month to $6.33 and $6.11.

Integrated Retailer Equipment

Eventually, it is expected that major retailers will choose to install integrated POS systems that are capable of working with both commercial debit/credit cards and EBT smart cards. During the implementation period for the Ohio Direction Card system, an "integrated" solution was made available to retailers in lieu of the system's "stand-beside" POS configurations, in response to retailers' concerns regarding scarce counter space in the checkout lanes, and to facilitate a more efficient checkout process.

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[11] For the scenarios dealing with specific components of EBT costs, only one set of projections was made, unless there was substantial uncertainty about the assumptions.

Exhibit 4-4

Impact of Basing Quantity of Retailer Terminals on FNS' Formula (Costs per Case Month)

Cost Category	Actual Conditions	Following FNS Formula for Number of Terminals	Difference between Baseline and Scenario
Local Costs	**$1.875**	**$1.875**	**$0.000**
State Costs	**$0.198**	**$0.198**	**$0.000**
Vendor Costs			
Administration/Reconciliation	$0.517	$0.517	$0.000
Customer Service	$0.143	$0.143	$0.000
Data Center	$0.345	$0.345	$0.000
POS/Administrative Terminals	$2.664	$2.181	$0.482
Communications	$0.289	$0.289	$0.000
ACH Expenses	$0.062	$0.062	$0.000
Card Costs	$0.461	$0.461	$0.000
Total Vendor Costs	**$4.482**	**$4.000**	**$0.482**
Grand Total	**$6.555**	**$6.073**	**$0.482**

Exhibit 4-5

Impact of Reduced Equipment Costs (Costs per Case Month)

Cost Category	Actual Conditions	Reduced Cost of POS and Administrative Equipment		Difference Between Actual Costs and High Scenario	Difference Between Actual Costs and Low Scenario
		High Scenario[a]	Low Scenario[b]		
Local Costs	**$1.875**	**$1.875**	**$1.875**	**$0.000**	**$0.000**
State Costs	**$0.198**	**$0.198**	**$0.198**	**$0.000**	**$0.000**
Vendor Costs					
Administration/Reconciliation	$0.517	$0.517	$0.517	$0.000	$0.000
Customer Service	$0.143	$0.143	$0.143	$0.000	$0.000
Data Center	$0.345	$0.345	$0.345	$0.000	$0.000
POS/Administrative Terminals	$2.664	$2.443	$2.222	$0.221	$0.441
Communications	$0.289	$0.289	$0.289	$0.000	$0.000
ACH Expenses	$0.062	$0.062	$0.062	$0.000	$0.000
Card Costs	$0.461	$0.461	$0.461	$0.000	$0.000
Total Vendor Costs	$4.482	$4.261	$4.041	$0.221	$0.441
Grand Total	**$6.555**	**$6.334**	**$6.114**	**$0.221**	**$0.441**

a High scenario assumes a 25 percent reduction in the cost of equipment.

b Low scenario assumes a 50 percent reduction in the cost of equipment.

The integrated solution would have allowed retailers to modify their existing POS systems, many of which accept credit cards and debit on-line cards, to accept the off-line Direction Card. This approach would have required retailers to attach a smart card reader to either their in-lane debit/credit terminals or their electronic cash registers (ECRs).[12] Retailers that chose an integrated solution would have needed to modify their existing systems' software. A detailed specification has been available to retailers to assist them in identifying the necessary modifications. To date, however, no retailers have selected the integrated solution approach. According to ODJFS and Citicorp EFS, retailers have not found that the benefits of an integrated solution would be sufficient to justify the integration costs, unless there was sufficient demand for acceptance of other smart cards.

12 PIN pads would also be required if not already present.

Exhibit 4-6 presents the projected effect of all large retailers (multi-lane stores) choosing an integrated solution, in which case they would be responsible for all equipment and maintenance costs associated with the systems, as is the case with on-line EBT systems.[13] During the evaluation period, 63 percent of EBT POS terminals were in multi-lane stores. The projections assume that all of these terminals are replaced by integrated POS systems at no cost to the government or the EBT vendor, ignoring the costs of transitioning from the current network of entirely dedicated EBT terminals. Under this assumption, operational costs are reduced by $1.62 per case month, and the total operational cost is $4.93 per case month.

Exhibit 4-6

Impact of Retailer Use of Integrated POS Equipment (Costs per Case Month)

Cost Category	Actual Conditions	Retailer Use of Integrated POS Equipment	Difference between Baseline and Scenario
Local Costs	**$1.875**	**$1.875**	**$0.000**
State Costs	**$0.198**	**$0.198**	**$0.000**
Vendor Costs			
Administration/Reconciliation	$0.517	$0.517	$0.000
Customer Service	$0.143	$0.143	$0.000
Data Center	$0.345	$0.345	$0.000
POS/Administrative Terminals	$2.664	$1.041	$1.622
Communications	$0.289	$0.289	$0.000
ACH Expenses	$0.062	$0.062	$0.000
Card Costs	$0.461	$0.461	$0.000
Total Vendor Costs	**$4.482**	**$2.860**	**$1.622**
Grand Total	**$6.555**	**$4.933**	**$1.622**

Changes in Card Costs

The previous scenarios examined changes in retailer equipment costs. Another substantial portion of the operational cost is for card issuance, where there are some opportunities for savings based on changes in policy or market conditions. This section investigates the following scenarios: (1) implementation of a card replacement fee, and (2) a reduction in the cost of the Direction Card.

[13] In some on-line EBT states, such retailers receive transaction fees for the use of their equipment.

Card Replacement Fee

Lost, stolen, or damaged cards represent a common problem preventing recipients from using their benefits. During the evaluation period, county offices replaced cards for about 3.1 percent of the caseload, on average, each month. ODJFS and the CDJFS considered recipients to be responsible for most card replacements, although other factors contributed to the incidence of damaged or malfunctioning cards. ODJFS obtained FNS approval to implement a $10 fee for replacement of lost or stolen cards or cards damaged by user abuse. Most CDJFS supported this plan, with the hope of improving recipient accountability for cards. As of May 2002, ODJFS had tested the card replacement fee procedure in one county and was planning to implement the card replacement fee statewide.

During the evaluation period, the vendor bore the additional cost of the replacement cards. The plans for the card replacement fee, however, would provide the vendor a share of the fee equal to the card cost, plus an allowance for handling costs, for a total of $4 per card. The remaining fee would go to the State to defray the local staff costs reimbursed with FSP funds.[14]

Exhibit 4-7 provides projected costs with the imposition of a $10 card replacement fee under two scenarios. The high scenario assumes no reduction in replacements; the low scenario assumes a 25 percent reduction. Under the high scenario, with no reduction in replacements, there is no effect on local costs, but State costs are decreased by $0.24 per case month, and vendor costs are decreased by $0.19 per case month. Under the low scenario, with a 25 percent reduction in replacements issued by local staff, local costs are decreased by $0.15 per case month. State and vendor costs are reduced by $0.18 and $0.19 per case month, respectively. The smaller change in State costs under the low scenario reflects the reduced amount of fees. Vendor savings are the same under both scenarios because the fee exactly offsets vendor's costs for each replacement card.

Thus, the total effect of the implementation of a replacement fee with no change in the number of replacements is a decrease in the cost per case month of $0.43, bringing the total cost to $6.13 per case month. With a 25 percent reduction in card replacements, the overall decrease is $0.51 per case month, leading to a total cost of $6.04 per case month.

Reduction in Cost of Direction Card

With technological developments and wider use of smart card technology, the cost of the smart card is expected to fall. If the cost per card fell from the evaluation period level of $4 to $3, the Direction Card system operating cost would fall by $0.12 per case month, to $6.44 per case month, as shown in Exhibit 4-8. A reduction to $2 per card would reduce the system operating cost by $0.23 per case month to $6.32 per case month.

[14] The State would reimburse 50 percent of its share of the fees to FNS, in proportion to FNS' share of FSP administration expenses.

Exhibit 4-7

Impact of Implementation of Replacement Fees (Costs per Case Month)

Cost Category	Actual Conditions	With Replacement Fees		Difference Between Actual Costs and High Scenario	Difference Between Actual Costs and Low Scenario
		High Scenario[a]	Low Scenario[b]		
Local Costs					
Labor for Card Related Issues	$1.295	$1.295	$1.151	$0.000	$0.145
Labor for Benefit Related Issues	$0.300	$0.300	$0.300	$0.000	$0.000
Administrative Labor	$0.279	$0.279	$0.279	$0.000	$0.000
Total Local Costs	**$1.875**	**$1.875**	**$1.730**	**$0.000**	**$0.145**
State of Ohio Costs					
Labor	$0.187	$0.187	$0.187	$0.000	$0.000
Other Direct Costs	$0.011	$0.011	$0.011	$0.000	$0.000
Replacement Card Fees	$0.000	-$0.241	-$0.181	$0.241	$0.181
Total State Costs	**$0.198**	**-$0.043**	**$0.017**	**$0.241**	**$0.181**
Vendor Costs					
Administration/Reconciliation	$0.517	$0.517	$0.517	$0.000	$0.000
Customer Service	$0.143	$0.143	$0.143	$0.000	$0.000
Data Center	$0.345	$0.345	$0.345	$0.000	$0.000
POS/Administrative Terminals	$2.664	$2.664	$2.664	$0.000	$0.000
Communications	$0.289	$0.289	$0.289	$0.000	$0.000
ACH Expenses	$0.062	$0.062	$0.062	$0.000	$0.000
Card Costs	$0.461	$0.273	$0.273	$0.188	$0.188
Total Vendor Costs	**$4.482**	**$4.294**	**$4.294**	**$0.188**	**$0.188**
Grand Total	**$6.555**	**$6.126**	**6.041**	**$0.429**	**$0.514**

a High scenario assumes no reduction in the number of card replacements.

b Low scenario assumes a 25 percent reduction in the number of card replacements.

Exhibit 4-8

Impact of Reduction in Cost of Direction Cards (Costs per Case Month)

Cost Category	Actual Conditions	Reduction in Card Costs: High Scenario[a]	Reduction in Card Costs: Low Scenario[b]	Difference Between Actual Costs and High Scenario	Difference Between Actual Costs and Low Scenario
Local Costs	**$1.875**	**$1.875**	**$1.875**	**$0.000**	**$0.000**
State Costs	**$0.198**	**$0.198**	**$0.198**	**$0.000**	**$0.000**
Vendor Costs					
Administration/Reconciliation	$0.517	$0.517	$0.517	$0.000	$0.000
Customer Service	$0.143	$0.143	$0.143	$0.000	$0.000
Data Center	$0.345	$0.345	$0.345	$0.000	$0.000
POS/Administrative Terminals	$2.664	$2.664	$2.664	$0.000	$0.000
Communications	$0.289	$0.289	$0.289	$0.000	$0.000
ACH Expenses	$0.062	$0.062	$0.062	$0.000	$0.000
Card Costs	$0.461	$0.346	$0.231	$0.115	$0.231
Total Vendor Costs	**$4.482**	**$4.367**	**$4.251**	**$0.115**	**$0.231**
Grand Total	**$6.555**	**$6.440**	**$6.324**	**$0.115**	**$0.231**

a High scenario assumes a Direction Card cost of $3.

b Low scenario assumes a Direction Card cost of $2.

4.3 Comparison of Cost Projection Scenarios

Exhibit 4-9 summarizes the "low" projections of costs for the Ohio Direction Card system under the scenarios discussed in this chapter. The figures explore the potential to bring down costs for the Ohio Direction Card system, both closer to the level of the FNS cost cap and closer to the costs of on-line EBT systems.

Most Favorable Scenarios

The scenario that has the largest impact is the one with the FSP caseload of 600,000. With all other conditions unchanged, the operational cost per case month for the Direction Card system is reduced from $6.56 to $4.51, a decrease of more than 30 percent. This scenario demonstrates the effects of economies of scale on the cost per case month. Since the period covered by the evaluation's cost estimates, the FSP caseload in Ohio has increased: the February 2002 caseload was 324,323, an increase of 26

Exhibit 4-9

"Low" Projections of EBT Costs under Various Conditions (Costs per Case Month)

Cost Category	Actual Conditions	With 600,000 Cases (Low Scenario)	With WIC (Low Scenario)	With TANF (Low Scenario)	Following FNS Formula for Number of Terminals	50 Percent Reduction in Cost of Terminals	Retailers Use Integrated Equipment	$10 Card Repl. Fee and 25 Percent Fewer Replace-ments	50 Percent Reduction in Card Costs
Local Costs									
Labor for Card Related Issues	$1.295	$1.295	$1.084	$1.065	$1.295	$1.295	$1.295	$1.151	$1.295
Labor for Benefit Related Issues	$0.300	$0.300	$0.300	$0.300	$0.300	$0.300	$0.300	$0.300	$0.300
Administrative Labor	$0.279	$0.120	$0.279	$0.211	$0.279	$0.279	$0.279	$0.279	$0.279
Total Local Costs	**$1.875**	**$1.716**	**$1.664**	**$1.576**	**$1.875**	**$1.875**	**$1.875**	**$1.730**	**$1.875**
State Costs									
EBT Staff Labor	$0.060	$0.026	$0.060	$0.045	$0.060	$0.060	$0.060	$0.060	$0.060
Contract Labor	$0.124	$0.053	$0.124	$0.093	$0.124	$0.124	$0.124	$0.124	$0.124
Fiscal Labor	$0.003	$0.001	$0.003	$0.003	$0.003	$0.003	$0.003	$0.003	$0.003
Miscellaneous	$0.001	$0.001	$0.001	$0.001	$0.001	$0.001	$0.001	$0.001	$0.001
CPU Usage	$0.005	$0.002	$0.005	$0.004	$0.005	$0.005	$0.005	$0.005	$0.005
Travel	$0.005	$0.002	$0.005	$0.004	$0.005	$0.005	$0.005	$0.005	$0.005
Replacement Card Fees	$0.000	$0.000	$0.000	$0.000	$0.000	$0.000	$0.000	-$0.181	$0.000
Total State Costs	**$0.198**	**$0.085**	**$0.198**	**$0.150**	**$0.198**	**$0.198**	**$0.198**	**$0.017**	**$0.198**
Vendor Costs									
Administration/Reconciliation	$0.517	$0.290	$0.393	$0.432	$0.517	$0.517	$0.517	$0.517	$0.517
Customer Service	$0.143	$0.140	$0.108	$0.120	$0.143	$0.143	$0.143	$0.143	$0.143
Data Center	$0.345	$0.200	$0.244	$0.319	$0.345	$0.345	$0.345	$0.345	$0.345
POS/Administrative Terminals	$2.664	$1.144	$1.388	$2.231	$2.181	$2.222	$1.041	$2.664	$2.664
Communications	$0.289	$0.246	$0.234	$0.266	$0.289	$0.289	$0.289	$0.289	$0.289
ACH Expenses	$0.062	$0.027	$0.062	$0.062	$0.062	$0.062	$0.062	$0.062	$0.062
Card Costs	$0.461	$0.461	$0.421	$0.374	$0.461	$0.461	$0.461	$0.268	$0.231
Total Vendor Costs	**$4.482**	**$2.508**	**$2.851**	**$3.803**	**$4.000**	**$4.041**	**$2.860**	**$4.289**	**$4.251**
Grand Total	**$6.555**	**$4.308**	**$4.713**	**$5.529**	**$6.073**	**$6.114**	**$4.933**	**$6.036**	**$6.324**

percent above the March-June 2000 average. Thus, ODJFS and the Citicorp EFS team may already have realized some of the cost savings indicated by this scenario, but more dramatic participation growth would have to occur to reach the scenario's assumption of 600,000 cases.

The scenario that has the next-largest impact is the addition of WIC to the Direction Card system, under the low-cost assumptions that retailer-related costs are divided between the programs according to item-weighted transactions and that WIC is the lead program and pays for all card-related costs. This scenario reduces the cost per case month for the Direction Card system from $6.56 to $4.71, a decrease of 28 percent. If the Ohio WIC pilot is technically and economically successful, it is likely that the system will eventually be expanded statewide. It is unclear, however, how costs would be divided between the two programs. The expected cost for the FSP would likely be somewhere between the high and low scenarios of $5.99 and $4.71 per case month.

Another scenario that had a substantial effect on the costs of the Ohio Direction Card system was the scenario that assumed that large retailers use integrated POS systems, eliminating the EBT-only terminals in multi-lane stores. This scenario reduces the cost per case month for the Direction Card system from $6.56 to $4.93, a decrease of 25 percent. This scenario demonstrates the large impact of POS equipment costs on the total cost per case month.

Most Likely Scenarios for the Ohio Direction Card System

The most likely scenario to occur is the implementation of a $10 replacement card fee. The implementation of this fee could bring down total costs for the Ohio Direction Card system by 8 percent to $6.04 per case month. It is also likely that the unit costs of smart cards and terminals will fall. Under the optimistic projection assumptions, combined reductions in these costs could bring down the operating cost by as much as $0.67 per case month.[15]

All of the above scenarios are used to assess the potential effects of a single condition on the costs to the Ohio Direction Card system. In practice, however, multiple conditions may occur simultaneously which could reduce the costs of the Ohio Direction Card system even further. This evaluation did not investigate the effects of multi-factor scenarios. The effects of some of the scenarios described are independent from each other, and the cost savings could be added to determine the result of multiple conditions (e.g., declines in the costs of smart cards, POS equipment, and administrative terminals). On the other hand, some scenarios would have overlapping impacts, so their effects would not be additive. For example, both the FSP/TANF scenario and the integrated POS system scenario affect POS equipment costs in different ways, so the combined effect of these scenarios in tandem would be less than the sum of their individual effects.

[15] The total effect of the low scenarios for reduced card and terminal costs is $0.67 per case month. These scenarios would have additive effects if they occurred simultaneously.

Chapter 5
Benefit Loss and Diversion

5.1 Introduction

Purpose

The issuance of paper food stamp coupons has long been criticized as being susceptible to the loss and diversion of benefits from the purchase of eligible food items. Electronic benefits transfer (EBT) was conceived as not only providing an efficient method to issue and redeem food stamp benefits, but also as a means to significantly reduce benefit loss and diversion. Like cash, paper food stamp coupons are anonymous and difficult to trace through various transactions to their origin. EBT systems, like their financial credit and debit counterparts, have the ability to electronically record and report transactions at the cardholder, retailer, county and state levels.

Past studies sponsored by the U.S. Department of Agriculture (USDA) have assessed the levels of benefit loss and diversion in the paper food stamp process, the on-line EBT demonstration in Maryland[1] and the off-line EBT pilot in Dayton, Ohio.[2] The EBT evaluations were completed in 1994, before the widespread implementation of EBT, and both the on-line and off-line studies evaluated EBT systems in limited geographic areas during pilot operations.

The prior EBT evaluations measured vulnerabilities to benefit loss and diversion in five main areas:

A. **Excessive Authorizations:** Benefits that are made available to the wrong people or in an amount that exceeds the authorized benefit level. This category involves the benefit issuance process and entails the potential for losses to the FSP. Excessive benefits made available to recipients can result in losses to retailers, in cases of errors in processing credits to recipients or retailer liability for overdrafts on manually authorized sales.

B. **Excessive Redemptions:** Credits to the wrong people or in the wrong amount. This category involves the settlement process and also entails the potential for loss to the FSP or to retailers.

C. **Production and Handling Losses:** Benefits that are lost or stolen before issuance and are later redeemed. These losses involve outsiders penetrating the EBT system and causing losses to the FSP or to retailers.

D. **Benefits Lost or Stolen From Recipients:** A person other than an authorized recipient redeems benefits that are stolen or found, resulting in a loss to the recipient.

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1 C. Logan *et al.*, *op. cit.*

2 G. Glickman *et al.*, *op. cit.*

E. **Benefits Used in an Unintended Manner:** Benefits that are used by recipients for unintended purposes. The exchange of benefits for cash (trafficking) is the largest component of this vulnerability in EBT systems.

Each of these five areas was broken down into specific categories of program vulnerability, for the purposes of estimating risks and comparing different systems. Categories A through C entail the risk of losses that increase the costs of the FSP, whereas Categories D and E entail the diversion of funds from their intended use with no direct financial cost to the FSP. Categories A, B, and C entail potential losses to retailers. Category D entails potential losses to recipients.

The Ohio Direction Card system has specific system, policy and procedural controls that have been implemented to deter benefit loss and diversion. Some of these features are common to all EBT systems, whether they are on-line or off-line, and whether they use magnetic stripe or smart card technologies. Other off-line system and smart card features are very different from their on-line, magnetic stripe card counterparts.

Since the original studies took place, EBT systems have grown to a much larger scale of operations, and processors have adapted their controls to the greater potential consequences for lapses of security. All EBT processors are now required to have annual examinations by independent auditors to verify the effectiveness of their controls on issuance, redemption and settlement functions (a process known as SAS 70 Examinations).[3]

The Ohio Direction Card system has security features, policies, and procedures, in addition to SAS 70 requirements, that are different from the original demonstration system. These changes have been initiated to prevent errors noted during the demonstration and because of the availability of additional security features associated with newer smart card technologies.

This chapter compares the Ohio Direction Card system's vulnerability to fraud, abuse and benefit diversion with the losses estimated to have occurred during the off-line pilot conducted in Dayton, Ohio and during the on-line demonstration in Maryland. This chapter also provides a general comparison of the vulnerabilities and security features of current off-line and on-line EBT environments. As with the previous evaluations, this study focuses on the same five areas of vulnerability. In addition, respondents in this study were asked to provide comments on the perceived vulnerabilities of off-line and on-line EBT systems during times of disaster.[4]

The assessments in this chapter were based on nine interviews with a range of stakeholders and security specialists with knowledge of EBT, the Ohio Direction Card system, or off-line system and smart card technologies. As described later, each respondent answered a standard series of questions about the vulnerabilities of the Ohio Direction Card system to each category of benefit loss and

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[3] American Institute of Certified Public Accountants, "Statement on Auditing Standards (SAS) No. 70, Service Organizations" and "Review Guidelines for Service Organizations Providing Electronic Benefits Transfer Services for Government Programs in Accordance with SAS-70," 1999. See also Office of Management and Budget, "Circular A-133, Compliance Supplement, Appendix VII, SAS 70 Examinations of EBT Services Organizations," Washington, DC, 2002.

[4] U.S. Department of Agriculture, Food and Nutrition Service, Food Stamp Program, "EBT Disaster Plan Guide," Alexandria, VA, 2000.

diversion. These answers provided both qualitative information on the nature of the vulnerabilities and quantitative estimates of the risk of loss or diversion for each category.

The quantitative estimates of risk in this report and the rankings of EBT systems according to risk represent the consensus of the experts interviewed by the researchers. Therefore, all loss and diversion estimates for the Ohio Direction Card entail an unknown amount of error, due to the judgmental nature of the expert responses. The number of decimal places in the estimates reflects the small size of the estimates and does not necessarily imply a commensurate level of precision. (For example, an estimate of 0.01 percent does not necessarily imply that the risk was measured with a tolerance of plus or minus 0.005 percent.) Similar uncertainty applies to the previous studies, which used the same methods.

This chapter's quantitative estimates do not represent empirical measures of the actual incidence of benefit loss and diversion, and they should be viewed with an understanding of their limitations. Due to the nature of EBT and the Food Stamp Program environment, precise estimates of the actual incidence of benefit loss and diversion are very difficult or impossible to obtain. Rather, the quantitative risk estimates provide a way to assess the relative importance of qualitative differences in controls between the Ohio Direction card and its predecessors. For this reason, comparisons of the components of each category of risk use a qualitative scale. Furthermore, the estimates represent long-run averages, not actual experience to date. In the long run, large one-time losses might be offset by extended periods with no losses.

Highlights of Findings

In general, the Ohio Direction Card system was judged to pose less risk of benefit loss to the FSP than either of the previously evaluated EBT systems or the current on-line EBT systems. The security features of the smart card environment contributed to the reduction in risk, as did Ohio Direction Card policies and procedures shaped by system features. Key differences from the on-line EBT environment include the security features of the smart card, the virtual elimination of the use of manual vouchers, and the non-acceptance of malfunctioning cards by retailers.

All EBT systems have been strengthened since the demonstration evaluations by the addition of two new automated processes. FNS provides EBT system operators the capability to verify retailer authorization through electronic access to the Federal REDE database. The security and accountability of the settlement process have been enhanced through the adoption of the Accounting Management Agent (AMA) and Automated System for Agency Payments (ASAP), with the ability to provide electronic batch files of settlement data. EBT systems in general have been further strengthened by new EBT security measures, as described in and verified by the SAS 70 audit requirements.

More difficult to assess, particularly within the limitations of this evaluation, are the losses incurred by cardholders and retailers. For example, retailers bear the risk associated with a manual transaction. In some cases retailers are willing to accept these risks for purposes of customer satisfaction and do not report subsequent losses to the State. A cardholder may incur a loss, such as a retailer overcharge, and may not notice it on the receipt or may not report it to the State. These losses are discussed within this chapter, but they cannot be evaluated with any measure of certainty when such losses are unreported or are not tracked by the State or the EBT processor. Unlike previous

evaluations, this study did not include surveys of recipients or retailers to obtain information on participant losses and other costs of participation.

The total estimated losses for the Ohio Direction Card system (based on the expert interviews) are just under 0.19 percent of benefits, including all potential losses to the FSP, retailers, and recipients (Categories A through D). This figure is substantially less than the estimated total losses for the Maryland on-line demonstration, at 0.47 percent of food stamp benefits, and it also represents a lower level of risk than in the Dayton, Ohio off-line pilot, which was estimated at less than 0.25 percent of benefits. The estimated FSP loss for the Ohio Direction Card is less than 0.01 percent of benefits, essentially the same as the 0.005 percent estimate for the Maryland on-line demonstration and less than the 0.03 percent estimate for the Dayton off-line pilot.

The most significant reductions in estimated loss were in the areas of excessive authorizations (Category A) and excessive redemptions (Category B). The estimated reduction in vulnerability was attributed to procedural changes and additional system safeguards. A key factor in the reduction in estimated vulnerability for the authorization process is the addition of message authentication codes. The card uses the message authentication code to check whether it has already processed the authorization, thereby preventing duplicate posting of benefits, and whether the authorization data have been altered. An important source of the reduction in redemption losses is the Direction Card system requirement for retailers to obtain an authorization code before clearing daily transactions from their POS terminals. This feature reduces the risk of a retailer losing sales by clearing a batch from the terminal before uploading the transactions to the processor. (This vulnerability represents a loss to the retailer, but it is included in the total estimated risk of redemption losses.)

