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Acknowledgments

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Electronic Benefit Transfer in the Food Stamp Program

I. Introduction

The U.S. Department of Agriculture's Food and Nutrition Service (FNS) has been at the forefront of electronic benefit transfer (EBT) development for several years. Our experience suggests that EBT has the potential to enhance the Food Stamp Program (FSP) and facilitate the coordination of benefit delivery across multiple programs. Research at FNS shows that much of EBT's promise is within reach. It is clear that the technology works. Recipients, retailers, banks, and States all prefer EBT to coupons. EBT reduces program vulnerability to some kinds of benefit diversion and provides an audit trail that facilitates efficient investigation and successful prosecution of fraudulent activity. At the same time, there are still challenges to meet. Chief among them is ensuring that EBT costs do not exceed its benefits. The Agency (the Food and Nutrition Service) is committed to moving forward with EBT on the basis of careful evaluation and sound information.

Since 1981, FNS has carried out a wide-ranging but systematic research program to assess the feasibility of different technical approaches to EBT, measure their effects on each major stakeholder (e.g., recipients, food retailers, banks), and identify circumstances that promise cost-effectiveness. During the last ten years, EBT evolved from the demonstration stage to large-scale pilot tests. And, as a result of the 1990 Mickey Leland Memorial Domestic Hunger Relief Act (P.L. 101-624), EBT will soon become a food stamp delivery option that is available to all States. Interest in electronic benefit delivery has grown substantially, and FNS is an active player in the coordination of EBT interests across the Federal Government and the private sector. In fact, the Assistant Secretary for Food and Consumer Services is cochair of the Interagency EBT Steering Committee, a group convened by the U.S. Department of Treasury to coordinate Federal EBT efforts.

Because the FSP is on the threshold of a major expansion of electronic benefit delivery, this is an appropriate occasion to reflect on what the Agency has learned so far. At direction from the House Appropriations Committee (House Report 102-119), FNS has prepared this overview with special attention to outstanding questions and issues that bear on the future. The report summarizes research results on EBT impacts, describes key EBT activities, and identifies the challenges ahead.

II. Background

A. What Is EBT?

EBT is an extension of electronic credit and debit procedures that have been developed as part of commercial payment systems. EBT systems issue and redeem benefits through the use of an electronic funds transfer network and point-of-sale (POS) technology. In most Food Stamp Program (FSP) applications, a recipient's monthly benefits are electronically posted to a computer file (which functions like a ledger account containing data on benefits available but no actual benefits) and the recipient is issued an EBT access card. To buy groceries, the recipient uses the card with a secret number at special check-out counter terminals to obtain authorization from the EBT computer system. If the purchase is approved, the dollar value is subtracted from the recipient's benefit balance and credited to the appropriate retailer. At the end of each business day, the retailer's authorized EBT sales are totalled, and an electronic funds transfer results in a deposit to the store's bank account. EBT eliminates paper stamps and cash change (up to $0.99 may be given for each coupon purchase).

B. EBT Offers Many Program Improvements

Electronic benefit transfer systems promise a variety of Food Stamp Program improvements. The quality of service for recipients can improve through more convenient benefit access and greater benefit security. For example, recipients no longer need to carry around their coupons risking loss or theft; instead, they can access their benefits electronically as needed. EBT also empowers recipients to manage their resources with the same tools that are becoming available to the general public. Similarly, EBT systems can make program participation easier and more efficient for food retailers and banks.

There are also important administrative advantages. Paper processing is virtually eliminated, which offers a strong potential to streamline operating procedures and reduce costs. EBT also provides more precise data on benefit draw downs, which allows the Agency to improve its cash management of the benefit redemption account. An EBT system can also serve other government programs, thereby consolidating multiple public programs and services.

Since EBT works much like commercial debit card systems, there is an opportunity to integrate public and private infrastructures for financial transactions. This is an evolving opportunity. As of June 1991, there were 70,000 POS debit terminals in use nationally. Approximately, 50 percent were in food retail stores, predominately supermarkets.[1]

Program vulnerabilities to certain kinds of benefit loss and diversion can be reduced directly by EBT system features. New audit trails on the transfer of benefits along each point in the issuance and redemption process should facilitate investigation and prosecution of food stamp fraud. The availability of such information may ultimately serve as a fraud deterrent.

C. Six EBT Demonstrations Are Operational

While EBT is promising, it requires dramatic changes in Food Stamp Program operations. The only way to assess whether or not EBT can live up to its potential is through testing. And so, FNS has implemented a comprehensive demonstration and evaluation effort in the last several years.

The first milestone was a small test that began in 1984 in Reading, Pennsylvania. The State agency continues to run an EBT system for the Food Stamp Program in Reading. As a move to reduce high costs of the stand-alone FSP system in Pennsylvania, FNS announced a new set of demonstrations in 1987 which integrate electronic benefit delivery across the FSP and other assistance programs, such as the Aid to Families with Dependent Children (AFDC) Program. Two of these—Ramsey County, Minnesota, and Albuquerque, New Mexico—became operational in 1991.

During the mid-1980s, FNS completed a feasibility study looking at alternative technology approaches that do not require a telecommunications link between the POS terminal and central computer at the time of each sale. A contract to test one of these off-line alternatives in Dayton, Ohio, was awarded in 1990, and operations began in March 1992.

In addition to this series of Agency-sponsored tests, FNS published demonstration guidelines for State welfare agencies interested in starting their own EBT projects. Under these instructions, several States have received FNS approval for their EBT test plans. They include Maryland, New Jersey, Iowa, Oklahoma, South Carolina, and an expansion of the existing Pennsylvania project.[2]

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[1] Source: Conversation with Laurie Giesen, editor, *POS News*, February 13, 1992.

[2] Appendix 1 provides a brief catalogue of existing EBT operations and other State EBT activities.

Currently, the only operational food stamp system among these States is in Maryland. The Maryland project is noteworthy, however, in that statewide roll-out of EBT is underway. When expansion is complete, the total number of FSP households receiving their benefits electronically will increase from about 60,000 to 200,000 nationwide. The Maryland project is sizable in another way as it combines food stamps, AFDC, a part of Child Support Enforcement (CSE), and General Assistance (GA) into a single benefit delivery system.

The FNS is also conducting an analysis of the requirements and relative advantages of combining the FSP and Special Supplemental Food Program for Women, Infants and Children (WIC) into an integrated EBT system; the findings will be available in the fall of 1992. There is also a small off-line EBT pilot currently operating for the WIC Program in Wyoming that has plans for further expansion.