Two factors virtually eliminated loss-prone manual voucher transactions. First, the off-line technology eliminated communication problems and host outages as a reason for manual vouchers. Second, ODJFS adopted a policy requiring retailers to bear liability for this type of transaction, because of the difficulty of verifying the recipient's balance at the time of authorization. The off-line technology also eliminated another source of risk, the on-line systems' option of key-entering the card number instead of electronically reading the card.

On the other hand, the expert interviews yielded an estimated risk of benefit diversion to unintended purposes (Category E) of 2.18 to 3.67 percent of benefits. This range is higher than the estimates from the previous EBT evaluations, for a combination of historical and methodological reasons. Since the previous evaluations, there has been an extended period for perpetrators of fraud to learn how EBT systems operate and adapt their methods of trafficking and other forms of benefit diversion. Meanwhile, the available estimates of the overall rate of FSP trafficking have increased considerably. The most recent FNS studies of data on retailer characteristics and compliance investigation results estimated the rate of trafficking at 4.0 percent of benefits in the paper coupon system and 3.5 percent with a combination of paper coupons and EBT.[5] These findings suggest that the overall rate of trafficking has declined since the introduction of large-scale EBT systems, but the recent FNS estimates are still much higher than the figures used by earlier evaluations.

[5] Theodore F. Macaluso, "The Extent of Trafficking in the Food Stamp Program: An Update." U.S. Department of Agriculture, Food and Nutrition Service, Office of Analysis, Nutrition and Evaluation, Alexandria, VA, 2000.

When the previous evaluation findings are updated to incorporate the new trafficking estimates, the estimated rate of benefit diversion in the Ohio Direction Card system is slightly less than the updated estimate of 3.69 percent of benefits for the Maryland on-line demonstration. This difference reflects a smaller risk of redemption by unauthorized retailers with the Ohio Direction Card. Because of the increased experience of recipients and retailers, the benefit diversion estimate for the Direction Card is equal to or greater than the updated estimate of 2.18 percent for the Dayton off-line pilot. Study respondents believed that the familiarity of recipients and retailers with the system enables them to find methods of trafficking that are harder to detect.

The Ohio Direction Card system has a slightly lower risk of retailer loss than the Dayton pilot or the Maryland on-line EBT system. This difference reflects an expectation of fewer processing errors, but it also reflects the greatly reduced incidence of manual transactions. During their respective evaluation periods, the Ohio Direction Card system had far fewer manual transactions (as a percent of all transactions) than the Maryland on-line EBT system. Retailers are always liable for manual transactions in the Ohio Direction Card system, whereas these transactions are guaranteed under most conditions in on-line EBT systems. It is unclear whether the difference in manual transactions reflects a reduced need (because of the off-line technology), reluctance of retailers to process manual transactions because of liability, or a combination of these factors.

The experts interviewed for the study felt that, on balance, retailers in the Ohio Direction Card system are less likely to experience losses from manual sales than in on-line systems, despite the lack of a guarantee of funds for manual sales. The retailers' liability for manual sales in the Ohio Direction Card system is offset by two factors: the elimination of technological problems that cause retailers to process manual sales and the policy restricting when manual sales are authorized.

Compared with on-line EBT systems, the Ohio Direction Card system is less vulnerable to interruption of benefit redemption in a short-term (1-3 day) disaster, because retailers can continue to process transactions without access to the EBT host computers (and even without regular electrical power). On the other hand, the Ohio Direction Card system is more likely to encounter problems with benefit issuance in a disaster, and mass card issuance for widespread disaster relief is more difficult.

Framework for Analysis

This evaluation was performed by conducting a series of interviews with a range of stakeholders and system security specialists with knowledge of EBT, the Ohio Direction Card system, and/or off-line system and smart card technologies. Interviewees were selected in order to provide a full range of information concerning all five areas of vulnerability that were identified in the previous evaluations. Interviews included representatives from the following agencies and corporations:

- USDA Office of Inspector General, Regional Investigations
- USDA Office of Inspector General, Audits, Mid-Atlantic and Mid-West Regions
- USDA FNS Compliance Branch
- Ohio Department of Jobs and Family Services
- Citicorp EFS and Stored Value Systems (SVS), the Ohio EBT vendors
- Deluxe Data Systems, an on-line EBT vendor
- Schlumberger, the Ohio EBT smart card vendor

- Booz•Allen and Hamilton, Inc., FNS' technical assistance provider for EBT system reviews
- Microsoft Corporation, a developer of smart card systems.

Each respondent was given, in advance of the interview, a survey guide with program and system information. This information included: the vulnerabilities of the Food Stamp Program to fraud, abuse and benefit diversion; the system and security controls of the off-line and on-line demonstrations and the Ohio Direction Card system; and the results of the two previous EBT evaluations. Respondents were asked to read the information and to evaluate the vulnerability of the current environment based on their knowledge and the results of past evaluations.

After providing sufficient time to read the guide and accompanying information, respondents were interviewed through the use of telephone conference calls. Respondents were asked to provide hard data, where possible. However, due to the nature of the evaluation, most responses – as expected – were subjective estimates, based on the respondents' general knowledge, experience and expectations. Some respondents had experience only in certain areas of vulnerability and responded only to those areas. For example, the FNS Compliance Branch respondent had experience in trafficking and benefit diversion but little experience in system controls, while the Microsoft respondent had knowledge of system and smart card security controls but no direct experience with EBT or food stamp trafficking.

The results of the original evaluations of the Dayton off-line pilot and the Maryland on-line demonstration were gathered through a similar approach. Interviews with stakeholders, such as those listed above, as well as surveys of cardholders and retailers were conducted and the results were compiled and presented as estimates of the EBT systems' vulnerability to fraud, abuse and diversion. Some of the responses were based on extant data and first-hand knowledge, but most responses were based on best estimates and extrapolations of experiences.

The estimates obtained from the previous evaluations were presented to respondents for the current study. Respondents were asked to review vulnerabilities and to judge: 1) whether the Ohio Direction Card presented stronger security features than either of the previously evaluated systems, thereby reducing the estimated risks; or 2) whether the Ohio Direction Card presented weaker security features, implying greater risks than those estimated in the previous studies. As a by-product of this approach, some respondents commented on the validity of the initial estimates and whether the increased familiarity with EBT since the pilot has also affected the fraudulent use of EBT food stamp benefits.

The following sections present the five categories of vulnerability that are the main focus of this study. For each category, there is a description of vulnerabilities, a comparison of controls, and a discussion of the direction and magnitude of the expected risk of benefit loss or diversion. Each section concludes with a table that indicates the estimated losses from the Maryland and Dayton, Ohio demonstration evaluations, whether the Ohio Direction Card presents more or less risk than the demonstrations, and an assessment of the current risk. Because of the nature of the evaluation, respondents were not asked to give quantitative estimates for individual vulnerabilities. Respondents were asked only to give an estimate for the total level of risk in each of the major categories. Summary estimates reflecting the consensus or midpoint among the expert estimates are provided in the tables.

Based on the comments received from the respondents, the tables present individual category risk levels on a scale of minimal to high. This approach minimizes the use of quantitative estimates, which may imply more precision than is appropriate in estimates of this type. For purposes of this study, the following risk levels assigned to individual categories:

Minimal	From zero to less than 0.01 percent of benefits
Low	Risk from 0.01 percent to less than 0.1 percent of benefits
Medium	Risk from 0.1 percent to less than 1 percent of benefits
High	Risk greater than 1 percent of benefits

In Ohio, the average monthly FSP benefit during the evaluation period was $167.50 per household. Thus, 0.01 percent of benefits was equivalent to about 1.7 cents per case month, and 1 percent was equivalent to $1.68 per case month. The average monthly issuance totalled $43 million, so 0.01 percent was about $4,300 per month, and 1 percent of the total was equivalent to $430,000 per month.

Unlike previous evaluations, this study does not categorically differentiate between zero risk and minimal risk. Respondents often estimated the risk of very unlikely events as zero, but their analysis also indicated that these events were not impossible. To avoid creating the impression of false precision, these estimates are presented as indicating minimal risk. Therefore, in some instances, risks rated as minimal are described as less than risks previously estimated under a different framework as zero. In these instances, the direction of the difference should be the primary consideration.

5.2 Excessive Benefit Authorizations

The first major category of EBT system vulnerabilities involves the inadvertent or intentional inflation of benefits credited to established EBT recipient accounts. In addition, a recipient may be able to spend more than the authorized benefit amount because an overdraw may occur during certain types of transactions. The specific vulnerabilities in this category, and the findings regarding the risk in the Ohio Direction Card system, are discussed below.

Benefit authorization processes in the Ohio Direction Card system involve the State, the EBT processor, and the retailers. The State's CRIS-E eligibility system electronically provides issuance information in a batch upload to the EBT processor. On the recipient's issuance date, benefits are electronically transmitted to the recipient's local office and to three additional issuance (retailer) sites pre-selected by the recipient. The benefits are then automatically transferred to the recipient's card during the first transaction at one of these sites. Void and refund transactions are uploaded from the retailer's POS system to the EBT processor and then downloaded to the recipient's issuance sites to be credited to the card.

Intentional or inadvertent credit of unauthorized benefits to a case by a State or processor employee. This vulnerability entails the risk of a State or processor employee accessing the benefit authorization files and changing benefit amounts either before the file is sent from CRIS-E to the processor or after the file is received by the processor.

Standard security requirements, now and during the EBT demonstrations, require a user ID and a personal identification number (PIN) in order to perform the specific, pre-assigned functions of

eligibility systems and EBT processors. Administrative terminals (ATs) used for eligibility and EBT system access "time out", preventing unauthorized access, when a worker does not actively use the AT for a set period of time. These features track employee use of ATs and reduce the opportunity for an unauthorized user access to the system. (One respondent suggested the use of a smart card for logical access control, thus further authenticating the identity of the AT user and increasing security.)

Benefits authorized through the State's eligibility system are electronically transmitted to the EBT processor.[6] Headers and trailers are attached to the authorization file, confirming the number and value of authorization transactions. Tampering with individual authorization amounts within the file by a State or processor employee may cause the entire file to reject. As a further security measure, a confirmation file is sent back to the eligibility system for reconciliation, at which point a difference between the authorized amount and the issued amount would alert ODJFS to an error. The reconciliation of the Ohio Direction Card system is subject to daily monitoring by the State fiscal staff. (Fiscal staff did not provide daily monitoring during the Dayton demonstration.)
The risk for the Ohio Direction Card is felt to be less than the risk associated with the demonstration systems, primarily because of the enforcement and oversight required with passing SAS 70 audit requirements. Current off-line and on-line systems must meet these same standards and the risk is considered to be the same with both types of systems. With strictly enforced separation of duties, user ID and PINs, system security and daily monitoring, respondents believed the risk for this vulnerability to be minimal.

Software error incorrectly credits client account. This category pertains to the risk that a software error may over-credit a client account. The issuance process from eligibility system to EBT processor is very similar between off-line and on-line EBT systems. However, off-line EBT has the added steps of downloading an issuance file to a POS terminal and then loading the issuance onto the recipient's card; hence it has an addition point of vulnerability.

In order to prevent errors at the POS, Host Reference Counters (HRCs) and Message Authentication Codes (MACs) have been incorporated in the Direction Card system, reducing the risk of this vulnerability since the Dayton demonstration. As the benefit amount is written to the card, a sequential code known as the HRC is updated in the card's memory. This code prevents multiple access to the same issuance allotment. The HRC is generated for each credit transaction when it is staged to be issued to the card. A MAC is generated for every financial record transmitted between the EBT processor and the smart card. The MAC is calculated with a number of different data elements, including the HRC, the amount of the transaction and a unique credit key known only to the EBT processor and the card. For each issuance download, a unique data encryption standard (DES)-encrypted credit key is used by the processor to calculate the MAC; when the card reads the issuance, it recalculates the MAC using its own unique credit key. These counters must be synchronized. Once benefits are issued to the card, the HRC changes, therefore the same issuance cannot be applied to the card more than once.

[6] EBT processor controls are subject to annual review as part of the SAS 70 audit requirements. The latest audit was conducted for the period from July 1, 1999 to June 30, 2000 by KPMG. This audit indicated that Stored Value Systems controls were operating with sufficient effectiveness to achieve all control objectives.

The Dayton demonstration system used a simpler and less secure version of the HRC process. The HRC was checked by the POS terminal during the benefit loading process. Thus, this control could conceivably manipulated or defeated by a modified POS terminal.

On-line systems have an added risk of a double credit to a client account on a refund or void transaction if the retailer is using a third-party processor (TPP) or connects its own equipment directly to the EBT processor (the "direct-connect" approach). Although TPP and direct-connect software and terminals are certified by the processor before connecting to the EBT system, software enhancement and changes in these terminals – out of the control of the EBT processor – may increase the risk of settlement errors. With double-credit errors, if the processor is not alerted to the error by the retailer, as a result of the retailer's internal reconciliation process, the recipient account would gain unearned benefits at the retailer's expense. The Ohio Direction Card system delays credits to a cardholders' accounts for 48 hours in order to reduce the risk of credit errors and to detect instances of attempted fraud.

A new feature of the Ohio Direction Card is the ability to download software updates to retailer POS terminals. One respondent felt this increased the chance for software error and also felt that the risk increases as the requirements for system code increases; hence, the off-line environment, with its software requirements for cards and terminals, should also have increased vulnerability to error. However, this scenario is hypothetical and has not occurred in the working environment. There have been no reported instances of POS software errors creating undeserved credits to a client account in the Ohio Direction Card system.

Respondents stated that the Ohio Direction Card system is less vulnerable to the risks associated with software errors than the Dayton EBT pilot system.[7] This change was attributed to the added security features of HRCs and MACs. It was further felt that there is little difference in risk between current on-line and off-line systems, because both on-line and off-line EBT processors must use strict quality assurance methodologies in order to avoid occurrences of software errors during design changes and enhancements. Nevertheless, on-line systems in general have slightly more risk of software errors than off-line systems, because of the interactions with TPP and direct-connect terminals in typical on-line systems that do not occur in current off-line systems. (Risks for off-line EBT systems with TPP or direct-connect POS systems were not considered.) For the Ohio Direction Card, the risk in this category is estimated to be minimal.

Double posting of issuance file. Recipients may receive excessive authorizations if an issuance file from the eligibility system is posted more than once ("double posted") to the EBT system. In order for the issuance file to be double posted, a direct system intervention must occur. There are strict procedures and controls in place in both on-line and off-line EBT to prevent this from happening, and there is little difference in controls between off-line and on-line EBT environments. The controls include transmission of the issuance file total through the federal AMA, and the use of header and

[7] Although the Dayton pilot evaluation estimated the risk at zero for this vulnerability, the current evaluation's respondents generally believed that the risk is lower for the Ohio Direction Card system. This seemingly paradoxical result of a risk "less than zero" for this and other vulnerabilities should be viewed as a reflection of greater confidence in the Direction Card's security measures, as well as some skepticism about the previous estimate of zero risk.

footer records, which confirm issuance amounts, time and date.[8] While the risk is extremely small in either type of system, double posting has happened in a few states using on-line EBT.

During the Dayton demonstration, a unique combination of events allowed a duplicate issuance to 115 recipients. An auxiliary file was processed twice, and while controls prevented duplicate issuance to most cards, duplicate benefits were issued to a small set of replacement cards. Because of this event, the ad-hoc processing of auxiliary files was discontinued before the Dayton demonstration evaluation was completed. With the tighter controls, the estimated vulnerability for the Dayton demonstration was set at zero.

If the system has been directly manipulated and double posting of benefits does occur despite security controls, a downside has been noted in the off-line environment. The Ohio Direction Card system can immediately post a debit to an account for download to retailer POS terminals and servers. Nevertheless, there may be a delay of 24-48 hours in the debit to the card account balance, because retailers generally upload and download information once every 24 hours. If the funds have been spent during the delay period, there would be a loss to the FSP, unless the funds were recouped under FSP procedures.[9] In on-line EBT, when an error of this type is noticed, accounts can be debited in real-time to prevent clients from drawing down undeserved funds.

While the potential value of the liability for double postings may be higher in the off-line environment than in the on-line environment, the respondents did not believe that there is any difference in risk between on-line and off-line EBT systems. The risk of double posting occurring in the Ohio Direction Card system is less than the two previous systems, because of the increased controls mandated by federal standards and the increased security of the smart card. For the Direction Card, the actual risk of loss was considered by the respondents to be minimal.

Recipient overdraws account in a manual transaction. This type of excessive authorization can occur when a client overdraws his or her account during a manual (voucher) transaction. Ohio provides all FNS-certified retailers with POS terminals if requested. Route or mobile food vendors are equipped with battery-operated terminals. If a recipient's Direction Card is not functioning, the retailer is instructed to send the recipient to a local office for a card replacement.[10] Therefore, the retailer has at least one operational POS terminal, all food stamp transactions are conducted

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[8] AMA does not receive the actual issuance file, but each State sends batch data files to AMA with the dollar amount of benefits that have been issued. As a check to prevent gross errors in benefit issuance, AMA sets a cap to each State's monthly issuance. A double issuance of benefits to all recipients would alert the system that an error has occurred.

[9] The processor would be liable for duplicate issuances under the terms of the Ohio contract. In the long run, the processor might set its fees to cover this liability, resulting in an increased cost to the State. FSP procedures allow for recoupment of overissuances from subsequent issuances, subject to certain limits. Other means of recoupment include collection of cash payments, attachment of wages and interception of tax refunds.

[10] Unlike on-line EBT systems, off-line systems cannot support POS transactions with a manually-entered card number.

electronically, even if the central processor is unavailable. This is one of the key operational advantages of off-line systems over on-line systems.[11]

In order to receive an authorization for a manual transaction from EBT Customer Service, a retailer in Ohio must first report that its POS terminal is not functioning – or that all POS terminals located at the retailer site are not functioning. A retailer may also process a manual transaction without authorization if the transaction meets all of the above criteria **and** the central processor is not functioning (exception processing). In Ohio, manual transactions are allowed up to $50 or up to the card balance carried by the EBT processor, whichever amount is less.

In any of these situations, because of the delay in uploading and downloading transaction information, the policy in the Ohio Direction Card system is that **all manual transactions are undertaken at the retailers' risk.** The same policy applied in the Dayton pilot, although the pilot offered the option for retailers to represent manual sales for payment—an option eliminated in the Direction Card system. The extent of the retailer's risk depends on the retailer's willingness to accept a loss in exchange for maintaining customer relations. These types of losses, if they occur, generally go unreported to the State, so their magnitude is unknown[12]. It is possible that some retailers may try to work around the system by holding onto a client's card and PIN until the next issuance period in order to deduct the amount due, although this approach violates their retailer agreements. In this case, the retailers would not incur a loss unless the client reported the card as lost or stolen before the retailer could redeem the balance due.

Manual transactions in the on-line environment are conducted for a variety of reasons that do not apply in the Ohio Direction Card system. In on-line states, a retailer may have insufficient sales to qualify for a POS terminal and can only accept EBT transactions through the manual process. Route vendors may not have access to electricity and/or telecommunications to process a transaction. Electrical or telecommunication outages may occur at retailer sites, at the host computer, or at processing points in between. If the transmission or processing of transactions slows down enough to cause POS terminals to "time out", retailers may be unable to process on-line transactions.

Because on-line systems operate in real time, when EBT Customer Service authorizes a manual transaction, a hold on the amount of the transaction is immediately applied to the client's account.[13] The transaction is completed through a manual voucher clearing transaction on a POS terminal or by sending the voucher to the EBT processor or third party processor (TPP) within 15-30 days (depending on the state) of placing the hold.

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[11] Another State could relax the rules on manual sales to permit them when some but not all of the retailer's terminals are operating. Some multi-lane retailers might prefer to use manual sales, even at their own risk, so that they could complete sales when terminals fail without making recipients change lanes.

[12] Denied manual transactions are very rare. One respondent suggested that major retailers may choose not to attempt a manual transaction on the rare occasions when they cannot process an electronic transaction, preferring to keep the customer satisfied at the cost of not being paid for the sale. The experts interviewed for this report, including ODJFS and Citicorp EFS representatives, have no information on the extent of this practice.

[13] The Ohio Direction Card system applies a debit to the client's account, immediately reducing the available host balance for manual authorizations. To reduce the balance on the client's card, the debit must be downloaded to a retailer's terminal and then applied to the client's card.

The assignment of liability to the retailer is very different in the on-line environment. Generally, if the retailer obtains authorization for a manual transaction, the State or processor bears the risk of an overdraw. States vary in the limits allowed for manual transactions, and liabilities may fall on the EBT processor if manual transactions are conducted during times of EBT system or telephone outages. If a manual transaction is denied, the retailer may be permitted to represent the transaction at a later time, when the recipient may have a sufficient balance. Retailers were permitted to represent transactions in the Dayton off-line pilot, but they do not have this option in the Ohio Direction Card system.

Manual transactions were more common in the Maryland on-line system than in the Ohio Direction Card system. The Maryland evaluation reported 5,816 manual transactions versus 1,649,487 POS terminal transactions, or 0.35 percent of the purchase transactions. During the month of June 2000, Ohio reported 1,121 manual transactions out of 1,755,778 purchase transactions, or 0.06 percent of the total purchase transactions. It is unclear whether the difference in manual transactions reflects a reduced need (because of the off-line technology), reluctance of retailers to process manual transactions because of liability, or a combination of these factors.

During the Dayton off-line pilot, some retailers reported losses due to overdraws on manual transactions. These losses are believed to have occurred because retailers did not understand all of the Ohio EBT policies and liabilities. After the initial learning period, retailer losses are thought to have diminished. In the Ohio Direction Card system, the risk to the FSP for this vulnerability is minimal, and the risk to retailers is minimal.

The experts interviewed for the study felt that, on balance, retailers in the Ohio Direction Card system are less likely to experience losses from manual sales than in on-line systems, despite the lack of a guarantee of funds for manual sales. The retailers' liability for manual sales in the Ohio Direction Card system is offset by two factors: the elimination of technological problems that cause retailers to process manual sales and the policy restricting when manual sales are authorized.

Summary. In general, respondents felt that the risk of excessive benefit authorizations to the FSP for the Ohio Direction Card is less than the estimated risks levels calculated in both the Maryland and Dayton evaluations. Improved state reconciliation processes have had a positive impact on all EBT systems. Most respondents felt that, in general, off-line EBT has a slightly lower level of risk in this category of vulnerability than on-line EBT, and gave estimated risks at between zero and 0.007 percent of the benefits. Retailer losses are felt to have subsided since the statewide rollout, due to retailer training. The estimated risk for excessive authorizations is 0.005 percent of the benefits; all of this risk is associated with retailers' potential losses on manual transactions. The results of this portion of the analysis are summarized in Exhibit 5-1.

5.3 Excessive Redemptions

Excessive benefit redemptions occur when the funds transferred through the settlement process to retailers or financial institutions exceed the amounts that they are owed.

Exhibit 5-1

A. EXCESSIVE AUTHORIZATIONS: Benefits are authorized to the wrong people or in the wrong amount.

	MD On-line EBT Demonstration Estimated Loss	Dayton Off-line EBT Estimated Loss	Does OH Direction Card pose more or less risk than MD demo?	Does OH Direction Card pose more or less risk than Dayton demo?	In general, does off-line EBT pose more or less risk than on-line EBT?	Estimated risk level for Ohio Direction Card
A-1: Intentional or inadvertent credit of unauthorized benefits to case by a State or processor employee.	0.004%	0.00%	Less	Less	No difference	Minimal
A-2: Software error incorrectly credits client account.		0.00%	Less	Less	Less	Minimal
A-3: Double posting of issuance file.	0.003%	0.00%	Less	Less	No difference	Minimal
A-4: Recipient overdraws account in a manual transaction. Retailer loss is reimbursed by the State and/or the EBT vendor	Not measured	0.00%	Less	Same	Less	Minimal
A-5: Recipient overdraws account in a manual transaction or other error leads to a retailer loss that is not reimbursed.	See note a	0.02%[b]	Less	Less	Less	Minimal
TOTAL ESTIMATE	**Minimal (0.007%)**	**Low (0.02%)**	**Less**	**Less**	**Less**	**Minimal (0.005%)**

a Maryland retailer losses due to accounting errors were $0.19 per $1,000 of benefits redeemed (i.e., 0.02 percent). This figure, which was not included in the benefit loss/diversion estimates, includes reversals not detected by merchants and overdrafts on manual vouchers.

b Demonstration data indicated that 18 of 222 manual transactions occurring during the demonstration period resulted in a retailer loss representing 0.02 percent of benefits issued. A recoupment process was available to retailers. The loss estimate does not take into account amounts recouped from recipients.

Intentional or inadvertent inflating of benefits to a bank. The evaluation of the first on-line EBT system in Reading, Pennsylvania estimated the risk of excessive settlement to financial institutions in the paper food stamp coupon system, and all EBT evaluations have estimated the equivalent risk for EBT systems. This vulnerability posed more risk in the paper food stamp environment, where there were sometimes discrepancies between the bank's and the retailer's reconciliation of paper food stamps. In both the off-line and on-line EBT environment, there are strict and well-established controls, and funds and records are transferred electronically. For these reasons, risks in the previous EBT evaluations were estimated to be minimal, and the risk for the Ohio Direction card is also estimated to be minimal.

Fictitious store accounts are created by system processor employee and credited. This vulnerability requires direct manipulation of the retailer database and the settlement process. Unearned funds transferred to a fictitious account would have to be diverted from existing EBT accounts. Controls to prevent this include the separation of duties, the use of user IDs and PINs, the daily interface with the REDE database and the AMA system, and the reconciliation process. These controls are checked and certified by the SAS 70 audits. They are standard for both the off-line and on-line EBT environments. At the time of the original Maryland and Dayton demonstration evaluations, EBT processors did not have direct electronic access to REDE and AMA, and the SAS 70 standards had not yet been established. Because of the increased security, all EBT systems, including the Direction Card system, are now estimated to be less vulnerable to risk in this category. The risk for on-line systems and the Ohio Direction Card is considered to be minimal.

Funds transfer through the ACH process is altered to change retailer credits. Funds transfer through the Automated Clearing House (ACH) is standardized throughout the financial community. Controls on the EBT side, both in on-line and off-line environments, include system security, network security and daily reconciliation. Files that are transferred through the ACH are encrypted, and security measures include methodologies to quickly identify the point of unauthorized access and the perpetrator. Because the ACH handles not only EBT but also credit and debit transactions, this part of the EBT process is highly secure and is considered to present minimal risk to all EBT environments. This risk level is the same as during the demonstration evaluations, when it was judged to be minimal.