Collectively, these projects represent a thorough and systematic EBT agenda. The full set of results will provide a comprehensive picture of EBT and its impacts in various settings.

III. Lessons Learned

While FNS is conducting evaluations for each of the food stamp EBT demonstrations, only the Pennsylvania study is complete. Data collection in the other five projects is contingent on reaching a steady or mature state of EBT system operations. Although much of the Agency's evaluation efforts are still underway, history offers some important information.

A. EBT Is Technically Feasible

Program Requirements Are Being Met. With or without a formal evaluation, it is clear that EBT systems are operationally feasible. Benefits are posted to each account, and recipients are able to buy food with their electronic benefits. Grocers and banks are credited. These basic functions are performed in a timely manner and with a high degree of accuracy and reliability.

At the same time, the application of electronic funds technology to benefit delivery and redemption pose a variety of policy issues and operational demands that FNS has not previously faced. Many of these have been successfully resolved. For example, initial concerns about recipients' ability to keep track of their benefit balance and remember their personal identification numbers (PIN) have been eliminated through training and by providing multiple means to get balance information.

One of the most challenging application issues involves benefit access when some part of the EBT system is not working. For instance, food purchases require the system to check a recipient's benefit balance before authorizing the purchase. On those relatively rare occasions (less than 0.2 percent of EBT transactions in the Pennsylvania project) when up-to-date balance information cannot be accessed (e.g., the main computer or telecommunication system is not working), FNS permits manual back-up procedures that essentially extend a limited amount of credit for a short period of time.

If it turns out that the recipient's balance was not sufficient to cover the manually-authorized purchase, retailers may present the transaction for payment again according to specific rules and under limited circumstances. FNS does not accept liability for any manual transactions that are not recovered from the household's benefits. State agencies may share such liabilities with their EBT system operators and/or food retailers as negotiated when the system is being developed. This is one example of the new policies and procedures required to balance the needs of food stamp recipients and the soundness of program administration in an EBT environment.

FNS Is Exploring Different Technology Approaches. All but one of the Agency's food stamp demonstrations and most commercial POS systems are considered on-line operations. When a customer's card and PIN are read by a store terminal, the machine establishes an on-line connection with a central computer to obtain authorization for the purchase. This link requires a reliable telecommunications system, adds 10-15 seconds to the transaction process, and costs money.

As a result, FNS is also exploring the feasibility of an off-line approach to food stamp benefit delivery. In an off-line system, the recipient's account information resides on the benefit card itself. The store terminal and benefit card interact to authorize the purchase without contacting a central computer. Transaction data accumulate in the POS device until sent in a batch message (typically once a day) to a central computer or each retailer's bank to begin the settlement process. Information can be delivered over a telecommunication network or by the physical delivery of terminal tapes.

It is possible to design an off-line EBT system that performs program functions in a way that is similar to on-line approaches. The most important difference is the need for an additional process to credit monthly allotments to the recipient's card. In contrast to on-line systems where new benefits are posted electronically to recipient accounts on the central computer, off-line EBT requires either an issuance machine (which can be integrated with store terminals) that recipients visit to update benefits or mailing out new cards with each allotment.

There are at least three different card types that can be used in an off-line EBT application: magnetic strip, chip, and optical memory or laser.[3] Both the food stamp project in Dayton, Ohio, and the WIC pilot in Casper, Wyoming, rely on the chip or "smart" card, as it is more popularly known. These cards have substantial memory capacity and can perform certain computational functions because of the integrated circuit chip embedded in the plastic card material.

Such enhanced features make the smart card a promising tool for more complex assistance program applications. However, a number of important questions remain. The smart card demonstrations will provide basic information on how well the technology performs in a live test environment, as well as whether all program requirements can be effectively and efficiently met. Other considerations include the compatibility of the technology to commercial electronic funds transfer systems, which are currently directed toward the on-line use of magnetic strip cards, and the relative cost of alternative approaches.

Intent is to Follow—Not Develop—New Technology. FNS has steered a deliberate course to test EBT system features that have the potential to maximize the quality of recipient service and reduce administrative costs. This requires a commitment to apply existing rather than develop new technology and to carefully consider the commercial POS environment. At the same time, there is an interest in capitalizing on technical advancements; consequently, EBT system procurements focus on functional requirements rather than specifications for equipment models and software brands.

Beyond the evolution of technology, integrating different program applications creates new test territory and potential needs for technical innovation. FNS is currently examining the technical requirements for combined electronic delivery of WIC and food stamp benefits, and preliminary planning is underway for the integration of direct Federal payment programs like Social Security with federally administered, State-operated programs like food stamps and AFDC.

The concept of giving recipients a single benefit card to access many programs poses a host of new issues and opportunities. For example, because POS terminals and automated teller machines (ATMs) typically will not be able to specify from which cash program benefits should be withdrawn, there will be a need to create decision rules and an EBT system mechanism to apportion the draw of funds from available cash benefit programs. At the same time, coordinating the benefit delivery systems of multiple programs promises an important advance in the quality of service for recipients.

[3] See the Glossary in Appendix 2 for a short description of these card types. See also: Coenen, P.F., Hamilton, W.L., Menne, M.G., and Greenberg, R.G. (1987). *The Feasibility of an Off-Line Electronic Benefit Transfer System for the Food Stamp Program.* Atlanta, GA: Electronic Strategy Associates, Inc., and Cambridge, MA: Abt Associates, Inc.

B. Recipients, Retailers, and Banks Prefer EBT

EBT is widely accepted by system participants. A majority of recipients, food stores, and financial institutions all prefer electronic benefit delivery to the coupon system it replaced. Detailed information from the evaluation of the Reading, Pennsylvania project is reported here. While comparable data are still being collected in other demonstrations, informal reports from the early pilot stages in Maryland, Minnesota, New Mexico, and Wyoming indicate similar enthusiasm.

Food Stamp Recipients Like the Convenience and Security of EBT. In surveys at several different points of maturity for the Pennsylvania system, at least 70 percent of recipients reported a preference for EBT over coupons.[4] Furthermore, this preference for EBT exists among recipient subgroups for whom initial concern was expressed about the difficulty of using the technology. These subgroups include non-English-speaking recipients, the elderly, and individuals with disabilities.

When asked to explain their preference, recipients reported that the EBT system is more convenient, more secure, and easier to use at the check-out counter. Among those who preferred the coupon system, reasons included greater ease in keeping track of paper benefits and speedier check-out times. Delays at the check-out counter may reflect the occasional computer slowdowns and equipment problems that occur in many new automation projects.

Purchase procedures at the check-out counter readily distinguish shoppers as food stamp recipients. Although this is equally true of both coupon and EBT systems in Pennsylvania, some hypothesize that EBT may have a "high-tech" image that reduces stigma. Recipient survey data from the Pennsylvania evaluation hints at stigma reduction but only a very small change. Further, baseline interviews with FSP households getting coupons prior to EBT start-up in New Mexico and Minnesota show a majority of recipients believe store employees treat them about the same as cash or check customers.

EBT system benefits translate into time and money savings for recipients (see Table 1). Much of this difference occurs because recipients in Reading, Pennsylvania, have to make a special trip each month to exchange an authorization (ATP) document for coupons, while EBT recipients need only an initial visit to get their benefit access card. Most recipients in the FSP make a monthly trip to pick up coupons. The exceptions are those recipients

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[4] Hamilton, W.L., Bartlett, S.H., Fischer, S.D., Hoaglin, D.C., Kane, C.D., Logan, C.W., and Marschall, T. (1987). *The Impact of an Electronic Benefit Transfer System in the Food Stamp Program.* Cambridge, MA: Abt Associates, Inc., and Atlanta, GA: Bank Earnings International.

Kirlin, J.A., Logan, C.W., Menne, M.G., Davis, E.E., and Van Stelle, K.R. (1990). *The Impacts of the State-Operated Electronic Benefit Transfer System in Reading, Pennsylvania.* Cambridge, MA: Abt Associates, Inc.

who have coupons mailed to their homes. In Fiscal Year 1990 about 32 percent of the total dollar value of coupons was mailed directly to FSP households.

Table 1

Recipient Food Stamp Program Participation Costs: Coupon versus EBT System

	Coupon System	EBT System
Monthly Out-of-Pocket Costs (i.e., transportation, babysitting)	$2.21	$0.27
Minutes Spent Each Month (i.e., getting benefits, handling problems)	48	13

Source: Kirlin, Logan, et al. (1990).

EBT also introduces new security features that reduce the chance for unauthorized use of one's benefits as a result of loss or theft. In contrast to a paper system in which coupons are easily used by whoever has them, electronic benefit access requires possession of a valid card and PIN. If recipients believe the card is missing and/or PIN compromised, they can put a hold on the benefit account through 24-hour phone service. As expected, recipients in the Pennsylvania project reported much lower losses with EBT compared to the coupon system.

EBT Reduces Retailer Benefit Handling Time. Retailers with EBT experience are quite positive in their opinions. However, since 213,000 food stores are authorized to redeem food stamp benefits, numerous retailer questions about EBT have been raised. Specific issues include opportunity for retailer participation in EBT, system performance, the number of check-out lanes equipped with EBT terminals, opportunities for retailers to use equipment and service vendors other than a State's EBT system developer, and a variety of operating features.[5]

Many of these issues have been addressed and resolved through demonstration experience, EBT legislation, and the proposed food stamp regulations for EBT. For example, the Mickey Leland Memorial Domestic Hunger Relief Act of 1990 (P.L. 101-624) identifies

[5] For a more detailed discussion of these issues, see Food Marketing Institute (1991). *Food Marketing Institute and Electronic Benefit Transfer: The Retailers' Perspective on Implementing EBT.* Washington, DC: Food Marketing Institute.

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A small proportion of retailers, 14 percent, prefer the coupon system. This group is more likely to regard system problems, such as damaged access cards, computer downtime or printer failures, as serious. Collectively, they consider coupons faster to transact and coupon bank deposits easier to reconcile than electronic sales. These experiences, however, are unrelated to a retailer's decision to participate in EBT. Virtually all authorized retailers in the demonstration area chose to participate in the system rather than lose food stamp sales.

Detailed data on retailer costs to participate in the Pennsylvania coupon and EBT systems show a savings associated with EBT (see Table 2). Benefit handling costs are the largest source of EBT savings, and more than offset modest increases in other costs. In a coupon system, clerks generally count and cancel coupons, which are often recounted before taking them to the bank for deposit with a special redemption certificate. The EBT system limits retailer handling procedures to account reconciliation.

Table 2

Retailer Food Stamp Program Participation Costs: Coupon versus EBT System

	Coupon System	EBT System
Cost Per $1,000 Benefits Redeemed	$23.88	$17.28
Participation Cost Components		
check-out costs	lower	
post-sale handling costs		lower
employee training costs	lower	
accounting errors costs	lower	
float costs		lower
reshelving costs	lower	
space costs	lower	
telephone	lower	

Source: Kirlin, Logan, et al. (1990).

The EBT cost reduction is large in percentage terms—more than 25 percent—but the equivalent of a $14 monthly savings for the average store in the project. Most retailers reported that the EBT system had no effect on overall operating costs.

Retailer enthusiasm for EBT may be better explained by a number of other factors. Interviews suggest that retailers consider the paperwork aspects of food stamp sales irritating, given the relatively low proportion of total sales they represent for most stores. For example, FNS data on Maryland retailers show that, on average, monthly food stamp

sales account for 13 percent of total food sales. And, for more than half of all authorized stores in Maryland, food stamp sales are less than 5 percent of total food sales. EBT reduces much of the paperwork associated with a relatively small proportion of sales.

In addition, most retailers believe EBT caused recipients to spend more of their benefits on food by eliminating cash change for food stamp purchases and making it more difficult to sell or trade benefits. Finally, some retailers expect electronic POS systems to become widely used for commercial debit and credit card sales and welcome EBT as a movement in that direction.

EBT Allows Banks to Conduct Business as Usual. Financial institutions play an important role in the FSP. Many commercial banks serve as delivery agents, issuing coupons to recipients. About 10,000 banks also receive grocer coupon deposits and, in turn, send them to the appropriate Federal Reserve bank where settlement takes place, and coupons are again counted, canceled, reconciled, and then destroyed.

EBT altogether eliminates the need for separate delivery agents, and redemption through the banking system can be completely electronic. The computerized procedures, known as the Automated Clearing House (ACH) process, is a routine part of a bank's business day.