Store accounts are altered by system processor or store employee. This category can include two types of vulnerabilities. The first is the risk of settling retailer funds to an incorrect bank account. This event can and does occur in several scenarios. When a retailer establishes a retailer agreement with the EBT processor, it provides the processor with its financial institution and bank account number. The retailer may inadvertently provide the wrong number, or the processor may enter the wrong number during the retailer set-up process. This error will be discovered if the account number entered into the system is nonexistent, and settlement cannot occur, or when the retailer notices that it has not received funds from EBT transactions. It can also occur if a retailer sells his or her business and leaves the EBT POS terminal with the new owner. The new owner may use the terminal for transactions, and funds will be settled to the previous owner's account. Finally, it most commonly occurs when a participating retailer changes bank accounts and neglects to notify the processor. These errors are usually noticed immediately and are corrected through established banking processes. When they occur, retailers rarely incur actual losses because of the ability to identify and correct the error.

The second type of risk is a direct manipulation of a store account by a store employee that would result in an inflation of funds due to the retailer. In an off-line EBT system, the storage of transaction files in the POS terminal or in the POS network server presents an opportunity for records to be altered before being uploaded to the central processor. There are numerous controls in place to prevent this fraud. Servers are provided to multi-lane retailers without keyboards and monitors. All transaction files are encrypted, and MACs have been introduced into the Ohio Direction Card system. Server files must balance between retailer credits/debits and card level transactions. In addition, there are system limitations set on transaction amounts, and parameters set within the system alert the processor to transaction levels and amounts beyond the norm for the retailer site. In order to perpetrate this kind of fraud, a store employee would have to have a highly technical background, and the return for the effort in the EBT environment would be small.

The risk for this category is considered to be less than during the Dayton demonstration, due to increased security measures such as the MACs. It was felt that there is no difference in risk between the current on-line and off-line environments. The risk for the Ohio Direction Card is estimated to be minimal.

Software error over or under credits retailer account. This vulnerability involves operational or systematic disruptions that occur during a transaction that could create circumstances where the transaction may not be posted correctly either to the card or to the POS terminal. In on-line transactions, this category would include terminal and host software errors in processing on-line transactions.

Off-line EBT systems track two separate account balances. Once a transaction is completed, the transaction and the current card balance are stored on the card and in the retailer's POS terminal until the retailer settles to the EBT processor. The card balance is updated in real-time and is considered to be the actual account balance. The host-derived balance is calculated after retailers have settled transactions to the EBT processor, when the processor calculates an account balance based on retailer settlement data. The processor stores the latest time/date stamped card balance and the host-derived balance. If a retailer has not uploaded its settlement data and a cardholder conducts a subsequent purchase transaction at another retailer establishment, then the card balance will be less than the host-derived balance. If all transactions have been settled, including issuance acknowledgments as well as purchases and refunds/voids, the card balance will equal the host-derived balance.

If the Ohio Direction Card is removed prematurely from the POS terminal during a transaction, the balance may have been calculated on the card but not transmitted to the POS terminal. If the terminal has not recorded the card balance, then when the retailer settles to the processor's host computer, the most recent card balance on the host will be greater than than the host derived balance, and an inquiry will be conducted. (No action is taken if the card balance is less than the host balance because not all retailers may have settled transactions to the processor.)

During the Dayton demonstration, some retailer loss was reported because retailers were accidentally clearing transaction batches from their POS terminals before settling to the central processor. The Ohio Direction Card now requires retailers to obtain an authorization number from the central processor before the batch can be cleared from the terminal. Retailers can still lose batches of transactions if their POS terminals or servers fail. These transactions can be manually restored, but the retailer must provide receipts to Customer Service. Thus, if the retailer fails to keep receipts or chooses not to send them in, the retailer loses the sales in the lost batch.

Both on-line and off-line POS terminals print receipts that confirm the transaction has occurred, either between the terminal and the processor for on-line, or between the terminal and the card for off-line. If a receipt is not printed, or if the receipt indicates that the transaction failed, the retailer is instructed that the transaction did not occur. If this is due to an error (i.e., not due to insufficient funds in the recipient's account), the retailer may reprocess the transaction. If a retailer discovers a discrepancy during reconciliation, the retailer has the ability to recoup its losses if it provides the processor with proper documentation, such as back-up receipts, for the day's transactions. The retailer bears a loss only if the loss goes unnoticed through inadequate bookkeeping, or if the retailer lacks the proper documentation.

The estimated risk for this category is less than the Dayton evaluation, due to the added security of pre-authorization for clearing a POS terminal. While retailers may incur a temporary loss due to a software error, with documentation they are able to recoup these losses. Factoring in new security features, it was felt that there was little difference between on-line and off-line EBT, or between the Direction Card and the Maryland demonstration. The risk for this category is considered to be minimal.

Non-EBT terminal is configured to transmit EBT transactions to the system. To accomplish this in the on-line environment – and receive a settlement of funds for the transactions – would require a legitimate terminal number, a legitimate FNS retailer number and a financial institution account registered with the central processor. In addition to these technical requirements, off-line EBT has the added security controls of encryption software in the POS and MACing, which make it extremely difficult to configure a non-EBT terminal to accept EBT transactions. The risk for off-line EBT is considered to be less than for on-line, due to the security features and complexity of the smart card system. The risk for the Ohio Direction Card is considered to be minimal.

Summary. The views varied among respondents concerning the estimated overall risk for the category of excessive redemptions. Respondents estimated the risk for the Ohio Direction Card to be from zero to 0.02 percent of the benefits, but most felt the risk was less than the estimated 0.19 percent from the Maryland evaluation. This assessment is due to several factors: the initial learning curve needed by retailers, which reduced the risk after the pilot systems; the Ohio Direction Card's added security feature of the authorization code for clearing a POS terminal; and the card's security features. The high-end 0.02 percent estimate was given by one respondent, who suggested that the risk would increase if retailers decided to integrate Ohio Direction Card POS terminals with their electronic cash register systems. This integration was not available during the Dayton demonstration but is available for the Ohio Direction Card. No retailers have elected to integrate their systems with the smart card terminals, so the high-end risk estimate has been discounted. Based on other responses to summary estimates and individual vulnerabilities, the estimated risk for the Ohio Direction Card for this area is 0.01 percent of the food stamp benefits issued.

On the other hand, the expert input suggests that, in an off-line EBT system integrated with retailer and third-party processor (TPP) systems, the risk of processing errors would be comparable to or perhaps greater than the risk in current on-line systems, given the greater complexity of the POS processing in the off-line environment. The exact magnitude of the risk would depend on the strength of the certification process for integrated retailer and TPP systems, including regression testing for system modifications. The results of this portion of the analysis are summarized in Exhibit 5-2.

Exhibit 5-2

B: EXCESSIVE REDEMPTIONS: Credits to the wrong people or in the wrong amount.

	MD On-line EBT Demonstration Estimated Loss	Dayton Off-line EBT Estimated Loss	Does OH Direction Card pose more or less risk than MD demo?	Does OH Direction Card pose more or less risk than Dayton demo?	In general, does off-line EBT pose more or less risk than on-line EBT?	Estimated risk level for Ohio Direction Card
B-1: Intentional or inadvertent inflating of benefits to bank.	0.00%	0.00%	No difference	No difference	No difference	Minimal
B-2: Fictitious store accounts are created by system processor employee and credited.	0.019%[a]	<0.01%	Less	Less	No difference	Minimal
B-3: Funds transfer through ACH process is altered to change retailer credits.		<0.01%	No difference	No difference	No difference	Minimal
B-4: Store accounts are altered by system processor or store employee		<0.01%	No comments	Less	No difference	Minimal
B-5: Software error over or under credits retailer account		<0.02%	No difference	Less	No difference	Minimal
B-6: Non-EBT terminal configured to transmit EBT-transactions to system.		0.00%	Less	No difference	Less	Minimal
TOTAL	**Low (0.019%)**	**Low (<0.04%)**	**Less**	**Less**	**Less**	**Mimimal (0.01%)**

a Categories B-2 through B-6 were rolled into one category for the Maryland evaluation. Note that the Maryland demonstration was for a closed system; there were no third party processors involved during the demonstration.

5.4 Production and Handling Losses

The vulnerabilities in this category involve benefits that are lost or stolen before issuance and are later redeemed by outsiders (i.e., parties other than EBT processors, retailers and recipients).

Authorization file is tampered with or intercepted and replaced during electronic transmission to system processor. The encrypted authorization files from CRIS-E are sent directly to the EBT host over dedicated lines. The security for these lines is very high, and interruptions during transmission are detected immediately. During the Dayton demonstration, files were transferred from the State through a settlement bank and then to the processor. This process presented some risk due to the additional routing and the use of non-dedicated lines. The risk for this category is less than during the Dayton demonstration but no different than in on-line EBT systems using the same security measures. The current risk for this category to the Ohio Direction Card is estimated to be minimal.

Counterfeit card is used to access benefits from a fictitious account. For this type of fraud to occur in the on-line environment, the counterfeit card must be tied to a fictitious account on the EBT host computer, so that the host will authorize the transaction.[14] The creation of a fictitious account by an outsider is considered to be extremely difficult, if not impossible. Because system controls limit the amount of a transaction, the return to a perpetrator would be very small for the effort involved.

In off-line EBT, the card carries the account balance, so the creation of a counterfeit card with an account balance is not dependent on tampering with the EBT host, and any processing controls in the card could at least theoretically be defeated. If a counterfeit card with a card balance could be created, and a large number of duplicate cards could be used, the value of the loss could be very high, although the risk would only be temporary. The first retailer settlements that contained counterfeit card transactions would alert the system to an attack, and card acceptance would be suspended. To extract a large amount of value, a large number of cards would have to be used to make a large number of purchases within the 24 to 48-hour window between settlements, because very large purchases in any one store would raise retailers' suspicions.

Because of the potential for a large loss, smart card systems are created to be highly secure. SVS and the Schlumberger PayFlex cards have key management protocols, a system of keys and codes used during card transactions. Keys held on the card and keys held by the central host and POS terminals must be able to communicate and must be able to create MACs. Keys and codes pertinent to limiting this vulnerability include:

- POS Debit Key
- Card Debit Key
- Card Authentication of Terminal
- Card Debit MAC
- Atalla Network Security Master Key

[14] Use of counterfeit cards to access legitimate accounts is a form of theft from recipients, as discussed later in this chapter.

In the financial environment, a single master key cannot be held by one individual. If a master key were to become known, it would place the entire system at risk by allowing the creation of multiple counterfeit cards. The Atalla Network Security Master Key for the Ohio Direction Card is made up of three key parts, devised by three separate SVS executives, stored separately and kept secret from each other.

Because of smart card security features, the risk to the Ohio Direction Card is estimated to be less than the Maryland demonstration or current on-line EBT systems. The Dayton pilot evaluation estimated the risk to this type of attack as minimal. Since the pilot, the Ohio Direction Card has added the additional security of unique card keys and MACing. The current system is considered to be more secure than during the pilot, and the risk for this category is still estimated at minimal.

Issuance file is tampered with or intercepted and replaced during electronic transmission to retailer. This category of vulnerability only applies to off-line EBT where the issuance file is sent from the processor to the POS terminal for loading by recipients. Respondents in this evaluation felt that if the issuance file were intercepted and tampered with, it would only be possible to add value to one card at a time, because of the need to recompute the MAC using the unique key for each card. As a result of the MAC, HRC and other security measures previously mentioned, the risk to the Ohio Direction Card system is considered to be less than during the Dayton demonstration and is now estimated to be minimal.

Summary. The risk to the Ohio Direction Card for this category is estimated to be minimal, at 0.001 percent of benefits. Off-line EBT was considered to be more secure than on-line because of its security features, particularly the use of unique card keys – introduced since the Dayton pilot. It should be noted that smart card systems in the U.S. are limited, and there is little benefit in "hacking" food stamp EBT cards (i.e., analyzing cards to obtain means to add unauthorized value or create counterfeits). As smart cards become more widespread, and the value stored on smart cards becomes greater, the benefit to hacking efforts would increase. In the future, this trend might increase the risk of production and handling losses in off-line food stamp systems. The results of this portion of the analysis are summarized in Exhibit 5-3.

5.5 Benefits Lost or Stolen from Recipients

Because the Food Stamp Program is not liable for the loss or theft of benefits from recipients, the vulnerabilities in this category represent recipient losses. Benefits may be lost by or stolen from recipients under several scenarios: an unauthorized person accesses the benefits in a recipient's account, using a lost or stolen card; an error over-debits or under-credits a recipient's account; or a retailer overcharges the recipient or creates a bogus sale using the recipient's account number. As part of the Dayton pilot and Maryland demonstration evaluations, recipients were surveyed to gather information on actual or perceived losses. While this evaluation drew on the past evaluation estimates in providing information to respondents, the scope of the study did not include a new recipient survey. This evaluation did, however, draw on the respondents' knowledge of fraudulent activity identified by USDA investigations and state EBT officials, as well as the security features of the system intended to prevent these types of fraud.

Exhibit 5-3

C: PRODUCTION AND HANDLING LOSSES: Benefits are lost or stolen before issuance and later redeemed.

	MD On-line EBT Demonstration Estimated Loss	Dayton Off-line EBT Estimated Loss	Does OH Direction Card pose more or less risk than MD demo?	Does OH Direction Card pose more or less risk than Dayton demo?	In general, does off-line EBT pose more or less risk than on-line EBT?	Estimated risk level for Ohio Direction Card
C-1: Authorization file is tampered with or intercepted and replaced during transfer to processor.	0.00%	<0.01%	No difference	Less	No difference	Minimal
C-2: Counterfeit card is used to access benefits from a fictitious account	0.001%	0.00%	Less	Less	Less	Minimal
C-3: Issuance file is tampered with or intercepted and replaced during electronic transmission to retailer	Not applicable	Not measured in the original evaluation	Not applicable	Less	Not applicable	Minimal
TOTAL	**Minimal (0.001%)**	**Minimal (<0.01%)**	**Less**	**Less**	**Between no difference and slightly less risk**	**Minimal (0.001%)**

Grocer overcharges recipient or discounts benefit value. As part of a normal EBT debit transaction, the POS terminal displays the amount of the purchase and requires the cardholder to confirm that the amount is correct. In addition, the terminal prints a receipt indicating the total transaction and card balance. As with credit/debit transactions when the POS terminal is separate from the cash register, receipts generated from both the cash register and the POS terminal should be provided to the recipient. Unintentional errors in entering transaction amounts into POS terminals would most likely even out between over and under charges, although recipients would be more likely to point out overcharges to the clerk. A retailer may intentionally overcharge a client but runs the risk of being caught in the attempt. An inadvertent or intentional grocer overcharge is less likely if the POS terminal is integrated with the electronic cash register (ECR) system and the value of the transaction is automatically transmitted to the terminal, particularly when the ECR uses a scanner to identify item prices.

There have been no changes in the controls in Ohio that would prevent overcharges since the Dayton pilot. The system now allows integration but to date no retailer has chosen to bear the associated software development costs. On-line systems are now regularly integrated with large stores' ECR systems, so that the ECR transmits the calculated purchase total to the POS terminal for approval by the recipient. The estimated risk is therefore greater in the off-line environment than in the on-line environment. In general, respondents estimated that this category holds a medium risk.

Software error in debiting recipient account. A processing error may cause an excessive debit to a recipient's account. There are differences in the possible types of error between the on-line and off-line environment. For example, although the Maryland demonstration used a closed system, current on-line systems are generally open, accepting transactions from EBT-only POS terminals, TPPs and direct-connect retailers. In addition, many on-line systems are interoperable with each other or will be interoperable by October 2002. The variety of POS systems and the number of processing points in on-line systems increase the risk of debiting errors because of problems with EBT and retailer/TPP software, as previously discussed.

One respondent in this evaluation noted the following type of software error that occurred within the on-line environment with at least two different direct-connect retailers.[15] The retailers' POS terminals initiated a series of identical debit transactions after a recipient had made one purchase. The software error was produced by a retailer's terminal – outside of the EBT processor's control, once the retailer equipment has been certified to connect to the system. This type of error may go unnoticed, unless a recipient reported a discrepancy in his or her account balance.

As in the Dayton pilot, the Ohio Direction Card is a closed system, accepting transactions only from EBT-only POS terminals. Any software errors in the off-line environment would result in an out-of-balance condition between the card balance and the host-derived balance. The use of MACs adds a further protection against errors going undiscovered. One respondent noted that the added ability to download software to POS terminals (that did not exist during the demonstration), the added complexity of the card and POS terminal programming, and the new ability to integrate with ECRs may increase the risk to the Ohio Direction Card system. The risk posed by integration is hypothetical, and no errors have been reported during software updates.

[15] When the EBT processor drives the POS terminal, software prevents duplicate sequential transactions.

Respondents considered the risk for the Ohio Direction Card to be less than in the Maryland demonstration or other on-line systems but about the same as during the Dayton pilot. The risk for the Ohio Direction Card system in this category is estimated to be minimal.

Store clerk gains access to client card number and manually enters transaction into terminal without client's consent. In the on-line EBT environment, an EBT card and a PIN must normally be used together to complete an electronic transaction, but there are exceptions. If a card cannot be read, the card number can be keyed into the terminal along with the PIN and a supervisor's password. In some instances, clerks have abused this procedure to make unauthorized transactions against recipients' accounts after learning their card numbers and PINs. Another exception procedure is that manually authorized transactions are entered into the POS terminal for settlement without the recipient PIN, provided that the user has the manager PIN and an authorization number. Therefore, if a card is lost or stolen from a recipient, it is possible that a person with access to an authorized terminal could manually enter a purchase transaction without knowing the recipient PIN.[16] Under either of these scenarios, the clerk could take cash from the register in the amount of the fraudulent transaction, knowing that the register would remain in balance.

In the Ohio Direction Card system, authorization for a manual sale may only be obtained from EBT Customer Service if all of the retailer's POS terminals have been reported as nonfunctioning. Furthermore, manual transactions are conducted at the retailer's risk. These security measures reduce the risk to the recipient, but might be undercut somewhat by the 24-48 hour delay in card locks subsequent to the card being reported as lost or stolen. Any benefits removed from the card during this period are considered to be a loss to the recipient. The Dayton off-line pilot system used manager cards to restrict the capability to enter manual sales; the Direction Card system uses manager PINs instead. One respondent viewed the manager PIN as less secure, because clerks might more easily get access to a PIN than a card. The Ohio Direction Card system, like the Dayton off-line pilot, does not allow manual entry of the card number for a transaction with a PIN, as the card must be operational for all such transactions.

Because on-line systems requirements do not have all of the security features and retailer liabilities of the Ohio Direction Card system, the participant risk for this vulnerability is less than in the Maryland demonstration and less than in on-line EBT in general. The delay in card locks does pose a risk to recipients. The risk to participants with the Ohio Direction Card is estimated to be the same as during the Dayton pilot, a minimal risk to the participant.[17]

Store submits bogus manual sale. When a retailer calls for a manual authorization, the retailer number, the card number, and the amount of the transaction are provided to the audio response unit (ARU) or customer service representative. In return, the retailer is provided a transaction authorization number. As discussed previously, on-line EBT provides a variety of scenarios where a

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[16] In both off-line and on-line EBT, it is the recipient's responsibility to report lost or stolen cards and to track his or her account balance. Recipients are responsible for benefits that are deducted from their account if they have not reported their card as lost or stolen.

[17] There may be double-counting between this risk and the next. Respondents may not have adequately differentiated between clerk and retailer (owner/manager) fraud. Even so, both risks are so low that any effect of double-counting is inconsequential.

manual transaction will be accepted. With the Ohio Direction Card, the retailer's POS terminal must first be reported as nonfunctioning, and the retailer accepts the liability for the transaction should the card balance carry insufficient funds for the transaction. Although in theory a retailer might obtain authorization for a bogus manual transaction and then submit the transaction to the processor, the retailer would bear a high risk of there being insufficient account funds to cover the bogus transaction, as well as a substantial risk of being caught as a result of a recipient complaint.

The participant risk for this category is estimated to be less than the Maryland demonstration and current on-line EBT systems but the same as during the Dayton pilot. The estimated risk for the Ohio Direction Card system is minimal.

Unauthorized use of an EBT card by a person other than a store employee. This loss may occur if a card is lost or stolen. Family members may gain knowledge of the PIN and access benefits without the recipient's permission. A stranger may gain access to the PIN and card if the recipient records his or her PIN on the card – or uses a common PIN such as 00000 – and then loses the card or the card is stolen. As discussed previously, recipients are trained on the use of their cards and securing their PINs. If funds are accessed when a card is lost or stolen, the recipient bears the loss. The off-line system offers a longer window of time than on-line systems for unauthorized users to make transactions once they gain access to both a recipient's card and PIN because of the delay in locking cards once they are reported as lost or stolen.

Despite the lag in locking cards, the risk for the Direction Card system is considered less than the on-line systems, because the card cannot be used in a manual transaction without the PIN, unless a retailer reports that the POS terminal is not working and the retailer is willing to bear the risk of the transaction. The estimated risk for this vulnerability in the off-line system has not changed since the Dayton evaluation, when the risk was rated as low.

Counterfeit EBT card used to access recipient account. This vulnerability is slightly different than the counterfeit card situation previously described, in which a fictitious account is created. In this scenario, a counterfeit card is created to access an existing account, resulting in theft of the recipient's benefits. In on-line EBT, where magnetic stripe technology has been counterfeited (though much more commonly in the credit/debit environment than in EBT), it is possible to create a counterfeit card with knowledge of the card number and the PIN, or to attempt a manual transaction with a counterfeit card without knowing the PIN (and even without duplicating the magnetic stripe).

To obtain the card number, a person must have access to the card or to a receipt containing the card number. EBT security features and Federal Reserve rules require that receipts printed from POS terminals print only the last four digits of the card account number; this requirement has been implemented since the early EBT deployments.[18] In cases where someone has access to the card number and "shoulder surfs" – looks for the PIN when the client enters it – that individual would have the information needed to create a counterfeit card in order to access an existing account. The limiting factors to this risk are the effort and technical skills required to create the counterfeit card, the limited value of the benefits once the card is created, and the ability of the processor to track the time and place of the fraudulent transactions.

[18] Some experts interviewed for this report indicated that some POS systems still do not comply with this requirement and print the entire card number of the receipt. According to FNS, no TPPs involved in EBT are out of compliance. The Ohio Direction Card system has no TPPs.

The smart card used for the off-line environment has numerous security features, as previously discussed, that prevent it from being counterfeited. Even if the master key became known and one or more counterfeit cards were created, the perpetrator would also need access to existing account and card balance information. To recreate an existing account may require possession of the card and the ability to hack into the card system. In other words, with the master key, a person with this level of technical knowledge would be more inclined to create a bogus account than to recreate an existing account. Smart card security features are numerous and the return – food stamp benefits held in one cardholder's account – is very small for the effort.

The risk for this vulnerability in the Ohio Direction Card system is estimated to be less than in the Maryland demonstration and on-line systems. As in the Dayton pilot, the risk is estimated to be minimal.

State or local worker obtains card and PIN, accesses benefits from dormant account. Recipients may fail to pick up their cards or stop using them, leaving their benefits vulnerable to unauthorized access by state or local staff who fraudulently obtain cards and PINs with access to the accounts. To prevent this type of fraud from happening, staff with access to dormant accounts and the ability to activate these accounts must not have the ability to issue cards, and vice versa. According to the experts interviewed, this type of fraud has been detected in a few states that have not exercised strict separation of duties. In Ohio, state policy requires the separation of card issuance staff from the eligibility workers and supervisory personnel with write- access (i.e., the authority to change information) on the CRIS-E eligibility system. The main vulnerability occurs when EBT card issuance staff are supervised by a person with write-access to CRIS-E records, but these supervisors are typically the most trusted personnel in the local office. Security measures, such as pre-screening of personnel and separation of duties, are subject to review and direct oversight by ODJFS EBT staff. In addition, security measures are checked during ODJFS management evaluation reviews of local operations.

The risk for this category is considered to be the same for both the on-line and off-line environments, because deterrence depends on the State's issuance process and clear separation of duties, rather than the security of the EBT system.[19] The risk is less than during either of the demonstrations because State security levels and requirements have increased since the demonstration evaluation periods. The risk for this category is considered to be minimal.

Summary. Respondents' views varied widely when asked for a summary estimate of the Ohio Direction Card system for this category of vulnerability. They included the following:

- The numbers are now half of what was previously indicated (less than 0.18 percent of benefits for the Dayton pilot, therefore 0.09 percent of the benefits for Ohio Direction Card).

[19] The respondents may not have fully considered the effect of one Direction Card system feature: the expiration of benefits that are not picked up within 30-45 days. This reduces the period of vulnerability when a worker can fraudulently obtain a card with access to the account of a recipient that has not obtained a card. On the other hand, many on-line systems automatically issue cards to recipients when their EBT accounts are opened, so workers must obtain fraudulent replacement cards, potentially a more difficult task than obtaining a fraudulent initial card.

- Overall, the number is less than 0.18 percent of benefits because of increased security measures.

- The level of vulnerability has not changed.

- One respondent would have expected the numbers from the previous evaluations to be much higher because of the prevalence of retailer fraud. Given these numbers as a basis, the respondent would not change them up or down.

- The risk is increased to 0.22 percent of the benefits, because the system now allows the entry of a manager PIN rather than the more secure POS access of a manager smart card.

One major security feature that has been added to the Ohio Direction Card system since the Dayton demonstration, is the unique card key, which would deter the production of counterfeit cards. However, the vulnerability to counterfeiting cards already had a minimal risk in the Dayton demonstration, so this did not affect the estimated risk. The State has increased the security measures within its eligibility offices, thereby decreasing the risk for this vulnerability. The change from manager cards to manager PINs, while reducing the perceived security of the system, has not been noted by any observers to have increased instances of fraud. In reviewing summary comments in combination with responses to individual categories, it was determined that the risk is now slightly less than during the Dayton demonstration, and has been set at 0.17 percent of benefits. The results of this portion of the analysis are summarized in Exhibit 5-4.