As expected, local bank representatives in the Pennsylvania project strongly approved of EBT on two counts. First, these banks were pleased to give up their role as coupon issuance agents. Even though compensation for the service exceeds issuance costs, the associated lobby congestion and paper handling are viewed as undesirable. Second, the role of benefit redemption is now folded into routine procedures for accepting and posting electronic funds transfers. Costs tied to this function are reduced with EBT (see Table 3), and the 90 percent savings accrues directly to the banks.

Neither the EBT system's concentrator bank nor the Federal Reserve bank incur a net cost for participation in the Food Stamp Program. Concentrator bank fees exceeded costs, and the Federal Reserve bank prices its service to cover costs.

C. There Are Still Some Questions About EBT Costs

While it is clear that system participants (i.e., recipients, retailers, and banks) prefer the convenience of EBT and experience some dollar savings, the picture on government costs is promising but not conclusive. Government costs include the direct administrative expense of developing and operating EBT systems, and the cost of any benefit-related changes, such as EBT impacts on participation levels, float on government benefit accounts, and benefit loss and diversion.

Table 3

Local Bank Food Stamp Program Participation Costs: Coupon versus EBT System

	Coupon System	EBT System
Net Costs Per $1,000 of Benefits	$6.99	$0.67
Net Issuance Costs Per $1,000 of Benefits	($0.79)	NA
Net Redemption Costs Per $1,000 of Benefits	$7.78	$0.67

Source: Kirlin, Logan, et al. (1990).

The legislation and proposed program rules require that EBT systems for the FSP be cost neutral to the Federal Government. Specifically, EBT cannot cost FNS more than the coupon delivery system being replaced. The expectation is that EBT systems processing a large volume of food stamp transactions, combining benefit delivery across multiple programs, and maximizing use of the existing commercial debit card networks will be cost competitive. EBT systems serving a single program and a small number of households are unlikely to meet the cost neutrality requirement.

The Agency's EBT research is consistent with this view. Administrative costs for EBT appear to decline dramatically as system scale increases. Data on the benefit-related outcomes of EBT currently are unavailable but are being collected in evaluations of the Maryland, New Mexico, and Minnesota EBT systems where cost is the principal study objective. In the interim, a theoretical discussion of EBT impacts on participation, float, and fraud costs is provided here.

No Observed Impacts on Participation. When planning the first EBT project in Pennsylvania, there was some question as to whether or not this technology would affect recipient participation. The general expectation was that no participation level change due to EBT would occur since FSP applicants go through the same certification process regardless of issuance system.

However, some features of electronic benefit issuance streamline recipient participation and others require new behaviors. Factors that argue in favor of increased participation include added convenience through elimination of a monthly trip to pick up coupons. In contrast, factors that might decrease participation are the need for recipients to use a more sophisticated system than they are accustomed to and the need for additional skill to keep

track of benefit balances. The stigma associated with using benefits in food stores is an issue that can cut either way as long as food stamp shoppers are identifiable as benefit recipients.

Measuring EBT impacts on participation is challenging at best. Since EBT is introduced when many other changes may be occurring, e.g., economic shifts and changes in program eligibility requirements, it is necessary to control for the influence of these factors. One approach is to compare changes in participation levels for the area with EBT to levels in comparable areas without EBT. This kind of analysis was conducted in the Pennsylvania evaluation, and there was no evidence of any EBT impact. The Agency's assessment of other EBT demonstrations will also measure changes to caseload size.

Float As an EBT Cost? Float is a measure of earning power gained or lost through the availability of funds to earn interest in a bank account. In the coupon system, the Federal Government gains float on benefit funds between the time food stamps are issued to recipients and when there is a draw against the Agency's redemption account at the U.S. Department of the Treasury.

EBT may affect government float in several, possibly off-setting, ways. Some of these are tied to benefit use by recipients. For example, EBT may change the timing of how recipients draw down their benefits. Some hypothesize that with the increased security of EBT, recipients may spread out their purchases in a month over a longer period of time. Neither an informal retailer survey nor EBT transaction records from the Pennsylvania project substantiate any delay in recipient purchases,[6] but more precise comparisons of recipient shopping patterns in coupon and electronic systems are underway.

EBT may also introduce float changes by changing the speed of the redemption process—the time for benefits to move from retailers through commercial banks and the Federal Reserve bank to the actual debit against the Agency's redemption account. The general expectation is that this time will be shortened by EBT with a resulting reduction in float to the Federal Government. However, there is considerable variability in estimates of how much faster the EBT process will be, and no empirical comparison data are available currently.

There is some debate about whether or not float should be counted at all in assessing the cost of EBT systems. The Agency's draft EBT regulations specify that any net float losses for the Federal Government be included as a component of the cost of electronic systems. In contrast, financial management reforms in general have involved changes that reduce the time to recognize a funding draw and liquidate an obligation. Float losses have not previously been an issue.

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[6] Bartlett, S.H., and Hart, M.M. (1987). *Food Stamp Recipients' Patterns of Benefit Redemption*. Cambridge, MA: Abt Associates, Inc.

EBT As a Critical Tool for Effective Cash Management. The timely availability of precise benefit redemption data in an EBT compared to a coupon system enhances the Agency's ability to forecast benefit use and limit funds obligations to exact levels. FNS maintains an excess balance of several hundred million dollars in the coupon redemption account because balance requirements are estimated on authorization value which, over time, substantially exceeds redemptions. This excess balance can be reduced to minimal levels, and obligation estimates can be forecast much more precisely with EBT redemption data—thereby improving FNS cash management of the redemption account.

EBT is also viewed as an important tool for the efficient implementation of the 1990 Cash Management Improvement Act (P.L. 101-453). The Act governs the cash management and transfer of funds between the Federal Government and States so that equity is achieved. That is, the law requires an assessment of interest due to or from the Federal Government from the time Federal funds are deposited to a State's account until the point at which a State disburses such funds. Therefore, the goal is a zero float relationship between the Federal Government and States.

In the current coupon FSP, no benefit funds are advanced to States for disbursement, so benefit float does not accrue there. That is, while coupons are distributed to States for benefit delivery, the associated funds remain in a Federal interest-bearing account until they have been redeemed by recipients, retailers, and banks. However, for many other paper-based assistance programs, EBT becomes an important alternative to elaborate and costly monitoring procedures that would otherwise be necessary to ensure zero float between the Federal and State Governments.

Benefit Loss and Diversion Changes with EBT. Currently, FNS incurs both tangible and intangible costs for issuance loss. Losses that involve the replacement of benefits add directly to program costs. Diversions shift the use of benefits away from their intended purpose. They include selling benefits for cash or trading them for ineligible items, i.e., trafficking. Although diversions do not involve a direct cost with respect to FSP benefits, they compromise program objectives and reduce program integrity.

EBT has the potential to reduce certain types of loss and diversion. Projections based on the Pennsylvania project show that vulnerabilities to diversion are substantially lower under the EBT system (see Table 4). Benefit diversions estimated for an EBT system are almost 80 percent less. Most of this reduction is due to the elimination of cash change (which may be spent on ineligible goods).

Of particular interest is the study respondents' view of EBT impacts on trafficking. More than half felt that some reduction in trafficking would occur in EBT systems, primarily through a reduction in third-party involvement. That is, selling or trading benefits through a third person (in contrast to trafficking directly with an authorized retailer) is expected to be more difficult because of the need for a terminal, the recipient's card, and PIN in order

to determine the amount of benefits available to sell. Other respondents projected zero change or some increase with EBT. Collectively, expert estimates amounted to a small reduction in trafficking under EBT.

Table 4

Food Stamp Benefit Loss and Diversion: Coupon versus EBT System

	Coupon System	EBT System
Net Losses Per Case Month	$0.09	$0.16
Net Diversions Per Case Month	$3.11	$0.66

Loss estimates are based on program records where available (primarily for coupon loss) and expert judgments where they do not exist (for coupon diversion and EBT loss and diversion). Consequently, the estimates do not measure actual loss but expected loss in mature, ongoing coupon and EBT systems.

Net estimates exclude diversions absorbed by recipients and retailers, such as benefits lost by or stolen from recipients which are not replaced in coupon or EBT systems. These are reported as costs of program participation to the appropriate stakeholder.

Source: Kirlin, Logan, et al. (1990).

EBT enhances control of trafficking by providing an audit trail that supports both detection and prosecution of benefit diversion. Investigations of trafficking in existing EBT systems were substantially aided by EBT data on every transaction. These data, which are necessary to properly debit and credit accounts, also provide an audit trail to identify and legally substantiate criminal activity. Such information is clearly more comprehensive and readily accessible than the results of labor-intensive field efforts that are characteristic of coupon system investigations.

In contrast to benefit diversions, losses are estimated to be much smaller overall but still less in the coupon system than under EBT. The larger EBT projection reflects concern over the potential for a "big hit" on the system through insider fraud. Implementation of some relatively simple control strategies, e.g., more limited system access, would reduce the vulnerability to unauthorized redemptions by an insider. These controls have been subsequently added.

Small, Single Program EBT Systems Unlikely To Be Cost-Neutral. The desire to streamline government services and reduce administrative costs are two related factors that prompted interest in EBT. The coupon issuance system demands the production,

distribution, and control of large quantities of paper documents, including more than 2.5 billion food stamps each year. EBT eliminates a substantial amount of paper and promises to lower program costs.

Early experience with EBT systems is both encouraging and inconclusive. The most recent evaluation data from Pennsylvania indicates a dramatic reduction in the cost of an EBT system. As the State took over operating responsibility from a vendor, the central data base was integrated with other files and processing activity on the State agency computer, and store terminal leases were bought out. Administrative costs for issuance were reduced from $27 to $9 per case month. Nevertheless, EBT system costs still exceed those of the coupon system by more than 3 to 1 (see Table 5), and that comparison excludes all EBT design and start-up costs.

Table 5

Food Stamp Administrative Costs
Coupon versus EBT System

	Coupon System	EBT System
Costs Per Case Month	$2.74	$9.14
Administrative Cost Components		
Benefit Authorization		higher
Benefit Delivery		higher
Credit Retailers		higher
Manage Retailer Participation		higher
Reconciliation & Monitoring		higher

Source: Kirlin, Logan, et al. (1990).

When operating costs are broken down, EBT costs are greater for each issuance and redemption function. There are several reasons for this. The EBT system uses a more expensive identification card than the coupon system and requires special training. The amortized costs of POS terminals, phone lines, and computer time needed to process electronic transactions are more expensive than the coupon printing costs and issuance agent fees that are eliminated.

While the magnitude of the administrative cost difference is striking, it is also likely to vary with changes in system configuration. The Pennsylvania system has several features that create high expenses. It is a single-program operation that means store terminal and some labor costs can only be allocated across food stamp transactions. Only about 3,500 food stamp households participated (at the time of the evaluation), so the distribution of fixed costs is further restricted.

Recent invoices from the Pennsylvania Department of Public Welfare indicate that EBT system costs have been reduced to $3.21 per case month. A large part of this reduction reflects an increase in the number of households participating in the EBT system from 3,500 to 7,000 and the fact that POS terminal costs have been fully amortized before replacement devices have been needed.

IV. Outstanding Issues

A. Economies of Scale Promise EBT Cost Reductions

No one disputes that a larger, multi-program and commercially integrated EBT system will further reduce operating costs. The key question is whether or not costs can be lowered to those of a coupon system while maintaining a high level of service.

FNS recently completed a feasibility study that projects the costs of nationwide EBT operations.[7] The study compares approaches that vary by degree of centralization—independent State operations, State systems that all meet a set of standard functional requirements, and regionally or nationally organized systems. All models assume the use of on-line technology, as well as integration with the AFDC Program and existing commercial POS systems.

Start-up costs (i.e., design, development and implementation) are estimated between $230 and $290 million. Table 6 provides a break-out between Federal and State cost shares. Most of the variation is due to system design features (e.g., recipient selection of PIN versus random PIN assignment), assumptions about the number of POS devices to be installed, and the estimated cost of terminal deployment. Terminal installation (which does not include the price of equipment) represents about 60 percent of total start-up costs so even small changes to the number of devices or unit costs have significant impact.

It is worth noting that system vendors for some EBT demonstrations are not charging separately for start-up costs, but instead build them into case month or transaction fees. In addition, the actual cost of EBT implementation for any one program will be highly sensitive to arrangements for cost sharing in both the private and public sectors.

[7] Kirlin, J.A., King, C.R., Davis, E.E., Jones, C., and Silverstein, G.P. (1990). *The Feasibility of a Nationwide Electronic Benefit Transfer System for the Food Stamp Program.* Cambridge, MA: Abt Associates, Inc.