5.6 Benefits Used in an Unintended Manner

This category of vulnerabilities involves food stamp benefit trafficking and other forms of benefit diversion by recipients. It may include collusion with a retailer. For EBT systems, the respondents in this evaluation considered trafficking as the largest source of benefit diversion risk to the Food Stamp Program. In evaluations of the paper coupon system, the use of cash change from food stamp purchases to non-food uses was estimated to be the largest source of diversion, but all EBT systems eliminate this vulnerability.

Previous EBT demonstration evaluations based the estimates of EBT food stamp trafficking on an estimated rate of 0.39 percent of benefits issued for the paper food stamp coupon system, based on a study of investigations in the early 1980's.[20] For this evaluation, more recent FNS estimates of the overall incidence of trafficking were used.[21] These were an estimate of 4.0 percent of paper food stamp benefits trafficked nationwide in 1993 and an estimated 3.5 percent of benefits trafficked for the period from 1996-1998, which combined paper food stamps and EBT. With these estimates as a starting point, the evaluation used adjusted estimates of 3.6 percent of benefits trafficked for the Maryland demonstration system and 2.0 percent of benefits trafficked for the Dayton pilot system as

[20] The original methodology for estimating EBT impacts on trafficking was presented in William Hamilton et al., "The Impacts of an Electronic Benefits Transfer System in the Food Stamp Program," Project Officer: C. Olander. U.S. Department of Agriculture, Food and Nutrition Service, Office of Analysis, Nutrition and Evaluation, Alexandria, VA, 1987.

[21] Theodore Macaluso, *op. cit*.

Exhibit 5-4

D: BENEFITS LOST OR STOLEN FROM RECIPIENTS:
A person other than an authorized recipient redeems benefits that are lost or stolen.

	MD On-line EBT Demonstration Estimated Loss	Dayton Off-line EBT Estimated Loss	Does OH Direction Card pose more or less risk than MD demo?	Does OH Direction Card pose more or less risk than Dayton demo?	In general, does off-line EBT pose more or less risk than on-line EBT?	Estimated risk level for Ohio Direction Card
D-1: Grocer overcharges recipient or discounts benefit value.	0.026%	0.11%	More	Same	More	Medium
D-2: Software error in debiting recipient account	0.003%	<0.01%	Less	Same	Less	Minimal
D-3: Store clerk learns manager PIN, gains access to client card and manually enters information into terminal without client's consent	0.414%	<0.01%	Less	Same	Less	Minimal
D-4: Store submits bogus manual sale		<0.01%	Less	Same	Less	Minimal
D-5: Unauthorized use of EBT card		0.03%	Less	Same	Less	Low
D-6: Counterfeit EBT card used to access recipient account		0.00%	Less	Same	Less	Minimal
D-7: Recipient never picks up card; State or local worker takes card, selects PIN and accesses benefits or dormant account		<0.01%	Less	Less	Same	Minimal
TOTAL	**Medium (0.443%)**	**Medium <0.18%)**	**Less**	**Less**	**Less**	**Medium (0.17%)**

a This includes amounts recovered by recipients from the retailer or from Montgomery County. Similar information for the on-line evaluation was not reported.

the reference points for the respondents' estimates of trafficking in the Direction Card system.[22] The trafficking estimates also provided indirect points of reference for the other forms of benefit diversion.

Recipients purchase ineligible items in grocery store. The major controls in this area include recipient training, retailer training, retailer agreements to comply with FNS regulations, and FNS investigations of retailer establishments. Some store scanners have the capability to identify eligible food stamp items, but scanners are generally found only in the larger chain stores, while this type of fraud generally occurs in smaller retail establishments. This type of benefit diversion can occur regardless of whether an on-line or an off-line EBT system is being used. The risk to this vulnerability remains unchanged since the demonstration evaluations. This risk is estimated to be a medium risk for the Ohio Direction Card system, the same level estimated by the Dayton off-line and Maryland on-line EBT evaluations.

Food stamp trafficking. During the demonstration evaluations, this category was defined as selling an EBT card with the PIN to a retailer or a broker in collusion with a retailer, then getting a new card for the new issuance period. New methods for trafficking have been detected since the first EBT demonstrations, and recipients have discovered ways to sell their cards and then recover part of the remaining benefits.[23]

EBT systems alert investigators to food stamp trafficking by providing reports that help Federal and State investigators to identify retailers and recipients engaged in suspicious behavior. On the other hand, traffickers are cognizant of some of the methods of detection, so catching traffickers is still highly dependent on field investigations.

One respondent stated that the rate of trafficking within a given state depends on the level of system monitoring and the depth of investigations. There are two Ohio Direction Card system features that have made investigations more difficult than they are in on-line systems. First, stores equipped with one POS terminal can only process transactions with "out of region" cards by obtaining an authorization number from customer service. Investigators must now use a different investigative card for each region so that an out of region message does not occur during the POS transaction, raising suspicion. Second, if an investigative card is not used for 90 days, it will lock and may impede the investigator from conducting a transaction that would implicate a fraudulent retailer. Dormant accounts in on-line systems also lock after 90 days, but these systems do not require different cards for different regions of operations. Investigators have developed routines to deal with the special challenges of operating within the Ohio Direction Card system. On the other hand, analysis of transaction data is not complicated by variations in the data on TPP retailer transactions, which is sometimes an issue in on-line states.

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[22] The Dayton pilot and Maryland evaluation estimates were updated by applying the estimated percentage reduction in trafficking, relative to the paper coupon system, to the updated estimate of trafficking before widespread implementation of EBT.

[23] Details of these fraudulent schemes and specific investigative methods are withheld to avoid compromising investigations.

ODJFS plans to institute a $10 replacement fee for Direction Cards reported lost or stolen. As of May 2002, ODJFS had implemented this fee on a trial basis in one county and planned to implement it statewide. The purpose of this policy is to encourage recipients to take more responsibility for their cards, but it might be seen as a potential deterrent to trafficking. Respondents felt this fee would not deter trafficking, but rather it would simply become part of the cost of doing business for traffickers.

The risk for this vulnerability is considered to be the same for off-line and on-line systems. While trafficking may drop during the early months of a county or state rollout, when retailers are unsure of what the system can and cannot track, it is felt to rebound once traffickers get beyond this initial learning curve. The risk of trafficking (combined with the risk of food resale, as described below) remains high (i.e., more than one percent of benefits).

Recipients sell EBT-purchased food items for cash. Some respondents felt the risk to this category may have increased since EBT has implemented. The reasoning is that EBT has made directly selling of food stamp account benefits for cash more difficult and easier for investigators to detect. Instead, clients purchase food items and sell them on the street or to other retailers at a discount. So, if the risk of explicit food stamp trafficking has decreased since the demonstrations, the controls on explicit trafficking may have served to increase the risk for this more subtle form of benefit diversion.

Respondents familiar with compliance investigations noted that the highly desirable items that are purchased from recipients by disreputable retailers include infant formula (a WIC program food item) and meat. The sale of food items between individuals is a gray area. It is not actually illegal but it is also not within the intent of the Food Stamp Program, which is to provide nutritious food items to needy families. Retailers purchasing food items to aid the diversion of food stamp benefits may be violating health regulation, corporate reporting and taxation laws.

This type of abuse is of great concern to the Food Stamp Program but also very difficult to measure. The combined risk of food stamp trafficking and food resale is estimated to be the same as the combined risk during the demonstration evaluations. The risk is estimated to be the same for on-line and off-line EBT systems. The risk of this vulnerability, combined with food stamp trafficking, is estimated to be high (i.e., more than 1 percent of benefits).

Recipients use cash refund received from overcharge of food stamp purchase for non-food items. The controls for this vulnerability are basically the same as the controls for food stamp trafficking and resale of food purchases with food stamp benefits. They include the establishment of retailer agreements and system analysis of type and time of transactions. The risk to the retailer is also the same – prosecution, penalties and loss of FNS certification. Respondents felt that this type of abuse may happen, but it is more likely to happen due to lack of program or system understanding by the clerk. For example, a clerk may make an error in the purchase amount and give the recipient cash back to correct the error rather than process a credit on the POS terminal. The minimal risk of this vulnerability was estimated to be the same as during the Dayton pilot. The risk is considered the same for on-line and off-line EBT systems.

Redemption of benefits by unauthorized grocery stores. This vulnerability was first evaluated in relationship to paper food stamps. Paper food stamp coupons used at FNS-certified retailer establishments were bundled and given to the retailers' financial institutions, which would forward them and settle funds to retailer accounts through established processes. An unauthorized retailer

could accept paper food stamp coupons, as long as it had an outlet for the coupons, such as a certified retailer that would accept the coupons for cash or in payment for supplies.

In EBT systems, the State's selected processor is responsible for obtaining the list of certified retailers and establishing agreements with these retailers and TPPs. Qualified retailers who do not connect directly with the processor or use a TPP are supplied with EBT-only POS terminals.

Since the Dayton and Maryland evaluations, the federal REDE database that contains a real-time list of FNS-certified retailers has come on line. EBT processors receive a daily batch file from REDE that provides the list of all certified retailers within the processor's State of operation. This is a major change and provides a significant improvement on retailer controls since the early 1990s.

Unauthorized redemptions still occur, however, in the on-line EBT environment. When the unauthorized retailer sells items to a recipient, it calls an authorized retailer to provide the transaction amount, card number and PIN. The second retailer enters the transaction into its POS terminal and subsequently settles a sum to the first retailer. The Ohio Direction Card system prevents this type of fraud because a card is required for a transaction unless the POS terminal is reported as non-functioning. Even if the POS terminal has been so reported, the retailer must still accept the liability if the card does not contain sufficient funds.

The introduction of the REDE file, combined with off-line procedural requirements and retailer liabilities, makes the risk minimal for the Ohio Direction Card. The risk is less than the Maryland demonstrations and less for the off-line than the on-line environment.

Summary. Respondents gave a range of risk estimates in this area. Overall, they responded that benefit diversion occurs in both the on-line and off-line EBT environments, with a perception that the smart card provides a slightly more secure environment. In particular, they generally felt that the Ohio Direction Card system poses less risk than on-line systems in the category of food stamp benefit redemptions by unauthorized grocers.

There was a range of views on the risk of trafficking in the Ohio Direction Card system and EBT systems in general. Some respondents felt that trafficking in the EBT environment may have increased since the implementation of the demonstration systems. This is because retailers and recipients who want to traffic have found new methods of obtaining cash for food stamp benefits. Others discussed new ways of locating abusive retailers, such as the detailed statistical analysis of EBT reports.

Given the summary responses, as well as the responses that provided comparisons in each category of vulnerability, the estimated risk for of benefit diversion falls within a range of 2.18 percent to 3.67 percent of benefits, clearly in the "high" category of risk. The minimum is the level estimated by the Dayton evaluation, and the maximum is slightly below the Maryland evaluation estimate. (See Exhibit 5-5.) It should be noted that most respondents found the risk to be about the same as during the Dayton demonstration. However, the higher range is given to the Ohio Direction Card because of the perception that the risk may have been underreported during the initial evaluation period.

Exhibit 5-5

E: BENEFITS USED IN AN UNINTENDED MANNER: Benefits are used by recipients for unintended purposes.

	MD On-line EBT Demonstration Estimated Loss	Dayton Off-line EBT Estimated Loss	Does OH Direction Card pose more or less risk than MD demo?	Does OH Direction Card pose more or less risk than Dayton demo?	In general, does off-line EBT pose more or less risk than on-line EBT?	Estimated risk level for Ohio Direction Card
E-1: Recipients purchase ineligible items in grocery store	.17%	.16%	Same	Same	Same	Medium
E-2: Food stamp trafficking (e.g., sell card, get new one or give retailer card and PIN for transaction processing during the month)	See note a	See Exhibit 5-2, note a	Same	Same	Same	High
E-3: Recipients sell EBT-purchased food items for cash		0.01%				
E-4: Recipients use cash refund received from overcharge of food stamp purchase for non-food items		0.01%	Same	Same	Same	Minimal
E-4: Redemption of benefits by unauthorized grocery stores	0.016%[b]	Not evaluated	Less	Same	Less	Minimal
TOTAL GIVEN IN ORIGINAL EVALUATION	0.537%	0.38%				
ADJUSTED TOTAL BASED ON FNS DATA	**High (3.686%)**	**High (2.18%)**	Less	Same	Less	**High (2.18% - 3.67%)**

a Food stamp trafficking with EBT was estimated at 0.351 percent in the Maryland demonstration evaluation and 0.20 percent in the Dayton demonstration evaluation. Both studies used an estimate of 0.39 percent as the rate of trafficking with food stamp coupons. FNS has since estimated the nationwide rate of trafficking at 4 percent for 1993 and 3.5 percent for 1996-1998, the latter reflecting a mix of EBT and coupon issuance. Using the 4 percent rate as a base, the equivalent estimates would be 3.6 percent for the Maryland demonstration and 2.0 percent for the Dayton demonstration.

b The estimate of unauthorized redemptions for the Maryland demonstration reflects a 50 percent reduction from the level estimated for the previous coupon system.

5.7 The Effects of Disasters on EBT Vulnerabilities

In addition to the preceding issues of vulnerability to benefit loss and diversion, another important aspect of EBT system security is the vulnerability to disasters. On the one hand, disasters have the potential to interfere with recipients' access to benefits. On the other hand, EBT systems can become even more important during disasters, as current FSP recipients shop to replace lost food and additional households receive disaster food assistance. The following analysis does not rely on the previous studies cited in the benefit loss and diversion analysis, because the Maryland and Dayton demonstration evaluations did not assess the potential impacts of major disasters on the EBT system. In a typical disaster planning environment, there are multiple levels by which a disaster may be measured. These levels are defined differently by different entities, but an example would be:

- Level 1: Interruption of telephone, mail and electrical services of less than two days over a limited geographic area.
- Level 2: interruption of telephone, mail and electrical services from three days to five days over a moderately sized geographic area.
- Level 3: Interruption of telephone, mail and electrical services of more than five days over a large geographic area.

In the EBT environment, disasters may affect the ability to interface with the agency system, EBT processor, EBT Customer Service and/or retailer POS terminals. They may also affect the ability to apply for benefits, request replacement cards, issue and deliver replacement cards and procure food items from retailer establishments. Disasters could affect off-line and on-line EBT in various ways. For example, if there is electricity but the EBT processor is down, off-line transactions could still be conducted at the POS. However, settlement and reconciliation may not occur on a timely basis nor would the download of negative files (hot card lists) or issuance files to retailer terminals and PCs.

As part of this evaluation, respondents were asked to comment on the impact of disasters on both the on-line and the off-line EBT environments, and the strengths and weaknesses of both types of systems in deterring program and participant loss.

Impact of Disasters in the Off-line Environment. In off-line EBT, the recipient's card carries the actual account balance. As long as there is electricity to operate the POS terminal, a retailer can continue to conduct EBT transactions without telecommunications. In the case of a limited area having a short-term electrical disruption in Ohio, the processor can distribute battery-operated POS terminals so that retailers can continue to conduct transactions. While a retailer may continue to conduct electronic transactions as long as it has an operational terminal, it may also conduct manual transactions – with or without authorization – but must bear the liability if the card account has insufficient funds for the transaction.

At some point, retailers must have the ability to upload transaction information to the processor. There are limiting factors to the data that a terminal can hold and the system risks out of balance situations if settlement data are not regularly uploaded to the processor. The state may encounter problems with emergency issuance in times of disaster. Even if the state is able to upload an emergency issuance file to the processor, if the processor lacks telecommunications capability, it

cannot relay issuance files to designated retailer sites. This is also true for the hot list file of cards reported lost or stolen.

Impacts of Disasters in On-line Environment. In general, during times of disaster, retailers can accept manual transactions up to a limit set by the State and agreed upon by the processor. Liabilities for these transactions fall on the State, the processor, or both. It would be possible for a recipient to conduct small transactions at numerous stores, thereby overdrawing the account. If the retailer has any telecommunications capability (including cell phones), it is able to call for an authorization in order to place a hold on the account. Emergency issuance is not as difficult in the on-line environment. As long as the state is able to transmit the issuance file to the processor, benefits can be issued to recipient accounts in real time.

Summary. The risks to the state, to the processor and to the retailer rise during times of disaster. Recipients will be able to conduct transactions in either environment but in off-line systems, with POS terminals and the ability to communicate directly with the card, the risk is reduced, at least for the first 48 hours. Then, the inability of some retailers to settle may increase the risk of an out-of-balance situation. In the off-line environment it is more difficult to issue emergency benefits, which may be problematic in long-term disasters. In both on-line and off-line there may be an increase in the use of manual vouchers, subsequently increasing the risk to the state and the processor (on-line) and to retailers (off-line); this risk rises with extended lack of telecommunication capability. Finally, if large-scale disasters call for mass issuance of cards, either type of system can be subject to error or abuse.

Compared with on-line EBT systems, the Ohio Direction Card system is less vulnerable to interruption of benefit redemption in a short-term (1-3 day) disaster, because retailers can continue to process transactions without access to the EBT host computers (and even without regular electrical power). On the other hand, the Ohio Direction Card system is more likely to encounter problems with benefit issuance in a disaster, and mass card issuance for widespread disaster relief is more difficult.

5.8 Conclusions

All EBT systems provide security measures designed to prevent loss due to benefit fraud, abuse and diversion. Security measures that are common to both on-line and off-line EBT include separation of duties, use of user IDs and PINs, daily reconciliation, daily access to REDE and AMA information, data encryption, and file transfers through dedicated lines. Electronic access to REDE and AMA, as well as the annual audits required as part of SAS 70 have been implemented since the original demonstration evaluations. Controls that were identified as being different between the systems, and making an impact on respondents' estimations of risks between on-line and off-line include:

- Smart card security versus magnetic stripe card security. The Ohio Direction Card contains unique card keys, HRCs, and performs on-card MACing. Magnetic stripe cards are considered to be less secure and more prone to counterfeiting attempts.

- POS terminal security. The Ohio Direction Card terminal is a stand-alone device configured to accept transactions only from the Ohio Direction Card. In on-line systems, the POS terminals

may be supplied by the processor or a TPP or the direct-connect retailer, making the terminals less secure and more prone to errors in debiting/crediting client accounts.

- Placement of the liability of manual transaction on the retailer in the off-line environment. This is a by-product of the 24-48 hour delay in settling transactions to the EBT processor.

- Lost or stolen cards. On-line systems are able to place a real-time lock on an account when the associated card is reported as lost or stolen.

Noted changes within the Ohio Direction Card system that have occurred since the Dayton demonstration of off-line EBT include:

- Introduction of unique card keys, HRCs and MACing.
- Retailer authorization code to allow clearing of a batch from the POS terminal.
- Requiring a 48-hour delaying in adding value to a card subsequent to a value-adding transaction due to a store credit.
- POS terminals can accept software up-grades direct from the processor.
- Regionalization of hot card files.

The two areas mentioned by respondents that were seen to provide the greatest security in the Ohio Direction Card system were smart card features—the unique card key, the HRC and MACing—and the policies concerning manual transactions. Smart card security features deter duplicate benefit issuance or inflation of benefits, hacking and counterfeiting. Manual transaction policies include: retailers may not accept a non-functional EBT card; retailers may not conduct a manual transaction without an authorization number and they may not receive an authorization number unless the retailer's POS terminal has been reported as non-functioning; and retailers hold the liability for any manual transactions. Respondents felt these policies lessened the risk for retailer error and fraud. As shown, there is a significant difference in the percent of manual transactions between the Ohio system and the Maryland on-line EBT system. This estimated reduction in risk is reflected in the difference between the Maryland demonstration evaluation estimates of 0.443 percent of benefits lost and the Ohio Direction Card estimate of 0.17 percent of benefits lost.

Respondents discussed the negative impact to recipients when hot listed card files may take 24-48 hours to reach retailers. If the PIN is known to the person who finds or steals the card (for example, if the PIN was written on the card), then the recipient is at a higher risk of losing benefits than in the on-line environment where card accounts are frozen in real-time when reported. While respondents mentioned that the delay in uploading transaction settlement information to the processor was a negative of the off-line system, they were less sure of the actual impact this may have on loss.

Overall, the Ohio Direction Card system was considered to be less vulnerable to benefit fraud, abuse and diversion than either the Maryland demonstration system or the Dayton demonstration system. Respondents judged off-line EBT systems as slightly less vulnerable than on-line EBT in general, but the differences were small. The smart card system was seen as strongest in two areas. The first is the deterrence of fraudulent manual transactions, because of the elimination of some reasons for these transactions and the policy of retailer liability when they do occur. The second area of strength is

issuance errors, due to the use of HRCs and MACing. In the area of benefit diversion, the largest estimated vulnerability for the Food Stamp Program, the difference between off-line and on-line EBT systems was seen as very small because of the variety of diversion schemes possible in both types of systems.

Chapter 6
Feasibility Assessment

6.1 Introduction

To summarize the findings of this evaluation, this chapter provides an overall assessment of the feasibility of continuing, expanding and transferring the Ohio Direction Card system. The following questions are addressed:

- How well does the system meet the needs of recipients, retailers and FSP agencies for a means of benefit delivery that is user-friendly, reliable and secure?

- Can the system continue to operate in its current form for the foreseeable future? What are the current and future challenges to continued operations? What changes may be needed to sustain operations?

- What is the potential of the system to adapt to new settings and new uses?

- Considering the system's performance and potential, is it more or less cost-effective than other EBT systems?

6.2 Meeting the Needs of Recipients, Retailers and FSP Agencies

Whether an EBT system meets the needs of recipients, retailers and the agencies administering the FSP depends on several considerations examined in this study. The study's results provide insights into the following aspects of stakeholder interests:

- How do the system's design, procedures and policies affect the ease with which recipients and retailers can participate in the FSP?

- How do the system's design, procedures and policies help or hinder local, State and FNS personnel in the performance of their responsibilities to facilitate and safeguard this process?

- How reliably and efficiently does the system perform from the perspectives of recipients, retailers and FSP agencies?

- How well does the system protect recipients, retailers and FSP agencies from benefit loss and diversion?

Overall, the Ohio Direction Card system has successfully met the needs of recipients, retailers and FSP agencies. Recipients have been able to pick up benefits and redeem them for food with relatively few problems. Retailers have been provided sufficient equipment and training, and problems with POS equipment and system access are rare. FSP agencies have successfully adapted to their new

roles and processes for card issuance, benefit issuance, settlement, reconciliation, and retailer management.

Below, the strengths and weaknesses of the Ohio Direction Card system are summarized from the perspectives of recipients, retailers and FSP agencies. The benchmark for assessment is the current array of on-line EBT systems. Some current on-line EBT systems operate according to the full set of requirements in the EBT regulations, but most operate under one or more waivers to the regulations that govern the provision of training and system resources (i.e., cards or POS equipment) to recipients and retailers. These waivers are intended to reduce EBT costs to the government without having major impacts on the level of service to recipients and retailers.

In the discussion that follows, on-line EBT systems with the most streamlined operations permitted by the waivers are used as the primary point of comparison. Most on-line EBT systems fall somewhere between the minimum level of recipient services permitted under the waivers and the full set of recipient services required by the EBT regulations.

Recipient Perspective

Exhibit 6-1 summarizes the advantages and disadvantages of the Ohio Direction Card system from the perspective of FSP recipients. The text following the exhibit discusses these considerations.

Exhibit 6-1

Advantages and Disadvantages of the Ohio Direction Card System for FSP Recipients, as Compared with the Most Streamlined On-Line EBT Systems

Domain	*Advantages*	*Disadvantages*
Card issuance and recipient training	High level of recipient service: hands-on training, PIN selection	Mandatory in-person card issuance and training requires extra time, may require extra trip to local office
Problem-solving	Trained local staff and special equipment may be more available to trouble-shoot	More problems require going to office (replacement, diagnostics, bad PIN and stale date locks)
Redeeming benefits	Consistency of equipment and procedures in all stores; reduced exposure to transaction delays and need for manual transactions	Have to pick up benefits, limited number of pickup sites; lag between card issuance and benefit availability; benefits expire if not picked up; cards cannot be used when traveling or moving out of state
Security and access	Reduced risk of benefit loss or theft	Possible confusion between card and host balance; lag between card replacement and benefit availability

In the domain of card issuance and recipient training, the Ohio Direction Card system offers a high level of recipient service. All recipients get in-person training with the opportunity for hands-on practice, and they select their own PINs. This process can be helpful, but it requires all new recipients to spend extra time at the local FSP office, even those who are familiar with card use from

shopping with friends or family members. Depending on the timing of their certification, participants may have to make an additional trip to the local office to get their training and cards.

In contrast, on-line EBT States operating under waivers provide cards, training materials and assigned PINs by mail, both to reduce local office costs and to minimize the time that recipients have to spend at the office.[1] Some of these States do, however, provide recipients the option to obtain cards or select PINs at the local office.

In the Direction Card system, local FSP offices have trained staff and special equipment to resolve recipients' problems. On-line EBT states often do not have designated EBT customer service staff at their local offices, relying on the vendor's customer service representatives, who are available only by telephone. Many on-line EBT States issue cards and assign PINs by mail but also offer card activation and PIN selection services in local offices. Local offices in these States may not have the level of training and equipment required to provide these services to all recipients. On the other hand, the Direction Card system requires recipients to go to the local office to resolve problems that can often be handled in on-line states by a telephone call to the customer service center. These problems include obtaining a replacement card, unlocking a card, and changing the PIN. In Ohio, as many as 6.2 percent of recipients must visit a local office each month for one of these reasons.[2]

From the recipients' perspective, the exclusive use of special off-line POS terminals for benefit redemption in the Direction Card system has both advantages and disadvantages. The terminals are standardized, so there is less likelihood that a recipient will be confused about how to make a purchase than in on-line systems with retailers using a variety of multipurpose terminals as well as EBT only terminals. (This confusion is most likely among new recipients who have not previously used a debit card.) POS transactions in off-line systems are not affected by the kinds of processing delays that occur in on-line systems, either in the telecommunications network or at the EBT host computer.[3]

On the other hand, large stores often have fewer lanes equipped than would be the case if EBT were integrated with their other checkout systems. Some Ohio retailers have leased extra Direction Card terminals to avoid this problem. While almost all on-line systems are interoperable (i.e., cards can be used outside the recipient's home state), Direction Cards can be used only in Ohio and selected stores in border areas of adjacent states.

Unlike on-line EBT systems, the Direction Card system requires recipients to pick up benefits before they can be used, and each recipient has a limited number of pickup sites. The Direction Card system

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1 The Economic Research Service (ERS), USDA has conducted a study of the impacts of these and other EBT customer service waivers on recipients. The study's final report is forthcoming. In the present report, the description of customer service in States operating under EBT customer service waivers is based on information collected for the ERS study.