Table 6

Projected Start-Up Costs for a National EBT System: Allocation of Costs Among Federal and State Agencies (Millions of Dollars)

	Highest Estimate	Lowest Estimate
FNS Share of Costs	$104.7	$83.3
ACYF Share of Costs*	$42.2	$33.9
State Agency Share of Costs	$144.3	$115.9
Total Costs	**$291.2**	**$233.1**

* Excludes costs directly (and only) incurred by ACYF that have not been estimated.

Source: Kirlin, King, et al. (1990).

Under the most likely near-term scenario, combined State and Federal operating costs range from about $4.60 to $5.50 per food stamp household each month (see Table 7 for cost break-out). An encouraging result of the analysis is that EBT costs are sensitive to a number of variables that may favorably affect actual costs. The more significant factors are

- Variations in the number of government-deployed terminals resulting from lane coverage policy and/or the rate of commercially deployed terminals;
- Fees for the use of commercial terminals, as well as charges by transaction acquirers and network switches;
- Agency policy and operational choices, such as reliance on PIN assignment rather than recipient selection.

Table 7

Projected Operating Costs for a Nationwide EBT System: Allocation of Costs by Program and Agency (Dollars Per Case Month)

	Highest Estimate	Lowest Estimate
Food Stamp Program		
FNS Share	$2.85	$2.32
State Share	$2.72	$2.18
FSP Total	$5.57	$4.51
AFDC Program		
ACYF Share	$1.75	$1.46
State Share	$1.75	$1.46
AFDC Total	$3.50	$2.89

Totals may not sum due to rounding.

Source: Kirlin, King, et al. (1990).

When EBT costs were estimated using a combination of most favorable but still realistic assumptions, the projected operating costs (for States and FNS together) came down to about $3.40 per case month—a price that comes close to being competitive with the average coupon cost of $3.00 per case month.

The single most important change involves a substantial reduction in the number of government-deployed POS terminals (from over 500,000 to about 300,000). This change primarily reflects deployment policy that links lane coverage to store benefit redemption levels rather than requiring full coverage of all lanes, and assumes a somewhat larger base of commercially deployed POS devices.

Since these figures are, in fact, projections based on experience with small-scale EBT operations, there is additional reason for optimism as electronic systems expand in volume. In the FSP alone, there are about 9.8 million households. If each makes 7-8 food purchases per month (which is consistent with Pennsylvania experience), there is a potential for about 78 million transactions each month. When combined with other program applications, transaction volumes will increase dramatically and create opportunities for economies of scale.

The statewide EBT system in Maryland will provide the first empirical opportunity to measure costs in a high-volume system. Preliminary data from the Maryland EBT pilot in Baltimore are encouraging for the FSP. That demonstration integrates the FSP, AFDC, CSE, and GA programs into a single electronic system. Early estimates suggest a net savings associated with EBT compared to paper benefit delivery. The largest savings accrue to the FSP. This is explained in part by State-reported coupon costs that are higher than average. These early estimates also indicate EBT costs exceeded paper costs for the AFDC and public assistance part of the CSE programs. More authoritative data are being collected and analyzed as the Maryland system expands statewide.

B. There Is a Need for Government-Wide Cost Neutrality

Although there is general agreement that multiple program applications will dramatically reduce EBT costs through economies of scale, the differential impact on individual programs is still unknown. The Interagency EBT Steering Committee, which comprises high-level officials representing several Federal agencies, recognized the appropriateness of looking beyond single programs in the assessment of EBT system costs.

As a result, the Committee formally adopted a position that calls for Federal agencies to apply a government-wide standard when considering EBT system costs. The agreement acknowledges existing cost-neutrality requirements imposed on individual programs (i.e., FSP and AFDC) but opens the door to reallocating Federal savings, given that both costs and savings come from the same taxpayer pocket. Reallocation would be designed to meet program-specific neutrality standards when government-wide neutrality is achieved.

Implementation of this agreement beyond a special demonstration environment requires several steps. First, the components of paper benefit delivery and EBT costs across a wide range of programs must be measured objectively. Each agency's statutory and regulatory authority to enter into alternative cost allocation and charging agreements for EBT systems must be assessed (e.g., P.L. 101-624 cost-neutrality provisions are specific to the FSP), and a plan to obtain approvals from relevant authorities is needed. Ultimately, Congressional support to break down statutory and budgetary barriers may be required to build the foundation for integrated services.

C. Should the Broader Social Benefits of EBT be Counted?

The draft EBT regulations for the FSP stringently apply the legislated cost-neutrality provisions. Section 7(i)(2)(A) of the Act (7 U.S.C. 2016 (i)(2)(A)) requires that the Federal

The statutory language provides some flexibility for State agencies since EBT systems may continue to operate with Federal participation as long as the State absorbs any costs that exceed the neutrality cap. While this arrangement is intended both to provide States with the opportunity to pursue EBT and to control Federal spending, there is another, unintended, implication.

State agency representatives maintain that a mixed message is being sent to their States. On one hand, the broad benefits of EBT are well documented, and the legislative door has opened, permitting, if not encouraging, large-scale EBT implementation by States. However, the cost-neutrality rules for EBT systems give no consideration to the quality of service improvements associated with EBT and require States to assume a disproportionate amount of the risk while banks and retailers experience some EBT savings without financial participation.

As a result, some contend that improvements in program service should be counted in the cost-neutrality equation. This might include any reduction in the cost of program participation to recipients that is attributable to EBT. It could also include the impact of any changes in benefit diversion, which although are not a direct cost to the FSP, are clearly tied to how well the program meets its intended objectives.

It is important to note, however, that any changes to standards for EBT cost performance need to be made in the context of multi-program applications. That is, since EBT implementation combines multiple benefit programs, the same set of cost standards should be applied across all of them. In contrast, broadening the cost standards for just one or a few programs simply results in shifting costs from programs with narrower standards to those with more encompassing provisions.

D. Changes to Regulation E May Negatively Impact EBT

This regulation, which implements the Electronic Funds Transfer (EFT) Act (15 U.S.C. 1693 *et seq.*), creates the legal framework of rights and responsibilities for providers of EFT services to consumers. They include consumer rights to the disclosure of terms and conditions, to receipts and periodic statements, to error resolution within a certain period of time, and to limits on the consumer's liability for unauthorized transfers.