2 These figures include 3.5 percent of cards replaced and 2.7 percent of cards locked. Some card locks are related to lost or stolen cards, so some cards may be subject to both events in the same month.

3 No current data are available on the incidence of these kinds of problems in on-line systems, or on the incidence of problems completing transactions in the Ohio Direction Card system. On-line States and EBT processors strive to minimize transaction delays, but slowdowns and occasional outages do occur, as shoppers familiar with retail credit and debit systems are aware.

lacks the on-line systems' ability to make emergency benefits immediately available, and recipients sometimes wait up to 48 hours after card issuance to receive their benefits. Furthermore, 4.5 percent of benefit issuances in the Ohio Direction Card system expire because they are not picked up by the end of the issuance month, whereas in on-line systems benefits remain available until the account has been untouched for 90 days or longer.[4] An off-line EBT system could allow benefits to remain available for loading longer than a month, but then issuance data would take up more memory space in POS terminals—a potential problem for single-lane stores.

Recipients face a slightly smaller risk of benefit loss in the Direction Card system than in on-line EBT systems, according to the consensus of experts consulted for this evaluation. A greater proportion of transactions in the Direction Card system are performed with the card and PIN, providing greater protection against unauthorized access by store clerks, card counterfeiters, and others.

Relative to on-line systems, the Direction Card system has three weaknesses in the domain of security and access. First, recipients are more likely to be confused about their account balances because of the added issue of discrepancies between card and host balances. Second, recipients bear the risk of benefit loss between the time that a lost or stolen card is reported and the time when it is actually locked to prevent unauthorized use.[5] Third, recipients must wait two to three days between card replacement and the transfer of benefits to the new card (not a permanent loss but still a potential hardship).

Retailers

Exhibit 6-2 summarizes the advantages and disadvantages of the Ohio Direction Card system from the perspective of FSP retailers, using typical on-line EBT systems as the benchmark. The text following the exhibit discusses these considerations.

The Ohio Direction Card system provides POS terminal installation, initial user training, and maintenance at no cost to all FSP retailers. In contrast, some on-line EBT states provide EBT-only POS terminals, training and terminal replacement by mail, and most do not pay for the use of retailers' integrated POS systems, effectively shifting the cost of EBT transactions to the retailer. On the other hand, no retailer has yet found it cost-effective to integrate the Direction Card system with its credit/debit POS systems, chiefly because of the expense of developing and testing the necessary software. In consequence, all retailers bear the costs of the space occupied by Direction Card terminals and ongoing training on this specialized equipment for new personnel. In addition, the number of Direction Card terminals provided at no cost to the retailer is limited by the State's formula, although the formula is more generous than FNS requirements. As a result, Direction Card retailers must limit the checkout lanes where FSP recipients can shop, or pay for extra terminals, whereas on-line EBT retailers using their own equipment can serve FSP recipients in any lane. On-line retailers that do not have their own multi-purpose POS equipment must work within their allotment of no-cost equipment or bear the cost of additional equipment, but the on-line EBT equipment is less expensive than the POS equipment used in the Direction Card system.

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[4] In accordance with FNS policy originally established for coupon issuance systems, off-line EBT benefits do not belong to the recipient until they are loaded, and expired benefits cannot be restored.

[5] EBT customer service immediately updates the host computer when a card is reported lost or stolen. The card is actually locked when it is used in a store that has settled since the instruction to lock the card was staged for transmission to retailers' POS systems. This process can take 24 hours or more.

Exhibit 6-2

Advantages and Disadvantages of the Direction Card System for FSP Retailers, as Compared with the Most Streamlined On-Line EBT Systems

Domain	*Advantages*	*Disadvantages*
Equipment and training	All stores equipped and trained on-site (no minimum volume); portable POS terminals for route vendors and farmers' markets; State formula provides more no-cost equipment than FNS regulations applied in most states	Costly to integrate with credit/debit terminals and cash registers; dedicated equipment requires extra space and special training for personnel; more costly to equip lanes not covered by formula for no-cost equipment
Redeeming benefits	May reduce exposure to transaction delays and need for manual transactions	Out-of-state stores cannot accept Ohio cards unless approved and specially equipped; EBT equipment provided to Ohio stores cannot accept out-of-state cards
Problem-solving	24-hour hotline for questions and problems, 3-hour response time on service calls	Dependent on EBT vendor as sole source for service unless retailer opts to integrate EBT with own POS/ECR system
Security	Reduced risk of benefit loss due to processing errors and manual sales overdrafts	Liability for all manual transactions, potential for clerk error when entering purchase amount

As noted in the discussion of recipient perspectives, off-line EBT technology eliminates some of the sources of transaction delays, and therefore has the potential to reduce the average time to complete a FSP transaction, relative to on-line EBT systems. (The evaluation did not measure transaction times, which depend not only on the time to authorize a transaction but also the time to read the card, enter and verify the PIN, enter the purchase amount, and print the receipt.) The off-line system also reduces the incidence of time-consuming manual transactions, although it is not clear how much of this impact is due to the technology and how much to the retailers' assumption of liability. On the other hand, out-of-state FSP retailers cannot accept Direction Cards unless they are approved by ODJFS as border stores and specially equipped. Ohio retailers cannot use their Direction Card terminals to accept out-of-state on-line EBT cards, although many large retailers located within Ohio are able to accept out-of-state EBT cards with their credit/debit POS terminals.

Direction Card retailers, like their on-line EBT counterparts, can obtain information and assistance from a 24-hour hotline. The Direction Card hotline offers a relatively high level of service, using a specialized group of operators for retailer and CDJFS calls, and the 3-hour standard for on-site repair calls is also a fairly high level of service. On the other hand, the lack of integration with retailer POS systems or other alternatives makes all retailers dependent on the EBT vendor to maintain their

capability to accept FSP benefits. To date this has not been an issue, but a disruption of the maintenance operation (e.g., a labor dispute or financial problem at the subcontractor) would affect all FSP retailers in Ohio. The high level of retailer service may be reassessed when ODJFS procures the next contract for the Ohio Direction Card system, because this is one area where significant cost savings might be realized.

The security experts interviewed for this report generally believe that retailers face less risk of financial losses with the Direction Card system than with on-line EBT systems, particularly in the areas of transaction processing errors and manual sales overdrafts. The difference in risk is minimal, on the order of 0.005 percent of benefits or less. The difference in transaction processing errors is in part the result of the lack of integration with TPP or direct-connect retailer POS systems, but the lack of a need for on-line transaction authorization (with the inherent risks of reversals and other complications) is also a factor. The lower rate of manual sales losses is in part due to the reduced need for manual sales, but retailers are more reluctant to process these transactions because of their liability.

Local, State and Federal FSP Agencies

Exhibit 6-3 summarizes the advantages and disadvantages of the Ohio Direction Card system from the perspective of local FSP offices (the CDJFS), ODJFS, and FNS, using typical on-line EBT systems as the benchmark.

Unlike local offices in some on-line EBT states, CDJFS offices in Ohio are equipped and have trained staff to provide a broad array of EBT recipient services, as previously discussed. In large part, this level of equipment and staffing is necessary because of the need to provide many services in person, but it also reflects resource allocation decisions by ODJFS and CDJFS managers. The CMS unit used for many EBT services obtains recipient information electronically from the main computer system used for FSP administration (CRIS-E), unlike the stand-alone EBT administrative terminals provided by the leading on-line EBT vendor. Cards are linked to recipients' benefits off-line, so workers' efficiency is not affected by delays in telecommunications or host processing. Local FSP staff, like retailers, get a relatively high level of service from specialized hotline operators serving only retailers and FSP staff (as compared with States where local staff use the general operator pool). This level of service is important because of a limitation of the Direction Card system: local FSP workers need the hotline's assistance to replace cards, change PINs, or change issuance sites unless the office has a dedicated, expensive customer service terminal (CST). The integration of the CMS with CRIS-E is undermined by the CMS' lack of compatibility with the current operating environment of many local agencies, which use Windows-based personal computers in a local area network in place of the older "dumb" terminals and controllers (ODJFS has partially addressed this gap, as discussed later in this chapter).

The Direction Card system gives local and State FSP agencies more control over the issuance process than on-line EBT systems. The requirement to load benefits at a pre-selected local issuance site serves as check against receipt of benefits by recipients that do not reside in the county where they applied (because of unreported relocation or fraud). The expiration of unloaded benefits also helps prevent participation by recipients that fail to report changes in address or other circumstances affecting eligibility (e.g., incarceration). On the other hand, the expiration of benefits may reduce participation among eligible recipients who find it difficult to shop with their Direction Cards every month. In on-line EBT systems, these recipients (such as elderly persons receiving the minimum

Exhibit 6-3

Advantages and Disadvantages of the Direction Card System for FSP Agencies, as Compared with the Most Streamlined On-Line EBT Systems

Domain	*Advantages*	*Disadvantages*
Equipment and training	Local offices equipped to issue, test, and unlock cards; CMS integrated with CRIS-E; card setups off-line; 24-hour hotline with specialized staff for questions and problems	Need costly equipment or hotline assistance to replace cards, change PIN, change issuance site; CMS not designed for current operating environment (Windows PC network)
Benefit issuance	Benefit loading requirement and expiration serve as checks on recipients that move without reporting, possible fraudulent participation	Benefit must be linked to card in office, after benefit authorized; delays in making emergency benefits available; lags in updating benefit issuance history
Security and stability	Reduced risk of benefit loss; possible reduction in diversion; more stable due to off-line transaction processing; less vulnerable to interruption of service in short-term disaster	Lags in reporting card activity, disconnecting terminated retailers; impediments to retailer investigations; problems with benefit issuance and card issuance in disasters
Cost	More stable cost structure, due to lack of reliance on TPPs, direct-connect retailers, telecommunications networks and host computer for on-line transaction processing	Higher costs for implementation and operations due to dedicated POS terminals, in-person recipient service, card cost; potential cost to on-line States of capability to convert benefits from off-line system for relocating recipients

benefit) can use their EBT cards less frequently without losing access to benefits. In Ohio, the standard authorized recipient process is available to facilitate shopping by FSP recipients with limited mobility.

In the Direction Card system, the process of linking initial benefits to EBT cards is more cumbersome than in many on-line systems. A local FSP staff member in Ohio must link the case to the card, after the initial benefit has been authorized and processed by CRIS-E. In contrast, many on-line EBT systems automatically set up card records linked to cases and benefits when they receive benefit records for new cases. The ability to meet expedited service requirements and address emergency situations is constrained by the lack of a capability to make emergency benefits immediately available, exacerbated by the fact that recipients sometimes wait up to 48 hours after card issuance to receive their benefits. (This problem can be mitigated by having the recipient pick up benefits at the CDJFS, which settles its POS in the morning to receive issuances from the previous night's processing.) Updates to the benefit issuance history are slower in the Direction Card system than in

on-line systems, because of the time needed to confirm that the benefit has been loaded or has expired.

The expert consensus obtained for the evaluation suggests that the Direction Card system offers a slightly reduced risk of benefit loss and diversion, when compared with current on-line EBT systems. The key difference is that unauthorized redemption is more difficult in the Direction Card system, because a POS transaction cannot be processed unless the card is physically present, and because the use of MACs provides additional protections against the use of unauthorized terminals. The same experts pointed to a number of impediments to using the retailer management tools available to FSP officials in most on-line EBT systems. For instance, the lags in the settlement process affect both the reporting of card activity and the timing of when retailers are disconnected after being withdrawn or otherwise terminated from the FSP. Both the reporting of card use and the termination of retailer authorization to process transactions are instantaneous in on-line EBT systems, but these processes can only occur when retailers initiate settlement in the Direction Card system. Also, features of the Direction Card and the CSTs make it more cumbersome (but not impossible) for compliance investigators to use the methods they have successfully employed in the on-line EBT environment.

From the broader perspective of all FSP administrative agencies, the principal advantage of the Ohio Direction Card system is the lack of reliance on on-line transaction processing by third-party processors, retailers' in-house direct-connect processing systems, telecommunications networks and host computers. As a result, the Ohio Direction Card system is operationally more stable than on-line EBT systems, which experience serious, though relatively infrequent, problems with processing delays and shutdowns of key processors or networks. Compared with on-line EBT systems, the Ohio Direction Card system is less vulnerable to interruption of benefit redemption in a short-term (1-3 day) disaster, but it is more likely to encounter problems with benefit issuance in any disasters, and mass card issuance for widespread disaster relief is more difficult.

Last, but far from least, is the consideration of the costs to implement and operate the Ohio Direction Card system. Off-line EBT systems have a more stable cost structure than on-line EBT systems, because they do not rely on external parties to facilitate transaction processing. States and their EBT vendors have limited influence on the costs of interfacing with these external parties and the fees that they charge. Until recently, the declining number of EBT vendors made it increasingly likely that the risks associated with this problem would be passed on to the States using on-line EBT systems, but new entrants have made the market more competitive.

Nevertheless, the higher costs for implementation and operations in the Direction Card system pose a serious concern. As previously discussed, three factors largely cause this problem: dedicated POS terminals, more reliance on in-person recipient service, and the cost of smart cards. Customer service is not one of the largest cost components in the Ohio Direction Card system, but the high level of service for retailers and local FSP offices does entail some additional cost. The current differential in vendor fees of $1 per case month or more, and the less certain but clearly substantial difference in local agency costs, represent considerable prices to pay for the advantages offered by the Ohio Direction Card system to recipients, retailers and FSP agencies.

6.3 Sustainability

The Ohio Direction Card system appears to be capable of operating in its current form for the foreseeable future, but there are some important challenges to be faced. Many of these issues will have to be addressed in the procurement of the next vendor contract.

All of the individuals and organizations involved with using and maintaining the Direction Card system are sufficiently equipped, trained and experienced to continue their roles. The system's technology has now been thoroughly proven through the three-year expansion process and the subsequent period of operations. Two of the subcontractors have gone through changes of ownership with no disruption of service.

The greatest challenge for ODJFS is that it now has a substantial investment in its relationship with the vendor team, especially the processing subcontractor, Stored Value Systems (SVS). The Direction Card system uses more standardized POS hardware and transaction logic than its predecessor, the PayEase system, but much of the key software has been custom-developed by SVS. On-line EBT states face many of the same issues in their vendor contracts, but there is a unique base of operating experience with off-line EBT for the FSP at SVS. To date, no other firm has successfully implemented this type of system. The POS service subcontractor, CACI, also has a special base of experience in trouble-shooting and maintaining the off-line POS systems, particularly the more complex client/server networks in the multi-lane stores, where the vast majority of redemptions take place.

As a result of this situation, ODJFS faces two significant management risks. First, there are currently few possibilities for competition, although the WIC EBT project in Texas and New Mexico has brought a new vendor into this market. Other smart card EBT and electronic service delivery (ESD) projects in the near future may further expand the ranks of potential vendors, and the industry is expected to grow over the long-term with the broader use of smart cards for identification and other applications. At present, it appears that the State faces the prospect of very limited competition for the next contract. The State might be able to reduce this risk by the use of a multi-vendor procurement strategy, such as the one recently adopted by Wyoming, although the State could have difficulty adding the staff needed to take over the prime contractor role. Second, the vendor team would be very difficult to replace if one or more members (particularly SVS) chose to leave the FSP EBT market. This risk seems small at present, given the number of WIC EBT projects under way and the fact that FSP caseloads have risen since 2000, improving the financial picture for the vendor team.

There is one part of the Direction Card system that does not appear sustainable: the obsolete operating system and telecommunications interface used in the CMS terminals, which are vital to card issuance and other recipient services. ODJFS has acknowledged that the CMS will need to be updated to operate in the current environment of the local CDJFS offices, which are generally using personal computers running the Windows operating system in a local area network (LAN) for access to CRIS-E. In July 2000, ODJFS implemented an intermediate solution to allow the CMS to share telephone lines with a LAN via a new type of controller (the Cisco routers), but the issue remained open. ODJFS technical support personnel continued to seek a solution to fully integrate the CMS into the local office LAN. This issue may be addressed in the next EBT contract for Ohio.

SVS has successfully developed and field-tested a new version of the CMS software to run in the Windows environment, as part of the WIC/FSP pilot test. There was, however, an extended period of trouble-shooting before the new CMS operated properly at the Montgomery County CDJFS, even after a successful acceptance test and several months of operation of similar equipment at the local WIC offices. Given the variation of CDJFS facilities and systems, similar problems may be encountered elsewhere. In addition, the greater complexity of the newer environment may pose a greater risk of crashes and other problems that impede customer service. At the very least, conversion of the CMS to Windows is a cost that ODJFS will almost certainly have to bear in the near future, probably as part of the next EBT services contract.

6.4 Transferability and Adaptability

There are a number of issues that would have to be addressed to adapt the Ohio Direction Card system to serve the FSP in another state. The main issue is that, like Ohio, other States adopting off-line EBT would have to build the off-line POS terminal infrastructure largely from scratch, either on their own or in partnership with major retailers. Few retailers currently have POS terminals capable of accepting smart cards, because there is not a compelling business case for retailers to invest in this capability. Card issuers are marketing smart cards with a variety of capabilities (Internet security, enhanced credit/debit cards, loyalty cards), but consumer demand for these cards has not reached a critical mass. Some technological developments in the current on-line technology used by retailers, particularly upgrades to enhance the capabilities of POS terminals, may make it easier for retailers to integrate the Direction Card system with their POS systems. On-line EBT States are beginning to require vendors to deploy EBT-only POS terminals that can easily be upgraded with smart card readers, as a first step toward the potential adoption of enhanced EBT systems using smart cards. This trend in part reflects the increasing demand for and reduced cost of POS terminals capable of reading both magnetic stripe and smart cards.

Although retailers can be persuaded to accept the stand-beside POS systems used now in Ohio, there are other issues to be addressed in any future deployment of the Direction Card system. Under current FSP regulations, off-line EBT systems are exempted from the requirement for interoperability (accepting out-of-state EBT cards and permitting in-state recipients to use their cards out-of-state). Nevertheless, a solution to provide interoperability with on-line EBT systems will eventually have to be found if off-line EBT systems are to become more widespread. Other developments in food retailing, such as larger stores and self-checkout, also pose challenges for any off-line EBT system, particularly one that is not integrated with retailers' POS and cash register systems.

Similarly, there are important issues affecting the feasibility of extending the Direction Card system to other programs administered by ODJFS and similar agencies, particularly TANF and WIC. For TANF, the largest issue is finding a way to make cash available, when the most widely available systems for dispensing cash (ATMs) are not equipped to accept smart cards. A hybrid EBT smart card could have a magnetic stripe for ATM and POS access, but this solution would place cash benefits on-line. As a result, the cash portion of the hybrid system would not have the off-line system's advantages of operational stability and security, and fewer costs would be shared between cash programs and the FSP. In areas where smart cards are used for public transit fare payment, the devices used to add value to these cards might be adapted, but these systems are and will be confined to major urban areas.

Thus, the most practical solution is to recruit FSP retailers and other merchants with substantial cash flows and appropriate locations to serve as cash issuance agents. This solution is untested in the off-line environment. Among the on-line EBT States, few have chosen to rely on POS cash distribution, and only one (Texas) has entirely prohibited ATM transactions with EBT cards. The financial arrangements with retailers who issue cash benefits have varied: some States have had to pay fees for this service, but others have only provided no-cost equipment. In addition, cash management procedures for off-line TANF EBT must be developed to address the requirements of State and Federal laws and regulations, a challenge that so far has been a significant obstacle in Ohio.

The Direction Card system has the potential to serve a variety of other assistance programs, but there is substantial uncertainty about which applications are truly feasible. The technical feasibility of WIC EBT has been proven in Wyoming, using an earlier version of the Direction Card platform, and the Ohio WIC EBT pilot also appears to be successful from a technical perspective. (The Ohio Department of Health is evaluating the pilot.) The issue of cost-effectiveness for WIC EBT, on the other hand, has not yet been resolved.

The WIC program has not yet demonstrated that an off-line EBT system will be acceptable to WIC retailers when implemented in a large state such as Ohio, with its numerous urbanized areas containing large concentrations of participants. A WIC EBT system integrated with retailers' POS systems is unlikely in the near term, until retailers have sufficient commercial demand to accept smart cards. Retailers may fear that a stand-beside WIC EBT system, such as the ones used in Wyoming and Ohio's pilot, would cause slowdowns in busy stores with high volumes of WIC transactions. On the other hand, it is likely that most retailers would like to get rid of paper WIC food instruments, and they may view even a stand-beside WIC EBT system as less costly and burdensome. The pilot in Ohio and other States' WIC EBT initiatives offer new opportunities for solutions to these challenges.

Forthcoming results from the Western Governor Association's Health Passport demonstration will provide insight into the feasibility of using the Direction Card to carry health data for a variety of programs in concert with WIC and FSP EBT. Other applications are conceivable (e.g., tracking use of subsidized child care), but these applications have not yet been tested in a multi-purpose card environment with a diverse low-income population.

6.5 Cost-Effectiveness

The final issue to be considered in assessing the feasibility of the Ohio Direction Card system is the question of whether the system is more or less cost-effective than on-line EBT systems. With regard to the effectiveness of the Ohio Direction Card system, the evaluation results point to the following conclusions:

- For recipients and retailers, the Ohio Direction Card system provides a level of service equal to or higher than the level provided in on-line EBT systems. The most important feature is the ability to process transactions regardless of the status of the host processor and telecommunications networks.

- The Ohio Direction Card system provides a higher level of security for recipients and retailers, as a result of a combination of technological controls and operational policies.

- Recipients must, however, go to the local FSP office for more types of service than in on-line systems, particularly those that provide cards and training by mail. Also, recipients must go to one of their issuance sites each month to avoid having benefits expire.

- For retailers, the high level of service and security must be weighed against a major limitation of the Direction Card system: the lack of a cost-effective solution to integrate EBT and credit/debit POS systems.

- For FSP agencies, there is a key trade-off between the greater stability of the Direction Card system and the lags in information transfer inherent in the off-line technology.

- The Direction Card system is sustainable from a technical perspective, but ODJFS is taking a significant management risk by depending on a vendor with unique experience and software.

- The recipient, retailer and administrative issues affecting the Ohio Direction Card system also pose important challenges to the transfer of this system to other States.

- The system has the potential to serve the WIC program, but issues of cost and user acceptance are still being addressed. For other potential applications, these issues are accompanied by the need to establish technical feasibility.

Thus, aside from the issue of cost, the Ohio Direction Card system appears to be a viable alternative to the prevalent on-line EBT systems. Neither type of system has a clear overall advantage in effectiveness. On balance, the Ohio Direction Card system appears to have more advantages than disadvantages for recipients. For retailers and FSP agencies, the preference depends on the importance attached to each system's advantages and disadvantages.

With regard to FSP administrative costs for EBT system implementation and operations, the study points to the following conclusions:

- The administrative costs for implementation and operation of the Ohio Direction Card system, as estimated by the evaluation, were greater than the current costs for similar on-line systems on a per-case basis. The operational cost difference appears to be at least $1 per case month, but available data do not support a definitive estimate of this difference.

- The chief factors underlying the cost differences were the lack of integration with retailer POS systems, the high standards for installing and maintaining EBT-only POS equipment, the cost of the smart cards, and the level of recipient service required for card issuance, training and card replacement.

- Achieving cost-neutrality relative to the standard based on paper issuance costs would require major changes in the FSP caseload or other fundamental parameters.[6]

[6] As noted earlier, the Food Stamp Reauthorization Act of 2002 eliminated the requirement that EBT systems be cost-neutral relative to paper-based benefit issuance.

- The cost difference between the Ohio Direction Card system and comparable on-line EBT systems may be smaller than the gap between the Ohio Direction Card system's costs and the paper issuance cost standard, but the evidence is far from clear. If concerns about diminishing competition among on-line EBT vendors are realized, the cost difference between off-line and on-line EBT systems could diminish.

The evaluation results pose a challenge for Federal and State decision-makers considering the future of off-line EBT systems for the FSP. The choices could be made clearer through acquisition of more information on the reliability and user acceptance of the Ohio Direction Card system and current on-line EBT systems, and on the relationship of costs to service levels in on-line EBT systems. Unless the results point to a clear and considerable preference for the Ohio Direction Card system, there would remain the challenge of weighing and valuing the differences in effectiveness between the Ohio Direction Card system and on-line EBT systems. The evaluation results suggest that, in the near term, the net value of the Direction Card system's advantages would have to be quite substantial to offset the current cost difference. Future public and private developments in smart card applications and in the marketplace for transaction processing services may change the balance and offer a more attractive environment for pursuing this robust but still emerging technology.

References

American Institute of Certified Public Accountants, "Statement on Auditing Standards (SAS) No. 70, Service Organizations".

American Institute of Certified Public Accountants (AICPA), "Review Guidelines for Service Organizations Providing Electronic Benefits Transfer Services for Government Programs in Accordance with SAS-70." Prepared by a Task Group of Federal and State Audit and Program Agencies and Member Firms of the AICPA, Washington, DC, 1999.

Glickman, G., E. Costa, M. Melhem, W. B. Seaver, E. Smith, and J. Neafach, "The Impacts of the Off-line EBT Demonstration on the Food Stamp Program, Volume 1—Impact on Administrative Costs", Project Officer: M. Andrews. U.S. Department of Agriculture, Food and Nutrition Service, Office of Analysis, Nutrition and Evaluation, Alexandria, VA, 1994.

Hamilton, W., S. Bartlett, S. Fisher, D. Hoaglin, C. Kane, C. Logan and T. Marschall, "The Impacts of an Electronic Benefits Transfer System in the Food Stamp Program," Project Officer: C. Olander. U.S. Department of Agriculture, Food and Nutrition Service, Office of Analysis, Nutrition and Evaluation, Alexandria, VA, 1987.

Hamilton, W., P. Elwood, M. Ciurea, A. St. George, D. Porcari, "Costs and Impacts of the Wyoming Smartcard EBT System", Project Officer: J. Kresge. U.S. Department of Agriculture, Food and Nutrition Service, Office of Analysis, Nutrition and Evaluation, Alexandria, VA, 1997.

Logan, C., J. Kirlin, P. Elwood, M. Menne, and M. Walker, "The Evaluation of the Expanded EBT Demonstration in Maryland, Volume 2: System Impacts on Program Costs and Integrity", Project Officer: M. Andrews. U.S. Department of Agriculture, Food and Nutrition Service, Office of Analysis, Nutrition and Evaluation, Alexandria, VA, 1994.

Macaluso, Theodore F., "The Extent of Trafficking in the Food Stamp Program: An Update." U.S. Department of Agriculture, Food and Nutrition Service, Office of Analysis, Nutrition and Evaluation, Alexandria, VA, 2000.

Office of Management and Budget (OMB), "Circular A-133, Compliance Supplement, Appendix VII, SAS 70 Examinations of EBT Services Organizations," Washington, DC, 2002.

Phoenix MAXIMUS, "Electronic Benefits Transfer Alternatives Analysis," Project Officer: Tim O'Connor. U.S. Department of Agriculture, Food and Nutrition Service, Office of Analysis, Nutrition and Evaluation, Alexandria, VA, 2000. Accessed on-line at http://www.fns.usda.gov/fsp/MENU/ADMIN/EBT/EBT.HTM.

Schirm, Allen, "State Food Stamp Participation Rates in 1998," Project Officer: Christine Kissmer. U.S. Department of Agriculture, Food and Nutrition Service, Office of Analysis, Nutrition and Evaluation, Alexandria, VA, 2001.

U.S. Department of Agriculture, Food and Nutrition Service, Food Stamp Program, "EBT Disaster Plan Guide," Alexandria, VA, 2000. Accessed on-line at http://www.fns.usda.gov/fsp/MENU/ADMIN/EBT/EBT.HTM.

U.S. Department of Agriculture, Food and Nutrition Service, "Food Stamp Program Electronic Benefit Transfer Project Status, January 2002". Accessed on-line at http://www.fns.usda.gov/fsp/EBT Status Report – January 2002.htm.

Appendix A

Ohio Direction Card Vendor Resource Costs

This appendix presents the sources and uses of vendor resource cost data for the Ohio Direction Card system. In addition to the costs billed by the vendor team to ODJFS (as presented in Chapter 3), the evaluation estimated the vendor team's resource costs, i.e., the value of the resources used to operate the EBT system. The primary purpose for the resource cost analysis was to understand the relative importance of the cost components reflected in the vendors' fees. In addition, the resource cost data provided the basis for the projections of costs under alternative conditions in Chapter 4.

Data Sources

The estimates of vendor resource costs for system operations were primarily based on data from monthly cost reports provided to Abt Associates by the vendor team. These reports reflected the costs incurred by the prime contractor, including direct expenditures and payments to subcontractors. In the cost reports, the subcontractor payments were broken down into reporting categories to reflect the distribution of subcontractors' actual costs (as estimated by the subcontractors).

Vendor data covering the period March through June, 2000 were used for the analysis, where they were available. One member of the vendor team did not provide data for this period. For this vendor, data from July through December, 1999 were relied upon, because it was determined that this period represented stable operations.

The resource cost estimates derived from the cost reports may differ from actual resource costs for the evaluation period for one of two reasons. First, subcontractor billings to the prime contractor may have been greater or less than their resource costs. Second, the estimation method the subcontractors used to break down their billings into reporting categories may have been based on outdated or incorrect information, leading to errors in the distribution of estimated resource costs reflecting subcontractor activity.

A description of the data sources for each of the cost elements is presented below. Most cost elements were derived from the vendor cost reports. For certain cost elements, however, the evaluators constructed independent estimates of vendor resource costs. These estimates were constructed because the vendor cost report data on the elements were not suitable for the evaluation's approach. Data provided by ODJFS and the vendors were used in constructing the independent cost estimates.

Sources for Individual Cost Elements

Administration/Reconciliation

For labor costs and non-labor expenses associated with vendor project administration, vendor cost reports were used. Subcontractor costs were from March through June 2000. Prime contractor costs for this period were not available, but it was assumed that the firm’s cost structure was stable, so the available data from July through December 1999 were used.

Customer Service

The reported cost for providing customer service was based on cost reports from March through June, 2000.

Data Center Hardware/Software

The reported average cost for running the data center, including labor, hardware, software, and maintenance, was based on cost reports from March through June, 2000. The subcontractor's projected resource costs were used to break down the firm's billings among functional categories. The actual subcontractor resource costs may have been different than the costs projected under the original assumptions for the project, particularly because of the impact of Ohio's declining FSP caseload on the portion of the cost per case month represented by fixed costs.

POS/Administrative Terminals

For equipment depreciation, the costs for the entire inventory of equipment were estimated, using the leases charged to ODJFS for additional equipment to estimate the unit costs. The number of terminals was based on actual deployment data as of April 2000, with an allowance of 5 percent for additional equipment kept as spares. This count may represent a mid-point of the number of terminals over time, because the stock of equipment being depreciated continued to grow as older equipment failed and was replaced. In addition, the number of checkout lanes equipped at the vendor's expense grew over time, as stores were expanded or replaced by larger stores. To estimate the number of administrative terminals and POS equipment provided to the CDJFS, data were used from the implementation plan and supplemental information supplied by ODJFS.

The cost of equipment represents straight-line depreciation of the lease payments over a 5-year period. Because the lease cost of equipment was paid in a lump-sum payment at the beginning of the lease, depreciating the lease cost is equivalent to depreciating the cost of purchased equipment.

The maintenance charge includes the cost of operating the vendor's field service team that maintained retailer and CDJFS equipment and installed equipment for new or remodeled stores. This category also includes charges from equipment manufacturers for repairing equipment that could not be fixed by the field service team. The initial two years of maintenance were assumed to be included in the equipment cost, as they were in the leases charged to ODJFS for additional equipment. To estimate the maintenance charges for years 3-5, the per-lane costs for the additional leased equipment were used, based on vendor charges from October 1999 through July 2001.

Communications

The estimated resource costs are the average reported costs for March through June, 2000. This cost category includes telecommunications equipment and telecommunications charges for the host, POS settlements, and customer service calls.

ACH Expenses

This element includes the costs for automated clearinghouse processing and settlement charges. The estimated resource cost is the average reported cost for March through June, 2000.

Card Costs

For smart cards, system statistics on initial card issuance and replacement in the counties with the most mature EBT operations were used to estimate the long-run card consumption rate of 79 cards per thousand cases per month. Additionally, card costs for the implementation caseload and an additional three-month supply of cards were assumed to account for the initial and ongoing stock of cards. For the cost per card, Citicorp EFS' unit cost for card replacement was used which included associated labor costs. This may lead to double counting a small portion of Citicorp EFS administration costs. The cost of the initial stock of cards represents straight-line depreciation over a 5-year period.

Resource Cost Analysis Results

As seen in Exhibit A-1, the estimated vendor resource cost totaled $3.82 per case month, while the billed cost totaled $4.48 per case month. There are two factors that may account for the difference between the estimated resource cost and billed cost. As discussed above, some resource cost components may have been underestimated, particularly two categories: POS/administrative terminals and data center operations. Otherwise, the difference may represent operating profits that offset implementation costs and losses during rollout.

For the presentations in this report, the billed vendor costs were used as the basis for vendor costs. Using the distribution of the estimated resource costs, the billed costs were allocated across functional components as shown in Exhibit A-1. The use of billed costs is more appropriate for comparisons with previously reported results for other EBT systems, including the off-line EBT pilot, all of which used billed costs (or taxpayer) costs as their basis.

Exhibit A-1

Allocation of Billed Vendor Costs Based on Resource Cost Distribution

	Estimated Resource Costs Per Month	Estimated Resource Costs Per Case Month	Percent of Total Resource Costs	Allocated Billed Costs Per Case Month
Administration/Reconciliation				
Reconciliation Labor	$9,390	$0.04	0.95%	$0.04
Administrative Labor	$39,424	$0.15	4.01%	$0.18
Other Direct Costs	$50,051	$0.19	5.09%	$0.23
Overhead and G&A[a]	$14,757	$0.06	1.50%	$0.07
Total Administration/Reconciliation	*$113,622*	*$0.44*	*11.55%*	*$0.52*
Customer Service	*$31,472*	*$0.12*	*3.20%*	*$0.14*
Data Center				
Labor	$35,937	$0.14	3.65%	$0.16
Hardware	$23,353	$0.09	2.37%	$0.11
Hardware Maintenance	$4,573	$0.02	0.46%	$0.02
Software Maintenance	$11,826	$0.05	1.20%	$0.05
Total Data Center	*$75,689*	*$0.29*	*7.69%*	*$0.34*
POS/Administrative Terminals				
Hardware	$193,769	$0.75	19.69%	$0.88
Installation and Maintenance	$391,102	$1.52	39.74%	$1.78
Total POS/Administrative Terminals	*$584,871*	*$2.27*	*59.43%*	*$2.66*
Communications				
Host Telecom	$42,832	$0.17	4.35%	$0.20
Customer Service Telecom	$16,209	$0.06	1.65%	$0.07
Telecommunications Equipment	$4,411	$0.02	0.45%	$0.02
Total Communications	*$63,452*	*$0.25*	*6.45%*	*$0.29*
ACH Expenses	*$13,720*	*$0.05*	*1.39%*	*$0.06*
Card Costs	*$101,304*	*$0.39*	*10.29%*	*$0.46*
Grand Total	**$984,130**	**$3.82**	**100.00%**	**$4.48**

a G&A = general and administrative expenses allocated by accounting procedures.

Appendix B

Data Sources and Methods for Analysis of County Operational Costs

This appendix presents information on the sources of data and analysis methods used to estimate the costs of operating the Ohio Direction Card system at the county office level, as presented in Chapter 3.

All operational costs presented for the Ohio Direction Card are averages over the period March - June 2000, the operational period for which data were obtained, unless otherwise noted. The cost per case for the Ohio Direction Card system was calculated based on the average statewide caseload between March and June 2000 of 257,600.

Sources of Data

Costs for operational activities involving the County Departments of Jobs and Family Services (CDJFS) in Ohio were primarily obtained from interviews with key personnel in a sample of CDJFS. Additional data on these costs were obtained from state cost accounting sources.

County Interviews

The evaluators conducted on-site operational interviews with EBT and other staff in ten CDJFS between May and July 2000. The goals of each visit included documenting how the counties were performing their roles in EBT operations. Additionally, respondents identified the staff time and other county resources used to perform EBT functions. They described the challenges they encountered since implementation, and what lessons they learned that would benefit other counties in future EBT projects. (The qualitative information is reflected in the feasibility assessment in Chapter 6.)

At each county office the evaluators met with the following types of staff:

- Supervisors (who identified their key people and how staff allocated their time);
- Lead staff members responsible for recipient training, card issuance, trouble-shooting Direction Cards and related benefit delivery issues, food stamp coupon conversion, and reporting;
- Income Maintenance staff, who assisted in Direction Card activities, in addition to certification and other non-EBT duties;
- Other senior fiscal or support unit officials with significant responsibilities related to EBT operations; and
- The people most knowledgeable about the costs incurred by the county for EBT operations, including the coverage of the Income Maintenance Random Moment Sample (IM-RMS) time study of income maintenance staff and those costs not covered by the IM-RMS.

The counties where operational interviews were performed are listed below in Exhibit B-1.

Exhibit B-1
Operational Phase Interview Sites

County	Average Caseload (Mar-June 2000)	Region of Ohio	Date Visited	County	Average Caseload (Mar-June 2000)	Region of Ohio	Date Visited
Clermont	2,017	Southwest	5/00	Montgomery	13,298	Southwest	5/00
Cuyahoga	34,459	Northeast	6/00	Morgan	583	Southeast	7/00
Franklin	25,140	Central	7/00	Pickaway	1,135	Central	7/00
Hamilton	20,329	Southwest	5/00	Portage	1,915	Northeast	6/00
Lucas	16,939	Northwest	7/00	Preble	470	Southwest	5/00

In selecting the ten CDJFS for the operational phase interviews, the following criteria were considered:

- The sample represented both large and small counties, because of the significant differences in staffing and organization between these types of counties.
- The sample represented the geographic diversity of Ohio, reflecting the different regions of the state and the mix of urban and rural areas.
- For comparisons to the pilot data, the sample included Montgomery County (Dayton).
- Subject to the preceding conditions, the evaluators included as many of the counties in the implementation phase interview sample as possible, to provide continuity in the evaluation process and in the data. (The implementation phase interviews are described in Volume 1 of this report.)
- The sample maximized the number of counties with data available from the IM-RMS time study conducted continuously in every county for cost reporting purposes. This approach was intended to allow the evaluators to validate and supplement the time and cost information based on the IM-RMS.

To meet these criteria, the sample of ten counties was divided among the five administrative regions designated by ODJFS, each of which is centered around a major city: Canton (southeast), Cleveland (northeast), Cincinnati (southwest), Columbus (central), and Toledo (northwest). Because about half of the FSP caseload in Ohio was in the six largest counties, the evaluators wanted to ensure that the sample included five of the state's six largest counties and five small- to medium-size counties.

Although the intent was to balance the number of counties included from each administrative region, the study chose to concentrate more of the interviews where the IM-RMS data were available, because the IM-RMS was expected to provide a more objective, continuous measure of county costs. Furthermore, the evaluators needed to understand the reasons for the wide variation that existed in the

costs measured by the IM-RMS, which might be explained by differences in operations and in how the IM-RMS was administered.

The evaluators decided to keep five large counties in the sample (even though only two of the large counties had IM-RMS data available) but selected all of the five small counties from those with IM-RMS data. They believed that it was important to include five large counties because the study would be much more valid and useful if more of the largest counties were included, particularly Cuyahoga with its caseload of 35,000 EBT households. Furthermore, this was the first study that could examine off-line EBT operations and costs in the large urban areas, and it was essential to take advantage of this opportunity.

For the large county subsample, the study included the central counties in the Cleveland, Cincinnati, Columbus and Toledo regions. The sample of counties for on-site implementation interviews included three of the designated large cities (Cleveland/Cuyahoga County, Columbus/Franklin County, and Toledo/Lucas County), and a telephone interview on the early implementation phase was conducted with staff in the fourth (Cincinnati/Hamilton County). In the Cincinnati region, Montgomery County was chosen to be the second county and the final member of the large county subsample. The one large county not included was Summit, which completed implementation in August 1999. The evaluators did not choose this county because it was adjacent to Cuyahoga County and therefore would have added less diversity to the sample than the other large counties.

The small counties with IM-RMS data were spread over three of the five geographic areas. To maximize the reliability of the cost estimates for small counties, the evaluators selected all five small counties from this group. They drew a provisional sample from the counties in each of these regions (with a back-up selection for each region) using a random procedure with probability proportional to size. The evaluators felt this approach was preferable to a purposive method because it would ensure that the sample of small counties was unbiased and reasonably representative, with some variety in size and caseload growth/decline. The final sample was reviewed with ODHS. They ensured that each of the selected counties was able to participate and not undergoing any major changes.

The final sample, as shown above, had a disproportionate number of counties in the Southwest region, but this was also the region that was most experienced with the Ohio Direction Card.

Documents Reviewed

ODJFS provided data from the IM-RMS time study of CDJFS staff during the operational phase. Each quarter, ODJFS calculates the percentage distribution of the IM-RMS data, by program, and uses the percentages to allocate IM costs (including a prorated share of costs common to all CDJFS-administered programs) among the IM programs (food stamps, TANF, Medicaid, etc.). The IM-IM-RMS was the state's only direct measure of CDJFS EBT costs, and therefore the evaluators originally felt that a detailed analysis of these data would be central to the administrative cost analysis for the study.

The evaluators obtained IM-RMS data on EBT-related activity from January 1997 through March 2000.[1] After reviewing the data, they concluded that the county interview data provided more valid estimates of county EBT operational costs than the IM-RMS data. The IM-RMS data fluctuated by very large amounts and frequently indicated costs that were very high or very low, in relation to both the interview estimates and the range of local costs observed in prior EBT studies. Interviews with CDJFS staff in several counties confirmed that the IM-RMS data were not accurately representing their activities, because they were still having problems with staff accurately filling out the forms. The accuracy of the RMS was also questioned by an audit of the FSP administrative costs in Ohio by the USDA Inspector General (Report # 27099-0020-Ch, September 2000). As a result, the evaluation relied on the interview data as the best available source for county operational costs.

Analysis of Operational Costs for Sample Counties

Based on the data from the interviews in each of the ten sample counties, the evaluators summarized the average monthly costs of activities during the operational period as well as the level of effort. Exhibit B-2 shows the breakdown of county direct labor hours and costs. All county staff working on the Ohio Direction Card system are listed along with the average amount of time they spent on the Direction Card project (as reported in the interviews) and their labor cost. Also listed is their staff type. All staff are categorized as follows:

- Income Maintenance Pool (IM);
- Non-Income Maintenance Pool, Overhead (Non-IM, OH); or
- Non-Income Maintenance Pool, Non -Overhead (Non-IM, Non-OH);

IM staff were typically Direction Card staff; Non-IM,OH staff were typically supervisors or administrators; and Non-IM, Non-OH staff were typically other administrative staff who provided backup to Direction Card staff.

The left side of Exhibit B-2 shows, for each sampled county, the raw data on staff time and monthly salaries. (Exhibits B-2 through B-4 appear at the end of this appendix.) The center of the exhibit shows the calculated labor costs, and the right side shows the level of effort (FTEs) devoted to EBT operations. In estimating "direct EBT labor cost," IM staff time and other staff performing direct EBT operations functions (i.e., Non-IM, Non-OH) were included, but Non-IM, OH staff time was not included. It was assumed that the estimated EBT overhead (OH) costs (as described below) included the time spent by Non-IM OH staff on overhead functions (e.g., Direction Card reporting or supervision of Direction Card workers). It is also assumed that the overhead cost allocation methodology did not include the time spent by non-IM staff on performing EBT tasks as backup to the regular EBT staff in the IM pool.

To impute overhead costs for county activities, the analysis used county cost allocation data. Income maintenance costs charged to each program included not only the direct salary and benefit costs for staff time but also a proportionate share of supervisory staff and non-labor costs. Exhibit B-3 shows the data that were used to impute non-labor and overhead costs for county EBT activities. The

[1] EBT expansion was ongoing during this period, so these data provided both implementation period costs and up to eight quarters of post-implementation costs at the county level, depending on when each county completed implementation.

exhibit shows the breakdown of direct labor costs (code 901), other direct costs (codes 920, 922, 924, and 930), and total direct and indirect costs (code 999) obtained from the county cost allocation reports. These costs are totals for all IM activities, including EBT, certification and other functions for the FSP, TANF, and other programs.

To determine the loading for direct non-labor costs and overhead costs to be applied to EBT labor for each county, the following steps were taken:

1. Using the figures in Exhibit B-3, the difference between the total IM labor cost (code 901) and the total IM pool cost including all direct and overhead costs (code 999) was calculated.

2. The figure from step 1 was divided by the code 901 total to compute the "labor multiplier" in the sixth column of Exhibit B-3.

3. To compute the value in the seventh column of Exhibit B-3, the multipliers were generally averaged over the available quarters of data, starting with the fourth quarter (Q4) of calendar year 1998 and, where possible, extending to 1999 Q2 (the last quarter of State Fiscal Year 1999). Exceptions to this reference period are explained in the notes in the exhibit. (The final State Fiscal Year 2000 cost allocation data were not available at the time of the analysis.)

4. The "Avg Labor Multiplier (since Q498)" column in Exhibit B-3 was multiplied by the "IM Pool, EBT Labor Cost" column in Exhibit B-2; the result was the "Total Overhead Cost per Month" in Exhibit B-4.

The labor multiplier was not applied to the non-IM, non-OH labor (i.e., the backup labor by non-IM staff), because this labor was not included in the base for the multiplier. Although Non-IM staff do also require a portion of the supervision and facilities for which costs are identified through the overhead cost allocation, there was no way to adjust the multiplier to avoid overstating the applicable overhead costs. Thus, the backup costs may have been slightly underestimated by counting only the associated direct labor expense.

Analysis of Statewide County Operational Costs

After computing labor and overhead costs for each of the sample counties, weights were assigned to these counties for the estimation of statewide county operational costs. These weights are shown in Exhibit B-4, along with the principal cost estimates for each sample county. To calculate the weights, the evaluators treated the counties as a stratified random sample, with selection probability proportional to size. The weight of an observation for this scenario is equal to M/(n*m), where M = total measure of size (caseload) for the stratum, n = number of sampled counties, and m = measure of size (caseload) for the county. The caseload used in calculating the operational weights was the average caseload between March and June 2000.

For the operational estimates, the state was divided into three strata: small counties (counties with fewer than 10,000 cases as of April 1997), large counties (counties with more than 10,000 cases as of April 1997), and Cuyahoga County, which was treated as a separate stratum, because it had a significantly larger caseload than the other counties.

The county estimates were then weighted to calculate stratum totals, which were in turn summed to compute statewide totals and averages for county-level labor and overhead costs. Additionally, the weights were used to calculate the statewide average labor effort per month in person-months. The estimates of level of effort include income maintenance staff and other staff performing direct EBT operational functions, but do not include time of overhead staff.

Exhibit B-2: Ohio EBT Local Operational Costs, Based on Interview Data

County	Staff Type	Type [1]	No.	% Time	FTEs	Applicable Monthly Salary Including Fringe	EBT Labor Cost				EBT Level of Effort (FTE)			
							OH Pool	IM Pool	Backup to IM Pool	Total Direct EBT Labor [2]	OH Pool	IM Pool	Backup to IM Pool	Total Direct EBT Labor [2]
Clermont	ACO/FCO	IM	1	97%	0.97	$2,746.89		$2,664.48				0.97		
	Backup	Non-IM, Non-OH	1	10%	0.10	$3,376.40			$337.64				0.10	
	Supervisor	Non-IM, OH	1	5%	0.05	$4,719.50	$235.97				0.05			
	Total			**FTE:**	**1.12**		**$235.97**	**$2,664.48**	**$337.64**	**$3,002.12**	**0.05**	**0.97**	**0.10**	**1.07**
Cuyahoga	Mgr of Admin	Non-IM, OH	1	25%	0.25	$6,944.00	$1,736.00				0.25			
	Senior Admin Officer	Non-IM, OH	1	100%	1.00	$4,950.00	$4,950.00				1.00			
	Office Managers	IM	6	100%	6.00	$3,483.33		$20,900.00				6.00		
	Clerical Specialists	IM	21	100%	21.00	$2,615.90		$54,934.00				21.00		
	Secretary - Clerical	Non-IM, OH	1	100%	1.00	$3,328.00	$3,328.00				1.00			
	Total			**FTE:**	**29.25**		**$10,014.00**	**$75,834.00**	**$0.00**	**$75,834.00**	**2.25**	**27.00**	**0.00**	**27.00**
Franklin	ACO	IM	5	85%	4.25	$2,300.22		$9,775.92				4.25		
	FCO	IM	5	30%	1.50	$2,300.22		$3,450.33				1.50		
	Caseworkers [3]	IM	216	0.1%	0.22	$3,151.28		$680.68				0.22		
	Supervisors	Non-IM, OH	36	2.1%	0.76	$3,575.95	$2,703.42				0.76			
	Other Clerical	Non-IM, OH	65	1.1%	0.72	$2,300.22	$1,644.65				0.72			
	Total			**FTE:**	**7.44**		**$4,348.07**	**$13,906.92**	**$0.00**	**$13,906.92**	**1.47**	**5.97**	**0.00**	**5.97**
Hamilton	IM Support Spec II (FCO)	IM	5	100%	5.00	$2,458.33		$12,291.67				5.00		
	IM Support Spec I (Rcpt)	IM	1	80%	0.80	$2,075.00		$1,660.00				0.80		
	Supervisor	IM	1	100%	1.00	$3,891.67		$3,891.67				1.00		
	Total			**FTE:**	**6.80**		**$0.00**	**$17,843.33**	**$0.00**	**$17,843.33**	**0.00**	**6.80**	**0.00**	**6.80**

Exhibit B-2: Ohio EBT Local Operational Costs, Based on Interview Data (continued)

County	Staff Type	Type [1]	No.	% Time	FTEs	Applicable Monthly Salary Including Fringe	EBT Labor Cost				EBT Level of Effort (FTE)			
							OH Pool	IM Pool	Backup to IM Pool	Total Direct EBT Labor [2]	OH Pool	IM Pool	Backup to IM Pool	Total Direct EBT Labor [2]
Lucas	FS Administrator	IM	1	55%	0.55	$4,876.00		$2,681.80				0.55		
	Office Manager	IM	1	95%	0.95	$3,991.00		$3,791.45				0.95		
	FCO	IM	3	100%	3.00	$2,375.80		$7,127.40				3.00		
	ACO	IM	2	100%	2.00	$2,375.80		$4,751.60				2.00		
	Security Officer	Non-IM, OH	1	100%	1.00	$2,736.00	$2,736.00				1.00			
	Total			**FTE:**	**7.50**		**$2,736.00**	**$18,352.25**	**$0.00**	**$18,352.25**	**1.00**	**6.50**	**0.00**	**6.50**
Montgomery	Primary FCO/ACO	IM	1	90%	0.90	$2,764.00		$2,487.60				0.90		
	Primary FCO/ACO	IM	1	90%	0.90	$2,807.00		$2,526.30				0.90		
	Primary FCO/ACO	IM	1	100%	1.00	$2,689.00		$2,689.00				1.00		
	Primary FCO/ACO	IM	1	90%	0.90	$2,611.50		$2,350.35				0.90		
	Primary FCO/ACO	IM	1	90%	0.90	$2,611.50		$2,350.35				0.90		
	Cashier	Non-IM, Non-OH	1	30%	0.30	$2,689.00			$806.70				0.30	
	Cashier	Non-IM, Non-OH	1	30%	0.30	$2,689.00			$806.70				0.30	
	Direction Card Supervisor	Non-IM, OH	1	25%	0.25	$3,890.29	$972.57				0.25			
	Administrator	Non-IM, OH	1	15%	0.15	$5,566.77	$835.02				0.15			
	Total			**FTE:**	**5.60**		**$1,807.59**	**$12,403.60**	**$1,613.40**	**$14,017.00**	**0.40**	**4.60**	**0.60**	**5.20**
Morgan	ACO	IM	1	1%	0.01	$2,418.21		$24.18				0.01		
	FCO	IM	1	19%	0.19	$2,200.61		$418.12				0.19		
	Supervisor	Non-IM, OH	2	2%	0.03	$3,409.42	$102.28				0.03			
	Caseworkers [3]	IM	5	1%	0.05	$2,527.29		$126.36				0.05		
	Receptionist	Non-IM, Non-OH	1	7%	0.07	$2,112.61			$147.88				0.07	
	Total			**FTE:**	**0.35**		**$102.28**	**$568.66**	**$147.88**	**$716.55**	**0.03**	**0.25**	**0.07**	**0.32**

Exhibit B-2: Ohio EBT Local Operational Costs, Based on Interview Data (continued)

County	Staff Type	Type [1]	No.	% Time	FTEs	Applicable Monthly Salary Including Fringe	EBT Labor Cost				EBT Level of Effort (FTE)			
							OH Pool	IM Pool	Backup to IM Pool	Total Direct EBT Labor [2]	OH Pool	IM Pool	Backup to IM Pool	Total Direct EBT Labor [2]
Pickaway	ACO/FCO	IM	1	56%	0.56	$2,324.57		$1,307.57				0.56		
	EBT Coordinator	Non-IM, OH	1	12%	0.12	$3,097.39	$371.69				0.12			
	Back-up	Non-IM, Non-OH	1	4%	0.04	$2,506.73			$100.27				0.04	
	Back-up	Non-IM, Non-OH	1	10%	0.10	$288.00			$28.80				0.10	
	Total			**FTE:**	**0.82**		**$371.69**	**$1,307.57**	**$129.07**	**$1,436.64**	**0.12**	**0.56**	**0.14**	**0.70**
Portage	FCO	IM	1	88%	0.88	$1,938.33		$1,696.04				0.88		
	Supervisor	Non-IM, OH	1	6%	0.06	$3,726.20	$232.89				0.06			
	Backup	Non-IM, Non-OH	1	25%	0.25	$2,966.53			$741.63				0.25	
	Total			**FTE:**	**1.19**		**$232.89**	**$1,696.04**	**$741.63**	**$2,437.67**	**0.06**	**0.88**	**0.25**	**1.13**
Preble	Supervisor	IM	1	10%	0.10	$3,606.60		$360.66				0.10		
	Aid/FCO	IM	1	25%	0.25	$1,957.46		$489.37				0.25		
	Aid	IM	1	4%	0.04	$1,874.26		$74.97				0.04		
	Aid	Non-IM, OH	1	4%	0.04	$1,483.20	$59.33				0.04			
	Aid	Non-IM, OH	1	1%	0.01	$1,332.80	$13.33				0.01			
	Total			**FTE:**	**0.44**		**$72.66**	**$925.00**	**$0.00**	**$925.00**	**0.05**	**0.39**	**0.00**	**0.39**

[1] Type of staff refers to:

IM - Income Maintenance pool staff, typically Direction Card staff;
Non-IM, OH - Non-Income Maintenance pool staff, Overhead staff, typically supervisors/administrators; or
Non-IM, Non-OH - Non-Income Maintenance pool staff, Non-Overhead staff , typically backup to Direction Card Staff

where overhead refers to the types of activities that are thought to be included in shared costs (i.e., supervision)

[2] Total IM Labor/Level of Effort (LOE) is calculated by adding the IM Labor/LOE and Backup to IM Labor/LOE.