To date, the Federal Reserve Board has not applied the regulation to EBT activities because EBT accounts are not "consumer asset accounts," but, rather, government accounts for which program rules are in place to protect the interests of all parties. However, the Federal Reserve Board is currently reviewing their position and may decide that EBT should be covered by Regulation E.[8]

FNS has concerns about a blanket extension of Regulation E to EBT applications. Briefly, those concerns question the applicability of Regulation E consumer protections to the specific needs of recipients in an EBT system and address the potentially negative impact on EBT expansion given the cost implications of Regulation E provisions. FNS has communicated these concerns to the Federal Reserve Board and is working with the Department of Treasury, Department of Health and Human Services, State agencies, and the Board to try to develop a compromise that assures appropriate protection for recipients without a blanket extension of Regulation E to EBT.

V. The Road Ahead

A. Important EBT Research Is in Progress

As described, FNS has a broad demonstration and evaluation agenda underway. Work in Minnesota and New Mexico will provide an initial look at the impact of multiprogram EBT systems. The statewide Maryland project will provide the first data on actual costs in a high-volume, multiprogram, commercially integrated EBT system. Information from the Ohio study will document both the technical feasibility of a smart card application to food stamp benefit delivery and the comparative costs to on-line operations. The results will be widely shared to enable States and their vendors to develop systems that minimize cost and maximize service.

In addition to these demonstration projects, the Agency is examining a range of operational and policy issues that bear directly on the evolution of EBT. They include the applicability of commercial system security measures to EBT, the scope of existing commercial EFT infrastructure to support EBT expansion, and the relationship of existing privacy legislation and rules to potential uses for the new information generated by EBT.

[8] Wood, J., and Smith, D. (1990). *Electronic Transfer of Government Benefits.* Washington, DC: Federal Reserve Board. (Available from the Federal Reserve Board, 20th Street and Constitution Avenue, N.W., Washington, D.C. 20551.)

B. EBT Shifts from Experimental Demonstrations to Routine Operations

At the same time, FNS is moving aggressively to publish regulations that allow States to implement on-line EBT systems as part of their routine operations in the FSP. Current EBT projects are approved under demonstration authority, which requires a thorough evaluation and limits the size and time period of operations.

Expected publication of the final regulation, as mandated, is April 1992. The final rules will establish a set of functional requirements, operating procedures, and performance standards. They are designed to meet program objectives, to be compatible with commercial EFT approaches, and to provide States some flexibility to address their unique needs.

The regulations will also provide the Federal Government with protection against uncertain system costs. As described above, the proposed regulations for food stamp EBT include a detailed cost-neutrality policy and instructions.

As EBT becomes an operational alternative, responsibilities change for FNS headquarters and regional offices, as well as State agencies. To assist staff in their new duties, a major training program will be delivered this year and next. The package includes a variety of workshops and an EBT resource guide for post-training consultation.

C. Federal Agencies Look at the Prospects for Centralizing EBT

EBT systems currently develop as individual State initiatives. While every food stamp project must meet a common and extensive set of program requirements, there is still considerable room for variation. Federal discussion about the relative merits of this approach versus more centralized EBT operations is just beginning.

It is already clear, however, that at least for drawing Federal benefit funds from Treasury accounts to settle the EBT bank credits and debits, a government-wide process is needed. Current procedures for food stamp projects rely on special accounts set up for each EBT system. While this approach works for a small number of projects, more streamlined procedures are needed for large-scale implementation. FNS, with encouragement from the Interagency EBT Steering Committee, awarded a contract for the conceptual development of alternative settlement models. These models will be compared with respect to technical and economic feasibility. At the recommendation of the Steering Committee and pending the availability of funds, one or more of these options may be tested and evaluated.

VI. Conclusions

Overall, FNS experience with EBT has been very positive. All stakeholders express a strong preference for electronic benefit delivery, reflecting the improved quality of service that EBT brings. And, although initial administrative costs have been high, this is not unusual for early experimentation in any field. Further, there is clear promise that EBT costs can be substantially reduced in the high-volume, integrated systems under development. Agency commitment to EBT is demonstrated by its systematic research agenda designed to identify the optimal conditions for EBT expansion.

It is clear that EBT applications to the FSP do not and cannot occur in a vacuum. Even the Agency's initial single program demonstration required the coordination of recipient, retailer, and banking interests. Since then, FNS has quickly moved to consider multiprogram and commercially integrated systems.

The range and importance of issues is both exhilarating and challenging. At the same time, EBT may actually realize a long-standing goal to conduct government business as an enhanced partnership—building on our relationship with State agencies to include other Federal agencies and the private sector. As this partnership materializes, client service will improve, and taxpayer interests in government efficiency will be satisfied.

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Appendix 1

Operational EBT Projects

Appendix 1. Food and Nutriton Services: Operational EBT Projects 1(1)

Operational Demonstration Projects

1. Reading, Pennsylvania. On-line operations started 10/84. Now serving 7,000 FSP households through about 125 food stores. State plans to expand the system to additional counties and add AFDC. When expanded, the system will serve 41,000 households receiving food stamp benefits and 30,000 AFDC households (many of whom also get FSP assistance). Number of participating stores will exceed 1,000. This is the only project in which the State agency operates the EBT system.

2. Maryland. On-line operations began in the Park Circle District of Baltimore 11/89. System began expanding in 1/92, and plans call for statewide operations by the end of 1992. The system delivers electronic benefits for FSP, AFDC, GA, and CSE (the nonpublic assistance component will be limited to Baltimore City). Statewide operations will serve approximately 138,000 food stamp households, and include about 3,400 food retailers. The current vendor is Deluxe Data Systems, Inc.

3. Albuquerque, New Mexico. On-line operations began 9/90, and recent data show approximately 22,000 food stamp households are participating. AFDC benefits are also provided through the EBT system. Food stamp benefits are accessed through almost 170 retailers. The primary vendor is the First National Bank of Albuquerque; however, third-party vendors serve some of the major supermarket chains.

4. Ramsey County, Minnesota. On-line operations for cash assistance programs started 6/87 and a food stamp component was added 9/91. Cash programs include AFDC, GA, Refugee Assistance, and State Supplemental Security Income. Approximately 20,000 food stamp households are served through 285 food stores. The primary vendor is the TransFirst Corporation; however, third-party vendors serve some retailers.

5. Dayton, Ohio. Off-line operations began 3/92. When full operations are reached in 6/92 approximately 12,000 food stamp households will access their benefits with smart cards through 80 retailers. This is a food-stamp-only application. The National Processing Company is the system vendor.