[3] In Franklin and Morgan Counties, clients typically call their caseworker first, even for EBT problems, and the caseworkers try to help solve the problems, where possible.

Exhibit B-3: Calculation of Labor Multiplier

County	Yr	Qtr	Activity Code [1]	Cost	Labor Multiplier	Avg Labor Multiplier (since Q498) [2]
Auglaize			901	$114,962	36.7%	36.7%
	99	2	920	$1,346		
			999	$157,110		
Clermont			901	$688,823.38	41.5%	47.3%
	98	4	920	$34,551.27		
			999	$974,866.31		
			901	$824,540.47	39.5%	
			920	$35,384.39		
	99	1	924	$58.28		
			999	$1,150,288.49		
			901	$735,603.45	60.9%	
			920	$113,991.93		
	99	2	924	$2,513.58		
			930	$1,500.00		
			999	$1,183,609.86		
Cuyahoga			901	$12,810,959.70	44.3%	19.2%
			920	2094723.73		
	98	4	922	660126.18		
			999	$18,484,945.49		
			901	$11,796,785.66	19.2%	
	99	1	920	$789,103.40		
			999	$14,057,527.77		
Franklin			901	$4,409,110.68	61.2%	63.5%
	98	4	920	$61,466.53		
			999	$7,106,980.50		
			901	$3,550,521.88	65.8%	
	99	1	920	$185,287.36		
			999	$5,885,692.98		
Hamilton			901	$3,426,570.30	92.7%	92.3%
	98	4	920	$648,018.24		
			999	$6,601,838.17		
			901	$3,025,678.06	103.4%	
			920	$786,984.57		
	99	1	930	$4,800.00		
			999	$6,153,572.41		
			901	$3,802,870.63	80.9%	
			920	$164,777.56		
	99	2	924	$1,125.00		
			930	$117,224.99		
			999	$6,879,458.95		

Exhibit B-3: Calculation of Labor Multiplier (continued)

County	Yr	Qtr	Activity Code [1]	Cost	Labor Multiplier	Avg Labor Multiplier (since Q498) [2]
Lucas			901	$2,955,462.00	43.4%	50.8%
	98	4	920	$37,516.75		
			999	$4,238,159.35		
			901	$2,679,664.47	51.4%	
	99	1	920	$41,985.28		
			999	$4,056,708.99		
			901	$3,292,796.35	57.7%	
	99	2	920	$42,106.99		
			999	$5,192,938.88		
Montgomery			901	$3,035,406.50	22.7%	47.3%
			920	$275,695.25		
	98	4	922	$2,853.03		
			924	$554.00		
			999	$3,725,100.27		
			901	$4,424,526.35	21.0%	
			920	$170,201.06		
	99	1	924	$1,993.97		
			999	$5,355,618.30		
			901	$3,619,349.47	73.5%	
			920	$487,057.29		
	99	2	922	$116,783.34		
			924	$2,037.00		
			999	$6,278,162.33		
Morgan			901	$108,974.66	48.0%	53.9%
	98	4	920	$20,515.95		
			999	$161,265.47		
			901	$101,392.29	58.0%	
	99	1	920	$5,806.23		
			999	$160,151.84		
			901	$116,476.46	55.7%	
	99	2	920	$10,801.68		
			999	$181,300.51		
Pickaway			901	$324,423.16	26.9%	25.6%
			920	$10,018.09		
	98	4	924	$130.00		
			999	$411,674.57		
			901	$280,490.93	25.6%	
	99	1	920	$179.00		
			999	$352,175.81		
			901	$297,997.19	24.5%	
			920	$15,367.86		
	99	2	930	$657.91		
			999	$370,984.23		

Exhibit B-3: Calculation of Labor Multiplier (continued)

County	Yr	Qtr	Activity Code [1]	Cost	Labor Multiplier	Avg Labor Multiplier (since Q498) [2]
Portage			901	$479,595.00	46.9%	42.1%
	98	4	920	$36,824.65		
			999	$704,517.89		
			901	$397,547.78	26.2%	
	99	1	920	$4,438.84		
			999	$501,616.04		
			901	$437,715.53	53.1%	
	99	2	920	$37,717.15		
			999	$670,077.47		
Preble			901	$175,704.66	59.3%	52.0%
	98	4	920	$23,808.66		
			999	$279,982.68		
			901	$168,966.16	47.0%	
	99	1	920	$6,349.74		
			999	$248,328.12		
			901	$197,060.51	49.6%	
	99	2	920	$12,790.80		
			999	$294,770.89		

[1] Key for RMS Activity Codes

901	Compensation
920	Operations
922	ADP Services
924	Training
930	Contracts/Direct
999	Total Directs and Indirects

[2] Hamilton average also includes data from Q398 (multiplier was 72.1%), since the following periods seem atypically high.

Exhibit B-4: Operational Costs and Weights for Sample Counties (Sorted by Size of County)

Stratum	County	# of Cases Per Month (Avg 3-6/00)	Weight	Total Labor Cost Per Month	Total Overhead Costs Per Month	Total Cost Per Month	Total Cost/ Casemonth
Small Counties	Preble	470	49.07	$925	$481	$1,406	$2.99
	Morgan	583	39.55	$717	$306	$1,023	$1.76
	Pickaway	1,135	20.32	$1,437	$335	$1,772	$1.56
	Portage	1,915	12.04	$2,438	$713	$3,151	$1.65
	Clermont	2,017	11.43	$3,002	$1,261	$4,263	$2.11
Large Counties	Montgomery	13,298	2.03	$14,017	$4,847	$18,864	$1.42
	Lucas	16,939	1.59	$18,352	$9,329	$27,681	$1.63
	Hamilton	20,329	1.33	$17,843	$15,570	$33,414	$1.64
	Franklin	25,140	1.07	$13,907	$8,828	$22,735	$0.90
Cuyahoga		34,459	1.00	$75,834	$24,060	$99,894	$2.90

Appendix C

Cost Projection Assumptions and Detailed Results

This appendix presents the detailed assumptions underlying the projections of Ohio Direction Card system costs discussed in Chapter 4. The appendix also provides more detailed versions of the exhibits presenting the results of this analysis.

The cost projection scenarios in the first group deal with conditions that affect many of FSP EBT cost elements. These conditions are: a larger FSP caseload, the addition of WIC to the system, and the addition of TANF. For each of these conditions, projections were made for high and low scenarios, with the low scenarios having the more optimistic assumptions. The exhibits are organized as follows:

- Exhibit C-1 details the assumptions of the high and low scenarios used to project the costs with a larger FSP caseload of 600,000 households. Exhibit C-2 provides the detailed projections under these conditions.

- Exhibit C-3 details the assumptions of the high and low scenarios used to project the FSP costs with WIC benefits added to the system on a statewide basis. Exhibit C-4 provides the detailed projections under these conditions.

- Exhibit C-5 details the assumptions of the high and low scenarios used to project the FSP costs with Temporary Assistance to Needy Families (TANF) benefits added to the system on a statewide basis. Exhibit C-6 provides the detailed projections under these conditions.

In Exhibits C-1, C-3 and C-5, the general assumptions affecting all costs are presented first, followed by the specific assumptions of the high and low scenarios regarding each of the affected cost elements. Exhibits C-2, C-4 and C-5 mirror the exhibits presented in Chapter 4, with a more detailed breakdown of costs and a listing of total monthly costs in addition to the monthly costs per case.

Next, information is presented on the cost projections estimating the effects on the Direction Card system of three scenarios that lead to changes in the cost of POS and administrative equipment, and two scenarios that lead to changes in smart card costs. Each of these scenarios leads to changes in just a few of the cost elements. For these scenarios, Exhibit C-7 details the assumptions regarding the affected cost elements, including the differences between high and low scenarios. Exhibits C-8 through C-12 present the detailed costs for each of the scenarios. Exhibit C-13 summarizes the low cost projections for all of the scenarios.

Exhibit C-1

Assumptions for Larger Caseload Scenarios

General Assumptions

If cost is fixed, the total cost is fixed, and an increase in cases leads to a decrease in the cost per case.

If cost is variable, the total cost increases proportionately with additional cases, so that the cost per case is not affected.

COUNTY COSTS	The high scenario assumes total cost is variable. The low scenario assumes administrative labor is fixed, and the remaining cost is variable.
STATE COSTS	The high scenario assumes 50% of state cost is fixed and 50% is variable. The low scenario assumes total cost is fixed.
VENDOR COSTS	
Administration/Reconciliation	
Reconciliation Labor	The high scenario assumes 50% of reconciliation labor is variable and 50% is fixed. The low scenario assumes total cost is fixed.
Administrative Labor	The high scenario assumes 50% of administrative labor is fixed and 50% is variable. The low scenario assumes total cost is fixed.
Other Direct Costs	Other direct costs are split between fixed (vehicle leases, project offices and furnishing) and variable costs (retailer supplies, printing and duplicating, postage, travel, miscellaneous).
Overhead and G&A	Overhead and general and administrative costs (G&A) assume same rate as with base caseload.
Customer Service	
Labor	The high scenario assumes customer service (CS) cost is variable. The low scenario assumes total retailer equipment calls and settlement calls are fixed (4.1%), while manual sales (1.2%) and CS for counties and participants (avg of 12.6%-counties, 82.1%-participants) are variable.
Data Center	
Labor Hardware Hardware Maintenance Software Maintenance	The high scenario assumes 50% of data center labor cost is fixed and remaining cost components are variable. The low scenario assumes labor cost is fixed and other components of cost are 50% fixed.
POS/Administrative Terminals	
Hardware Installation and Maintenance	The high scenario assumes amount of equipment and maintenance would increase by 10% as additional FS revenue in retail stores leads to increased equipment allowances under FNS formula. The low scenario assumes total costs are fixed.
Communications	
Host Telecom	The high scenario assumes total host telecom is variable. The low scenario assumes network communications and dedicated circuits (27%) are fixed, and the remainder is variable.
Telecommunications Equipment	The high scenario assumes telecom equipment is variable. The low scenario assumes total telecommunications equipment is fixed.
Customer Service Telecom	The high scenario assumes CS cost is variable. The low scenario assumes total retailer equipment calls and settlement are fixed, while manual sales and CS for counties and participants are variable.
ACH Expenses	Assumes total cost is fixed.
Card Costs	Assumes cost is variable.

Exhibit C-2

Impact of Larger Caseload on Food Stamp Program

Cost Category	Costs Per Month	Costs Per Case Month	Costs Per Month	Costs Per Case Month	Costs Per Month	Costs Per Case Month	Difference Between Baseline and High Scenario	Difference Between Baseline and Low Scenario
	Actual Conditions		600,000 Cases					
			High Scenario		Low Scenario			
Local Costs								
Labor for Card Related Issues	$333,679	$1.295	$777,202	$1.295	$777,202	$1.295	$0.000	$0.000
Labor for Benefit Related Issues	$77,386	$0.300	$180,247	$0.300	$180,247	$0.300	$0.000	$0.000
Administrative Labor	$71,973	$0.279	$167,638	$0.279	$71,973	$0.120	$0.000	$0.159
Total Local Costs	**$483,037**	**$1.875**	**$1,125,087**	**$1.875**	**$1,029,421**	**$1.716**	**$0.000**	**$0.159**
State Costs								
EBT Staff Labor	$15,543	$0.060	$25,872	$0.043	$15,543	$0.026	$0.017	$0.034
Contract Labor	$31,853	$0.124	$53,023	$0.088	$31,853	$0.053	$0.035	$0.071
Fiscal Labor	$788	$0.003	$1,311	$0.002	$788	$0.001	$0.001	$0.002
Miscellaneous	$324	$0.001	$539	$0.001	$324	$0.001	$0.000	$0.001
CPU Usage	$1,237	$0.005	$2,059	$0.003	$1,237	$0.002	$0.001	$0.003
Travel	$1,245	$0.005	$2,073	$0.003	$1,245	$0.002	$0.001	$0.003
Total State Costs	**$50,989**	**$0.198**	**$84,876**	**$0.141**	**$50,989**	**$0.085**	**$0.056**	**$0.113**
Vendor Costs								
Administration/Reconciliation								
Reconciliation Labor	$11,016	$0.043	$18,337	$0.031	$11,016	$0.018	$0.012	$0.024
Administrative Labor	$46,250	$0.180	$76,988	$0.128	$46,250	$0.077	$0.051	$0.102
Other Direct Costs								
Fixed	$31,901	$0.124	$31,901	$0.053	$31,901	$0.053	$0.071	$0.071
Variable	$26,816	$0.104	$62,460	$0.104	$62,460	$0.104	$0.000	$0.000
Overhead and G&A	$17,313	$0.067	$28,314	$0.047	$22,633	$0.038	$0.020	$0.029
Total Administration/Reconciliation	*$133,297*	*$0.517*	*$218,001*	*$0.363*	*$174,261*	*$0.290*	*$0.154*	*$0.227*
Customer Service								
Labor	$36,922	$0.143	$85,997	$0.143	$83,970	$0.140	$0.000	$0.003
Total Customer Service	*$36,922*	*$0.143*	*$85,997*	*$0.143*	*$83,970*	*$0.140*	*$0.000*	*$0.003*
Data Center								
Labor	$42,160	$0.164	$70,179	$0.117	$42,160	$0.070	$0.047	$0.093
Hardware	$27,397	$0.106	$63,814	$0.106	$45,606	$0.076	$0.000	$0.030
Hardware Maintenance	$5,365	$0.021	$12,497	$0.021	$8,931	$0.015	$0.000	$0.006
Software Maintenance	$13,873	$0.054	$32,314	$0.054	$23,094	$0.038	$0.000	$0.015
Total Data Center	*$88,796*	*$0.345*	*$178,803*	*$0.298*	*$119,790*	*$0.200*	*$0.047*	*$0.145*
POS/Administrative Terminals								
Hardware	$227,323	$0.882	$250,055	$0.417	$227,323	$0.379	$0.466	$0.504
Installation and Maintenance	$458,827	$1.781	$504,710	$0.841	$458,828	$0.765	$0.940	$1.016
Total POS/Administrative Terminals	*$686,150*	*$2.664*	*$754,766*	*$1.258*	*$686,151*	*$1.144*	*$1.406*	*$1.520*
Communications								
Host Telecom	$50,249	$0.195	$117,040	$0.195	$99,006	$0.165	$0.000	$0.030
Telecommunications Equipment	$5,175	$0.020	$12,053	$0.020	$5,175	$0.009	$0.000	$0.011
Customer Service Telecom	$19,016	$0.074	$44,293	$0.074	$43,248	$0.072	$0.000	$0.002
Total Communications	*$74,440*	*$0.289*	*$173,385*	*$0.289*	*$147,429*	*$0.246*	*$0.000*	*$0.043*
ACH Expenses	$16,096	$0.062	$16,096	$0.027	$16,096	$0.027	$0.036	$0.036
Card Costs	$118,846	$0.461	$276,816	$0.461	$276,816	$0.461	$0.000	$0.000
Total Vendor Costs	**$1,154,546**	**$4.482**	**$1,703,865**	**$2.840**	**$1,504,513**	**$2.508**	**$1.642**	**$1.974**
Grand Total	**$1,688,572**	**$6.555**	**$2,913,827**	**$4.856**	**$2,584,923**	**$4.308**	**$1.699**	**$2.247**

Exhibit C-3

Assumptions for Scenarios to Add WIC to the Direction Card System

General Assumptions

If cost is fixed, total cost is fixed, and a fixed cost shared between programs results in a savings for FSP.

If cost is variable, the total cost increases with additional usage, so the cost to FSP is not affected by increased usage for WIC participants.

Fixed costs are shared between programs according to caseload (17% of total FS households participate in both FSP and WIC) or according to transactions. The high scenario allocates the WIC share of total transactions (15%) to WIC. The low scenario allocates the item-weighted WIC share of total transactions (58%) to WIC (there is an average of 7.7 food items purchased in a WIC transaction).

FSP is allocated 50% of shared costs for joint participants (i.e., participants who receive both FSP and WIC benefits) except as noted below.

COUNTY COSTS	For participants who already have a card they are using for WIC, it is assumed that no training is necessary for FSP, and that card activation time is reduced by 50%. The high scenario assumes 50% of joint participants pick up their cards, get trained, and do card functions at WIC office. The low scenario assumes all of joint participants pick up cards, get trained, and do card functions at WIC office.
STATE COSTS	Unaffected.
VENDOR COSTS	
Administration/Reconciliation	
Reconciliation Labor	Total reconciliation labor is assumed to be variable, with a counterpart for WIC.
Administrative Labor	The high scenario assumes 50% of administrative labor is fixed and shared between programs according to caseload, and 50% is variable since it is program specific. The low scenario assumes all of administrative labor is fixed.
Other Direct Costs	Other direct costs are split between fixed (vehicle leases, project offices and furnishing), which are shared between programs according to caseload, and variable costs (retailer supplies, printing and duplicating, postage, travel, miscellaneous).
Overhead and G&A	Overhead and general and administrative costs (G&A) assume same rate as with base system.
Customer Service	Retailer customer service (CS) for equipment calls is split between programs according to the number of transactions. The high scenario assumes participant and county CS for card calls is shared according to caseload. The low scenario assumes participant and county CS for card calls for joint participants is paid for by WIC.
Labor	
Data Center	
Labor Hardware Hardware Maintenance Software Maintenance	The high scenario assumes data center costs are variable since they are already at a level where changes in volume would not affect cost structure. The low scenario assumes 50% of the costs are fixed and split between programs according to transactions.
POS/Administrative Terminals Hardware Installation and Maintenance	Total cost is assumed to be fixed (WIC pays for all costs of additional capacity or equipment necessitated by WIC). Cost for retailer equipment and maintenance is split between programs according to the number of transactions. FS pays all costs in county offices.
Communications	
Host Telecom	The high scenario assumes total host telecom is variable. The low scenario assumes network communications and dedicated circuits (27%) are fixed, and split between programs according to the number of transactions, and the remaining is variable.
Telecommunications Equipment	The high scenario assumes telecom equipment is variable. The low scenario assumes total telecom equipment is fixed, and retail equipment is split between programs according to transactions. FS pays all costs in county offices.
Customer Service Telecom	Retailer telecom is split between programs according to the number of transactions. The high scenario assumes participant and county telecom for card calls is shared for joint participants. The low scenario assumes participant and county telecom for card calls for joint participants is paid by WIC.
ACH Expenses	Cost is variable.
Card Costs	The high scenario allocates 50% of cost of cards for joint participants to WIC. Uses average cost of card using 5-year lifecycle as base. The low scenario assumes WIC pays for 100% of cards for joint participants.

Exhibit C-4

Impact of Adding WIC on Food Stamp Program

Cost Category	Costs Per Month	Costs Per Case Month	Costs Per Month	Costs Per Case Month	Costs Per Month	Costs Per Case Month	Difference Between Baseline and High Scenario	Difference Between Baseline and Low Scenario
	Actual Conditions		WIC Included High Scenario		WIC Included Low Scenario			
Local Costs								
Labor for Card Related Issues	$333,679	$1.295	$306,510	$1.190	$279,342	$1.084	$0.105	$0.211
Labor for Benefit Related Issues	$77,386	$0.300	$77,386	$0.300	$77,386	$0.300	$0.000	$0.000
Administrative Labor	$71,973	$0.279	$71,973	$0.279	$71,973	$0.279	$0.000	$0.000
Total Local Costs	**$483,037**	**$1.875**	**$455,869**	**$1.770**	**$428,701**	**$1.664**	**$0.105**	**$0.211**
State Costs								
EBT Staff Labor	$15,543	$0.060	$15,543	$0.060	$15,543	$0.060	$0.000	$0.000
Contract Labor	$31,853	$0.124	$31,853	$0.124	$31,853	$0.124	$0.000	$0.000
Fiscal Labor	$788	$0.003	$788	$0.003	$788	$0.003	$0.000	$0.000
Miscellaneous	$324	$0.001	$324	$0.001	$324	$0.001	$0.000	$0.000
CPU Usage	$1,237	$0.005	$1,237	$0.005	$1,237	$0.005	$0.000	$0.000
Travel	$1,245	$0.005	$1,245	$0.005	$1,245	$0.005	$0.000	$0.000
Total State Costs	**$50,989**	**$0.198**	**$50,989**	**$0.198**	**$50,989**	**$0.198**	**$0.000**	**$0.000**
Vendor Costs								
Administration/Reconciliation								
Reconciliation Labor	$11,016	$0.043	$11,016	$0.043	$11,016	$0.043	$0.000	$0.000
Administrative Labor	$46,250	$0.180	$37,965	$0.147	$29,680	$0.115	$0.032	$0.064
Other Direct Costs								
Fixed	$31,901	$0.124	$20,472	$0.079	$20,472	$0.079	$0.044	$0.044
Variable	$26,816	$0.104	$26,816	$0.104	$26,816	$0.104	$0.000	$0.000
Overhead and G&A	$17,313	$0.067	$14,370	$0.056	$13,133	$0.051	$0.011	$0.016
Total Administration/Reconciliation	*$133,297*	*$0.517*	*$110,639*	*$0.430*	*$101,117*	*$0.393*	*$0.088*	*$0.125*
Customer Service								
Labor	$36,922	$0.143	$36,182	$0.140	$27,922	$0.108	$0.003	$0.035
Total Customer Service	*$36,922*	*$0.143*	*$36,182*	*$0.140*	*$27,922*	*$0.108*	*$0.003*	*$0.035*
Data Center								
Labor	$42,160	$0.164	$42,160	$0.164	$29,855	$0.116	$0.000	$0.048
Hardware	$27,397	$0.106	$27,398	$0.106	$19,401	$0.075	$0.000	$0.031
Hardware Maintenance	$5,365	$0.021	$5,365	$0.021	$3,799	$0.015	$0.000	$0.006
Software Maintenance	$13,873	$0.054	$13,873	$0.054	$9,824	$0.038	$0.000	$0.016
Total Data Center	*$88,796*	*$0.345*	*$88,796*	*$0.345*	*$62,880*	*$0.244*	*$0.000*	*$0.101*
POS/Administrative Terminals								
Hardware	$227,323	$0.882	$205,320	$0.797	$153,526	$0.596	$0.085	$0.286
Installation and Maintenance	$458,827	$1.781	$391,581	$1.520	$204,022	$0.792	$0.261	$0.989
Total POS/Administrative Terminals	*$686,150*	*$2.664*	*$596,901*	*$2.317*	*$357,548*	*$1.388*	*$0.346*	*$1.276*
Communications								
Host Telecom	$50,249	$0.195	$50,249	$0.195	$42,330	$0.164	$0.000	$0.031
Telecommunications Equipment	$5,175	$0.020	$5,175	$0.020	$3,555	$0.014	$0.000	$0.006
Customer Service Telecom	$19,016	$0.074	$18,636	$0.072	$14,381	$0.056	$0.001	$0.018
Total Communications	*$74,440*	*$0.289*	*$74,059*	*$0.287*	*$60,266*	*$0.234*	*$0.001*	*$0.055*
ACH Expenses	$16,096	$0.062	$16,096	$0.062	$16,096	$0.062	$0.000	$0.000
Card Costs	$118,846	$0.461	$113,707	$0.441	$108,567	$0.421	$0.020	$0.040
Total Vendor Costs	**$1,154,546**	**$4.482**	**$1,036,380**	**$4.023**	**$734,395**	**$2.851**	**$0.459**	**$1.631**
Grand Total	**$1,688,572**	**$6.555**	**$1,543,238**	**$5.991**	**$1,214,085**	**$4.713**	**$0.564**	**$1.842**

Exhibit C-5

Assumptions for Scenarios to Add TANF to the Direction Card System

General Assumptions

If cost is fixed, total cost is fixed, and a fixed cost shared between programs results in a savings for FSP.