Operational Projects

6. Casper, Wyoming. Off-line operations began 5/91 for the WIC Program. Approximately 700 households access their benefits with a smart card at four retailers. The State plans to expand EBT for WIC and to add other benefit programs including the FSP. Applied Systems Incorporated is the system vendor.

Appendix 1. Food and Nutriton Services: Operational EBT Projects 1(2)

Approved FNS Projects

7. Cedar Rapids, Iowa. Already providing AFDC benefits. Plan to add 4,100 FSP households approved. This on-line system would operate on a voluntary basis for recipients and piggyback completely on an existing commercial POS/ATM system.

8. Camden, Essex, and Hudson Counties, New Jersey. Plan approved and State contract being negotiated to develop and operate on-line EBT system for food stamp and AFDC households. When fully implemented, about 80,000 food stamp households will participate.

9. Charleston, South Carolina. Plan for large food stamp, on-line system approved. When fully implemented EBT system will serve approximately 120,000 food stamp households.

10. Oklahoma County, Oklahoma. Plan for multi-program, on-line system approved. Will eventually integrate food stamp, AFDC, and child support benefits. When fully implemented about 19,000 food stamp households will participate.

Additional State Interests

11. Texas. Submitted a preliminary advanced planning document to FNS for a multi-program EBT system.

12. New Hampshire. Submitted a preliminary advanced planning document to FNS for a multi-program EBT system. Plans call for tri-state coverage for New Hampshire, Maine, and Vermont.

13. San Bernardino County, California. In response to Federal comments, revising a preliminary advanced planning document for a food stamp and AFDC system.

14. Missouri. Submitted a preliminary advanced planning document for a food stamp and AFDC system. Currently under Federal agency review.

15. Georgia. In the process of developing a preliminary advanced planning document for a food stamp and AFDC sytem.

Appendix 1. Food and Nutriton Services: Operational EBT Projects 1(3)

16. Colorado. Internal State exploration of EBT.

17. Virginia. Internal State exploration of EBT.

18. Illinois. Internal State exploration of EBT.

19. Tennessee. Internal State exploration of EBT.

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Appendix 2

Glossary

Appendix 2. Glossary

Automated Clearing House (ACH): A financial network that is part of the Federal Reserve banking system and is used to process electronic funds requests.

Automated Teller Machine (ATM): Equipment with the capacity to receive and dispense cash as it processes account debits and credits electronically.

Case Month: An evaluation concept that represents one food stamp case's participation in the Food Stamp Program for one month. Administrative and recipient participation costs are calculated on a per-case month basis to allow comparison between coupon and EBT systems involving different size caseloads.

Clearinghouse or Concentrator Bank: Financial institutions or other entities approved by the Federal Reserve Board that receive information on retailer credits from the EBT system and transmit the data into the ACH network.

Electronic Benefit Transfer (EBT): System that uses electronic funds transfer, automated teller machines, and point-of-sale technology for the delivery and control of public assistance benefits.

Electronic Funds Transfer (EFT): Financial process that moves value from one account to another electronically. Uses automated teller machines and point-of-sale devices to provide consumers access to their accounts.

Functional Requirements: Major elements of benefit issuance and redemption that must be provided by an EBT system. For the Food Stamp Program they include: 1) authorization of recipient benefits, 2) benefit delivery to recipients, 3) retailer and bank account settlement, 4) management of retailer participation, and 5) reconciliation and reporting.

Interagency EBT Steering Committee: A committee of representatives from several Federal agencies that was convened by the U.S. Department of the Treasury's Financial Management Service to coordinate and encourage the development of EBT systems.

Magnetic Strip Card: Financial transaction card that contains encoded information in a series of information tracks on a magnetic strip.

Network Switch: Component of an electronic funds or benefit transfer system that routes individual transactions between POS and ATM machines and the relevant authorizing database.

Off-line: An EBT system or transaction in which individual purchases are authorized without telecommunication between the POS device or ATM and a central data base. In an off-line system, data on recipient account balance is maintained on the access card, and purchase authorization only requires contact between the card and local device.

On-line: An EBT system or transaction in which authorization of individual purchases requires telecommunication between the POS device or ATM and a central database in which account balance data are maintained.

Optical Memory (or Laser) Card: Financial transaction card that can store large amounts of digital data. The card is composed of silver layers of different quality that are bonded between plastic. Data are recorded by using a laser beam to make holes in the silver layers.

Personal Identification Number (PIN): An alpha-numeric code selected by or assigned to the recipient and used to control access to individual accounts. The PIN must be entered on a key pad before any transaction can be processed.

Point-of-Sale (POS) Terminal or Device: Equipment that initiates the electronic debit of recipient accounts and credit to retailer accounts as a purchase is being made.

Processing Time: Typically, the amount of time required to complete an EBT purchase. In an on-line system, processing time includes several components: 1) time required to transmit messages over the telecommunications network, 2) time that messages spend in the system processing queue, and 3) time to actually process the message in the central computer.

Smart (or Chip) Card: Financial transaction card that can not only store large amounts of data but can also perform certain computational and memory functions. These functions are enabled by the presence of an integrated circuit embedded in the material of the card.

Settlement: The process in which information about store credits is passed through the financial network so that these credits can be paid using program funds.

Transaction Acquirers: Component of an EBT or EFT system that initially receives messages from POS devices and routes them to a switch or directly to the authorizing database operator.

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Appendix 3

Selected Food and Nutrition Service EBT Reports

Bartlett, S.H., and Hart, M.M. (1987). *Food Stamp Recipients' Patterns of Benefit Redemption.* Cambridge, MA: Abt Associates, Inc.

Coenen, P.F., Hamilton, W.L., Menne, M.G., and Greenberg, R.G. (1987). *The Feasibility of an Off-Line Electronic Benefit Transfer System for the Food Stamp Program.* Atlanta, GA: Electronic Strategy Associates, Inc., and Cambridge, MA: Abt Associates, Inc.

Hamilton, W.L., Bartlett, S.H., Fischer, S.D., Hoaglin, D.C., Kane, C.D., Logan, C.W., and Marschall, T. (1987). *The Impact of an Electronic Benefit Transfer System in the Food Stamp Program.* Cambridge, MA: Abt Associates, Inc., and Atlanta, GA: Bank Earnings International.

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