If cost is variable, the total cost increases with additional usage, so the cost to FSP is not affected by increased usage for TANF participants.

Fixed costs are shared between programs according to caseload (19% of total FS households participate in both FSP and TANF) or according to transactions. The high scenarios assume 75% of TANF transactions take place in food stores; the low scenarios assume 100% of TANF transactions take place in food stores. For the high scenarios, the TANF share of total transactions is 12%; for the low scenarios it is 15%.

FSP is allocated 50% of shared costs for joint participants (i.e., participants who receive both FSP and TANF benefits) except as noted below.

COUNTY COSTS	All local resources are shared (i.e. same office, caseworkers, and Direction Card staff).
Labor for card related issues	For participants who already have a card they are using for TANF, it is assumed that no training is necessary for FSP, and that card activation time is reduced by 50%. The high scenario assumes 50% of cost for joint participants to get trained and do card functions gets charged to TANF. The low scenario assumes 100% is charged to TANF.
Labor for benefit related issues	Labor for benefits is program specific (no savings).
Administrative labor	The high scenario assumes 50% of administrative labor is fixed and shared between programs according to caseload, and 50% is variable since it is program specific. The low scenario assumes all of administrative labor is fixed.
STATE COSTS	
Project Management (EBT staff labor) Tech Support (contract labor)	The high scenario assumes 50% of project management and technical support is fixed and shared between programs according to caseload, and 50% is variable since it is program specific. The low scenario assumes all is fixed.
Reconciliation Labor (fiscal labor)	Total reconciliation labor is assumed to be variable, with a counterpart for TANF.
Misc, CPU Usage, Travel	The high scenario assumes 50% is fixed and shared between programs according to caseload, and 50% is variable since it is program specific. The low scenario assumes all is fixed.
VENDOR COSTS	
Administration/Reconciliation	
Reconciliation Labor	Total reconciliation labor is assumed to be variable, with a counterpart for TANF.
Administrative Labor	The high scenario assumes 50% of administrative labor is fixed and shared between programs according to caseload, and 50% is variable since it is program specific. The low scenario assumes all of administrative labor is fixed.
Other Direct Costs	Other direct costs are split between fixed (vehicle leases, project offices and furnishing), which are shared between programs according to caseload, and variable costs (retailer supplies, printing and duplicating, postage, travel, miscellaneous).
Overhead and G&A	Overhead and general and administrative costs (G&A) assume same rate as with base system.
Customer Service	Retailer customer service (CS) for equipment calls is split between programs according to the number of transactions. The high scenario assumes participant and county CS for card calls is shared for joint participants. The low scenario assumes participant and county CS for card calls for joint participants is paid for by TANF.
Labor	
Data Center	
Labor Hardware Hardware Maintenance Software Maintenance	The high scenario assumes data center costs are variable since they are already at a level where changes in volume would not affect cost structure. The low scenario assumes 50% of the costs are fixed and split between programs according to transactions.
POS/Administrative Terminals	
Hardware Installation and Maintenance	Assumes total costs are fixed. Assume all FS retailers accept TANF for payment for groceries (i.e. no FS-only retailers). Assumes total costs are fixed, and split between programs according to the number of transactions. Costs in county offices are split between programs according to the number of cases.

Exhibit C-5 (continued)

Assumptions for Scenarios to Add TANF to the System

Communications	
Host Telecom	The high scenario assumes total host telecom is variable. The low scenario assumes network communications and dedicated circuits (27%) are fixed, and split between programs according to the number of transactions, and the remainder is variable.
Telecommunications equipment	The high scenario assumes telecom equipment is variable. The low scenario assumes total telecom equipment is fixed, and retail equipment is split between programs according to transactions. County equipment is split between programs according to cases.
Customer Service Telecom	Retailer telecom is split between programs according to the number of transactions. The high scenario assumes participant and county telecom for card calls is shared for joint participants. The low scenario assumes participant and county telecom for card calls for joint participants is paid for by TANF.
ACH Expenses	Cost is variable.
Card Costs	The high scenario assigns 50% of cost of cards for joint participants to TANF. Uses average cost of card using 5-yr lifecycle as base. The low scenario assumes TANF pays for 100% of combined cards for joint participants.

Exhibit C-6

Impact of Adding TANF on Food Stamp Program

Cost Category	Costs Per Month	Costs Per Case Month	Costs Per Month	Costs Per Case Month	Costs Per Month	Costs Per Case Month	Difference Between Baseline and High Scenario	Difference Between Baseline and Low Scenario
	Actual Conditions		TANF Included				Cost Per Case Month	
			High Scenario		Low Scenario			
Local Costs								
Labor for Card Related Issues	$333,679	$1.295	$303,984	$1.180	$274,290	$1.065	$0.115	$0.231
Labor for Benefit Related Issues	$77,386	$0.300	$77,386	$0.300	$77,386	$0.300	$0.000	$0.000
Administrative Labor	$71,973	$0.279	$63,102	$0.245	$54,230	$0.211	$0.034	$0.069
Total Local Costs	**$483,037**	**$1.875**	**$444,472**	**$1.725**	**$405,906**	**$1.576**	**$0.150**	**$0.299**
State Costs								
EBT Staff Labor	$15,543	$0.060	$13,627	$0.053	$11,711	$0.045	$0.007	$0.015
Contract Labor	$31,853	$0.124	$27,927	$0.108	$24,001	$0.093	$0.015	$0.030
Fiscal Labor	$788	$0.003	$0	$0.000	$788	$0.003	$0.003	$0.000
Miscellaneous	$324	$0.001	$284	$0.001	$244	$0.001	$0.000	$0.000
CPU Usage	$1,237	$0.005	$1,084	$0.004	$932	$0.004	$0.001	$0.001
Travel	$1,245	$0.005	$1,092	$0.004	$938	$0.004	$0.001	$0.001
Total State Costs	**$50,989**	**$0.198**	**$44,801**	**$0.174**	**$38,614**	**$0.150**	**$0.024**	**$0.048**
Vendor Costs								
Administration/Reconciliation								
Reconciliation Labor	$11,016	$0.043	$11,016	$0.043	$11,016	$0.043	$0.000	$0.000
Administrative Labor	$46,250	$0.180	$40,550	$0.157	$34,849	$0.135	$0.022	$0.044
Other Direct Costs								
Fixed	$31,901	$0.124	$24,037	$0.093	$24,037	$0.093	$0.031	$0.031
Variable	$26,816	$0.104	$26,816	$0.104	$26,816	$0.104	$0.000	$0.000
Overhead and G&A	$17,313	$0.067	$15,288	$0.059	$14,437	$0.056	$0.008	$0.011
Total Administration/Reconciliation	*$133,297*	*$0.517*	*$117,707*	*$0.457*	*$111,155*	*$0.432*	*$0.061*	*$0.086*
Customer Service								
Labor	$36,922	$0.143	$36,188	$0.140	$30,800	$0.120	$0.003	$0.024
Total Customer Service	*$36,922*	*$0.143*	*$36,188*	*$0.140*	*$30,800*	*$0.120*	*$0.003*	*$0.024*
Data Center								
Labor	$42,160	$0.164	$42,160	$0.164	$38,967	$0.151	$0.000	$0.012
Hardware	$27,397	$0.106	$27,398	$0.106	$25,322	$0.098	$0.000	$0.008
Hardware Maintenance	$5,365	$0.021	$5,365	$0.021	$4,959	$0.019	$0.000	$0.002
Software Maintenance	$13,873	$0.054	$13,873	$0.054	$12,823	$0.050	$0.000	$0.004
Total Data Center	*$88,796*	*$0.345*	*$88,796*	*$0.345*	*$82,070*	*$0.319*	*$0.000*	*$0.026*
POS/Administrative Terminals								
Hardware	$227,323	$0.882	$196,280	$0.762	$189,220	$0.735	$0.121	$0.148
Installation and Maintenance	$458,827	$1.781	$400,194	$1.554	$385,614	$1.497	$0.228	$0.284
Total POS/Administrative Terminals	*$686,150*	*$2.664*	*$596,473*	*$2.316*	*$574,834*	*$2.231*	*$0.348*	*$0.432*
Communications								
Host Telecom	$50,249	$0.195	$50,249	$0.195	$48,194	$0.187	$0.000	$0.008
Telecommunications Equipment	$5,175	$0.020	$5,175	$0.020	$4,403	$0.017	$0.000	$0.003
Customer Service Telecom	$19,016	$0.074	$18,612	$0.072	$15,830	$0.061	$0.002	$0.012
Total Communications	*$74,440*	*$0.289*	*$74,036*	*$0.287*	*$68,426*	*$0.266*	*$0.002*	*$0.023*
ACH Expenses	$16,096	$0.062	$16,096	$0.062	$16,096	$0.062	$0.000	$0.000
Card Costs	$118,846	$0.461	$113,229	$0.440	$96,376	$0.374	$0.022	$0.087
Total Vendor Costs	**$1,154,546**	**$4.482**	**$1,042,525**	**$4.047**	**$979,758**	**$3.803**	**$0.435**	**$0.679**
Grand Total	**$1,688,572**	**$6.555**	**$1,531,798**	**$5.946**	**$1,424,277**	**$5.529**	**$0.609**	**$1.026**

Exhibit C-7

Assumptions for Other Scenarios to Reduce Cost of Direction Card System

Scenario	Impacts
Reduction in Total Cost of POS and Administrative Equipment	
Base quantity of retailer terminals on FNS formula	There is a reduction in the number of retailer POS terminals purchased and serviced. No change in retailer CS cost is assumed.
Reduction in cost of terminals	There is a direct impact on the depreciation cost of POS and administrative terminals. The high scenario assumes a 25% reduction, and the low scenario assumes a 50% reduction.
Retailer use of integrated POS equipment	It is assumed that large retailers use terminals that integrate EBT and commercial applications, and the EBT vendor does not pay for the use of the terminals deployed by the retailers. The costs of equipment, installation and maintenance in multi-lane stores are eliminated.
Changes in Card Costs	
Implement card replacement fees	There is a direct impact of additional funds for the State. A $10 card replacement fee is assumed; $4 is paid to the vendor to cover the cost of the card, and the other $6 is credited to the State. There may also be a decrease in the number of cards replaced, reducing local labor time and card costs. For the high scenario, no reduction in card replacements is assumed. For the low scenario, a 25% reduction in card replacements is assumed. At the time of the evaluation, 54% of total issuances were replacements; 94% of replacements were charged a fee because they were lost, stolen, or there was user abuse.
Reduction in cost of card	There is a direct impact on card costs. For the high scenario, it is assumed that the cost per card is reduced to $3. For the low scenario, it is assumed that the cost is reduced to $2.

Exhibit C-8

Impact of Basing Quantity of Retailer Terminals on FNS Formula

Cost Category	Costs Per Month	Costs Per Case Month	Costs Per Month	Costs Per Case Month	Difference Between Baseline and Scenario Cost Per Case Month
	Actual Conditions		Don't Purchase Additional Equipment		
Local Costs	**$483,037**	**$1.875**	**$483,037**	**$1.875**	**$0.000**
State Costs	**$50,989**	**$0.198**	**$50,989**	**$0.198**	**$0.000**
Vendor Costs					
Administration/Reconciliation	$133,297	$0.517	$133,297	$0.517	$0.000
Customer Service	$36,922	$0.143	$36,922	$0.143	$0.000
Data Center	$88,796	$0.345	$88,796	$0.345	$0.000
POS/Administrative Terminals					
Hardware	$227,323	$0.882	$179,705	$0.698	$0.185
Installation and Maintenance	$458,827	$1.781	$382,236	$1.484	$0.297
Total POS/Administrative Terminals	*$686,150*	*$2.664*	*$561,942*	*$2.181*	*$0.482*
Communications	$74,440	$0.289	$74,440	$0.289	$0.000
ACH Expenses	$16,096	$0.062	$16,096	$0.062	$0.000
Card Costs	$118,846	$0.461	$118,846	$0.461	$0.000
Total Vendor Costs	**$1,154,546**	**$4.482**	**$1,030,338**	**$4.000**	**$0.482**
Grand Total	**$1,688,572**	**$6.555**	**$1,564,364**	**$6.073**	**$0.482**

Exhibit C-9

Impact of Reduction in Cost of Terminals

Cost Category	Costs Per Month	Costs Per Case Month	Costs Per Month	Costs Per Case Month	Costs Per Month	Costs Per Case Month	Difference Between Baseline and High Scenario	Difference Between Baseline and Low Scenario
	Actual Conditions		Reduced Cost of POS and Admin Terminals				Cost Per Case Month	
			High Scenario [a]		Low Scenario [b]			
Local Costs	**$483,037**	**$1.875**	**$483,037**	**$1.875**	**$483,037**	**$1.875**	**$0.000**	**$0.000**
State Costs	**$50,989**	**$0.198**	**$50,989**	**$0.198**	**$50,989**	**$0.198**	**$0.000**	**$0.000**
Vendor Costs								
Administration/Reconciliation	$133,297	$0.517	$133,297	$0.517	$133,297	$0.517	$0.000	$0.000
Customer Service	$36,922	$0.143	$36,922	$0.143	$36,922	$0.143	$0.000	$0.000
Data Center	$88,796	$0.345	$88,796	$0.345	$88,796	$0.345	$0.000	$0.000
POS/Administrative Terminals								
Hardware	$227,323	$0.882	$170,492	$0.662	$113,661	$0.441	$0.221	$0.441
Installation and Maintenance	$458,827	$1.781	$458,827	$1.781	$458,827	$1.781	$0.000	$0.000
Total POS/Administrative Terminals	*$686,150*	*$2.664*	*$629,319*	*$2.443*	*$572,489*	*$2.222*	*$0.221*	*$0.441*
Communications	$74,440	$0.289	$74,440	$0.289	$74,440	$0.289	$0.000	$0.000
ACH Expenses	$16,096	$0.062	$16,096	$0.062	$16,096	$0.062	$0.000	$0.000
Card Costs	$118,846	$0.461	$118,846	$0.461	$118,846	$0.461	$0.000	$0.000
Total Vendor Costs	**$1,154,546**	**$4.482**	**$1,097,716**	**$4.261**	**$1,040,885**	**$4.041**	**$0.221**	**$0.441**
Grand Total	**$1,688,572**	**$6.555**	**$1,631,742**	**$6.334**	**$1,574,911**	**$6.114**	**$0.221**	**$0.441**

[a] High scenario assumes a 25 percent reduction in the cost of equipment.

[b] Low scenario assumes a 50 percent reduction in the cost of equipment.

Exhibit C-10

Impact of Retailer Use of Integrated POS Equipment

Cost Category	Costs Per Month	Costs Per Case Month	Costs Per Month	Costs Per Case Month	Difference Between Baseline and Scenario Cost Per Case Month
	Actual Conditions		Retailer Use of Integrated POS Equipment		
Local Costs	**$483,037**	**$1.875**	**$483,037**	**$1.875**	**$0.000**
State Costs	**$50,989**	**$0.198**	**$50,989**	**$0.198**	**$0.000**
Vendor Costs					
Administration/Reconciliation	$133,297	$0.517	$133,297	$0.517	$0.000
Customer Service	$36,922	$0.143	$36,922	$0.143	$0.000
Data Center	$88,796	$0.345	$88,796	$0.345	$0.000
POS/Administrative Terminals					
Hardware	$227,323	$0.882	$88,878	$0.345	$0.537
Installation and Maintenance	$458,827	$1.781	$179,391	$0.696	$1.085
Total POS/Administrative Terminals	*$686,150*	*$2.664*	*$268,269*	*$1.041*	*$1.622*
Communications	$74,440	$0.289	$74,440	$0.289	$0.000
ACH Expenses	$16,096	$0.062	$16,096	$0.062	$0.000
Card Costs	$118,846	$0.461	$118,846	$0.461	$0.000
Total Vendor Costs	**$1,154,546**	**$4.482**	**$736,666**	**$2.860**	**$1.622**
Grand Total	**$1,688,572**	**$6.555**	**$1,270,692**	**$4.933**	**$1.622**

Exhibit C-11

Impact of Implementation of Card Replacement Fees

Cost Category	Costs Per Month	Costs Per Case Month	Costs Per Month	Costs Per Case Month	Costs Per Month	Costs Per Case Month	Difference Between Baseline and High Scenario	Difference Between Baseline and Low Scenario
	Actual Conditions		With Card Replacement Fees				Cost Per Case Month	
			High Scenario [a]		Low Scenario [b]			
Local Costs								
Labor for Card Related Issues	$333,679	$1.295	$333,679	$1.295	$296,396	$1.151	$0.000	$0.145
Labor for Benefit Related Issues	$77,386	$0.300	$77,386	$0.300	$77,386	$0.300	$0.000	$0.000
Administrative Labor	$71,973	$0.279	$71,973	$0.279	$71,973	$0.279	$0.000	$0.000
Total Local Costs	**$483,037**	**$1.875**	**$483,038**	**$1.875**	**$445,755**	**$1.730**	**$0.000**	**$0.145**
State of Ohio Costs								
Labor	$48,184	$0.187	$48,184	$0.187	$48,184	$0.187	$0.000	$0.000
Other Direct Costs	$2,805	$0.011	$2,805	$0.011	$2,805	$0.011	$0.000	$0.000
Replacement Card Fees	$0	$0.000	-$62,028	-$0.241	-$46,521	-$0.181	$0.241	$0.181
Total State Costs	**$50,989**	**$0.198**	**-$11,039**	**-$0.043**	**$4,468**	**$0.017**	**$0.241**	**$0.181**
Vendor Costs								
Administration/Reconciliation	$133,297	$0.517	$133,297	$0.517	$133,297	$0.517	$0.000	$0.000
Customer Service	$36,922	$0.143	$36,922	$0.143	$36,922	$0.143	$0.000	$0.000
Data Center	$88,796	$0.345	$88,796	$0.345	$88,796	$0.345	$0.000	$0.000
POS/Administrative Terminals	$686,150	$2.664	$686,151	$2.664	$686,151	$2.664	$0.000	$0.000
Communications	$74,440	$0.289	$74,440	$0.289	$74,440	$0.289	$0.000	$0.000
ACH Expenses	$16,096	$0.062	$16,096	$0.062	$16,096	$0.062	$0.000	$0.000
Card Costs	$118,846	$0.461	$70,334	$0.273	$70,334	$0.273	$0.188	$0.188
Total Vendor Costs	**$1,154,546**	**$4.482**	**$1,106,035**	**$4.294**	**$1,106,035**	**$4.294**	**$0.188**	**$0.188**
Grand Total	**$1,688,572**	**$6.555**	**$1,578,034**	**$6.126**	**$1,556,258**	**$6.041**	**$0.429**	**$0.514**

[a] High scenario assumes no reduction in the number of card replacements.

[b] Low scenario assumes a 25 percent reduction in the number of card replacements.

Exhibit C-12

Impact of Reduction in Cost of Card

Cost Category	Costs Per Month	Costs Per Case Month	Costs Per Month	Costs Per Case Month	Costs Per Month	Costs Per Case Month	Difference Between Baseline and High Scenario	Difference Between Baseline and Low Scenario
	Actual Conditions		Reduction in Card Costs				Cost Per Case Month	
			High Scenario [a]		Low Scenario [b]			
Local Costs	**$483,037**	**$1.875**	**$483,038**	**$1.875**	**$483,038**	**$1.875**	**$0.000**	**$0.000**
State Costs	**$50,989**	**$0.198**	**$50,989**	**$0.198**	**$50,989**	**$0.198**	**$0.000**	**$0.000**
Vendor Costs								
Administration/Reconciliation	$133,297	$0.517	$133,297	$0.517	$133,297	$0.517	$0.000	$0.000
Customer Service	$36,922	$0.143	$36,922	$0.143	$36,922	$0.143	$0.000	$0.000
Data Center	$88,796	$0.345	$88,796	$0.345	$88,796	$0.345	$0.000	$0.000
Total POS/Administrative Terminals	$686,150	$2.664	$686,151	$2.664	$686,151	$2.664	$0.000	$0.000
Communications	$74,440	$0.289	$74,440	$0.289	$74,440	$0.289	$0.000	$0.000
ACH Expenses	$16,096	$0.062	$16,096	$0.062	$16,096	$0.062	$0.000	$0.000
Card Costs	$118,846	$0.461	$89,135	$0.346	$59,423	$0.231	$0.115	$0.231
Total Vendor Costs	**$1,154,546**	**$4.482**	**$1,124,835**	**$4.367**	**$1,095,124**	**$4.251**	**$0.115**	**$0.231**
Grand Total	**$1,688,572**	**$6.555**	**$1,658,862**	**$6.440**	**$1,629,150**	**$6.324**	**$0.115**	**$0.231**

[a] High scenario assumes a Direction Card cost of $3.

[b] Low scenario assumes a Direction Card cost of $2.

Exhibit C-13

"Low" Projections of EBT Costs Under Various Conditions

Cost Category	Actual Conditions	With 600,000 Cases (Low Scenario)	With WIC (Low Scenario)	With TANF (Low Scenario)	Following FNS's Formula for Number of Terminals	50% Reduction in Cost of Terminals	Retailers Use Integrated Equip	$10 Card Repl. Fee and 25% Fewer Replace-ments	50% Reduction in Card Costs
Local Costs									
Labor for Card Related Issues	$1.295	$1.295	$1.084	$1.065	$1.295	$1.295	$1.295	$1.151	$1.295
Labor for Benefit Related Issues	$0.300	$0.300	$0.300	$0.300	$0.300	$0.300	$0.300	$0.300	$0.300
Administrative Labor	$0.279	$0.120	$0.279	$0.211	$0.279	$0.279	$0.279	$0.279	$0.279
Total Local Costs	**$1.875**	**$1.716**	**$1.664**	**$1.576**	**$1.875**	**$1.875**	**$1.875**	**$1.730**	**$1.875**
State of Ohio Costs									
EBT Staff Labor	$0.060	$0.026	$0.060	$0.045	$0.060	$0.060	$0.060	$0.060	$0.060
Contract Labor	$0.124	$0.053	$0.124	$0.093	$0.124	$0.124	$0.124	$0.124	$0.124
Fiscal Labor	$0.003	$0.001	$0.003	$0.003	$0.003	$0.003	$0.003	$0.003	$0.003
Miscellaneous	$0.001	$0.001	$0.001	$0.001	$0.001	$0.001	$0.001	$0.001	$0.001
CPU Usage	$0.005	$0.002	$0.005	$0.004	$0.005	$0.005	$0.005	$0.005	$0.005
Travel	$0.005	$0.002	$0.005	$0.004	$0.005	$0.005	$0.005	$0.005	$0.005
Replacement Card Fees	$0.000	$0.000	$0.000	$0.000	$0.000	$0.000	$0.000	-$0.181	$0.000
Total State Costs	**$0.198**	**$0.085**	**$0.198**	**$0.150**	**$0.198**	**$0.198**	**$0.198**	**$0.017**	**$0.198**
Vendor Costs									
Administration/Reconciliation									
Reconciliation Labor	$0.043	$0.018	$0.043	$0.043	$0.043	$0.043	$0.043	$0.043	$0.043
Administrative Labor	$0.180	$0.077	$0.115	$0.135	$0.180	$0.180	$0.180	$0.180	$0.180
Other Direct Costs									
Fixed	$0.124	$0.053	$0.079	$0.093	$0.124	$0.124	$0.124	$0.124	$0.124
Variable	$0.104	$0.104	$0.104	$0.104	$0.104	$0.104	$0.104	$0.104	$0.104
Overhead and G&A	$0.067	$0.038	$0.051	$0.056	$0.067	$0.067	$0.067	$0.067	$0.067
Total Administration/Reconciliation	*$0.517*	*$0.290*	*$0.393*	*$0.432*	*$0.517*	*$0.517*	*$0.517*	*$0.517*	*$0.517*
Customer Service									
Labor	$0.143	$0.140	$0.108	$0.120	$0.143	$0.143	$0.143	$0.143	$0.143
Total Customer Service	*$0.143*	*$0.140*	*$0.108*	*$0.120*	*$0.143*	*$0.143*	*$0.143*	*$0.143*	*$0.143*
Data Center									
Labor	$0.164	$0.070	$0.116	$0.151	$0.164	$0.164	$0.164	$0.164	$0.164
Hardware	$0.106	$0.076	$0.075	$0.098	$0.106	$0.106	$0.106	$0.106	$0.106
Hardware Maintenance	$0.021	$0.015	$0.015	$0.019	$0.021	$0.021	$0.021	$0.021	$0.021
Software Maintenance	$0.054	$0.038	$0.038	$0.050	$0.054	$0.054	$0.054	$0.054	$0.054
Total Data Center	*$0.345*	*$0.200*	*$0.244*	*$0.319*	*$0.345*	*$0.345*	*$0.345*	*$0.345*	*$0.345*
POS/Administrative Terminals									
Hardware	$0.882	$0.379	$0.596	$0.735	$0.698	$0.441	$0.345	$0.882	$0.882
Installation and Maintenance	$1.781	$0.765	$0.792	$1.497	$1.484	$1.781	$0.696	$1.781	$1.781
Total POS/Administrative Terminals	*$2.664*	*$1.144*	*$1.388*	*$2.231*	*$2.181*	*$2.222*	*$1.041*	*$2.664*	*$2.664*
Communications									
Host Telecom	$0.195	$0.165	$0.164	$0.187	$0.195	$0.195	$0.195	$0.195	$0.195
Telecommunications Equipment	$0.020	$0.009	$0.014	$0.017	$0.020	$0.020	$0.020	$0.020	$0.020
Customer Service Telecom	$0.074	$0.072	$0.056	$0.061	$0.074	$0.074	$0.074	$0.074	$0.074
Total Communications	*$0.289*	*$0.246*	*$0.234*	*$0.266*	*$0.289*	*$0.289*	*$0.289*	*$0.289*	*$0.289*
ACH Expenses	$0.062	$0.027	$0.062	$0.062	$0.062	$0.062	$0.062	$0.062	$0.062
Card Costs	$0.461	$0.461	$0.421	$0.374	$0.461	$0.461	$0.461	$0.268	$0.231
Total Vendor Costs	**$4.482**	**$2.508**	**$2.851**	**$3.803**	**$4.000**	**$4.041**	**$2.860**	**$4.289**	**$4.251**
Grand Total	**$6.555**	**$4.308**	**$4.713**	**$5.529**	**$6.073**	**$6.114**	**$4.933**	**$6.036**	**$6.324**