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Food and Nutrition Service

Office of Analysis and Evaluation

New Directions in Food Stamp Policy Research

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Mathematica Policy Research, Inc.

The papers presented in this monograph were written for the June 25, 1993 Food Stamp Program Research Conference sponsored by the Food and Nutrition Service (FNS). The research performed for the conference papers was sponsored by the FNS Office of Analysis and Evaluation as part of its ongoing research agenda. Opinions expressed in the paper are those of the authors and do not necessarily reflect the positions of FNS.

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Preface

The Office of Analysis and Evaluation (OAE) of the Food and Nutrition Service (FNS) supports the agency's policymakers with current policy research on issues related to food assistance programs. OAE sponsors technical research and studies on a variety of issues every year. The results of some of OAE's more recent research are presented in this compendium of papers.

These papers will be presented at a conference on recent Food Stamp Program policy research on June 25, 1993. The purpose of the conference—the third in a series—is to share OAE research findings with as wide an audience as possible to stimulate new ideas and discussion on current program topics. Most of the papers are based on longer research reports, which are available to those interested in more background on these issues.

OAE's broad research agenda also encompasses many topics in addition to those presented in this volume:

Welfare Reform, Coordination, and Simplification
OAE has initiated several welfare reform projects. Some of these studies focus on coordinating FNS programs with other assistance programs. One upcoming demonstration will examine ways in which the Food Stamp Employment and Training Program can be coordinated with the Aid to Families with Dependent Children (AFDC) Job Opportunities and Basic Skills Training Program and the Job Training Partnership Act. OAE is also funding an investigation of ways to improve coordination of basic AFDC and food stamp eligibility and application processing rules.

Evaluations of Program Effectiveness
OAE funds evaluations of various components of the Food Stamp Program; one recent and major evaluation focused on the effects and cost of the Food Stamp Employment and Training Program. This study used an experimental design to assess the effects of employment and training interventions in a randomly selected sample of 53 sites.

Participation Issues

OAE has published ten reports in its series *Current Perspectives on Food Stamp Program Participation.* These studies provide a wide range of information on participation rates, trends in rates over time, and other participation-related issues.

Nutrition Education and Monitoring

OAE conducts research in the areas of nutrition education and monitoring to determine if FNS programs meet the nutritional needs of the populations they are designed to serve.

Program Operations and Integrity

Research on states' program operations provides information and technical assistance to state agencies on how they can reduce costs and increase effectiveness, and informs federal policy and regulatory decision-making. OAE also studies ways to better detect and respond to recipient and retailer fraud and abuse. The office plans a study to collect more information on the dynamics of the exchange behavior of those engaging in illegal trafficking of food stamps so the payoffs associated with trafficking can be reduced.

If you would like more information on any of this work, or would like to know more about what OAE does, please call (703) 305-2133 or write:

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President of Geosocial Resources, Inc., Mr. Welsh has pioneered the adaptation of geographic information systems (GIS) to human services. From 1989 to 1991, he demonstrated uses of GIS in the FSP under a small grant from FNS. Over the past four years, he has extended the uses of this technology to public assistance, Medicaid, and other programs by creating systems for administrators, analysts, and caseworkers.

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Introduction

THE FOOD STAMP PROGRAM

The Food Stamp Program (FSP), administered by the U.S. Department of Agriculture's Food and Nutrition Service (FNS) in partnership with state and local governments, provides monthly benefits to financially needy households who meet specific income, asset, and employment-related eligibility requirements. With federal and state outlays of $22.5 billion and a monthly caseload of more than 25 million individuals in fiscal year 1992, the FSP ranks as one of the nation's largest social welfare programs.

The basic structure of the modern FSP has been in place for almost 15 years. Some features of the program—such as the coupon form of the benefit—have an even longer history, dating back to the state pilot programs launched by Executive Order of President John F. Kennedy in the early 1960s. These pilot programs, in turn, harkened back to an earlier food assistance plan that operated for some four years during the Depression.

The goals of government food assistance programs have evolved substantially since the first food stamp plan. Established with the twin objectives of boosting needy families' purchasing power and reviving the ailing agricultural economy, the Depression-era plan was designed to stimulate consumption of surplus products. Today's FSP also aims to strengthen the nation's agricultural sector. But increasing low-income households' food purchasing power—and, by extension, the nutritional quality of their diets—has clearly emerged as the program's primary goal.

"Throughout [the FSP's] history, questions about the most appropriate means of [improving diet quality] have challenged policymakers."

Throughout the program's history, questions about the most appropriate means of achieving this goal have challenged policymakers. Perhaps the most fundamental question concerns the form of the food benefit itself. For over 30 years, the program has provided assistance almost exclusively in the form of an earmarked, or in-kind, benefit—coupons redeemable for the equivalent dollar value of food from authorized retailers. Since the program's inception, however, some policymakers and analysts have argued in favor of "cashing out" food stamps—providing benefits in the form of checks rather than coupons. Underlying this proposal is a central question: would cash be more

effective than the earmarked benefit in meeting the goals of the FSP or in helping low-income families meet their basic needs? Or would the posited gains in program participation, administrative cost savings, and household satisfaction be outweighed by a drop in the nutritional quality of recipients' diets?

While debate over the relative merits of cash versus coupons is as old as the FSP itself, recent technological advances, notably in the area of electronic funds transfer, have raised new questions about the application of computer technology to benefit issuance and service delivery. Given the cost and burden that coupon issuance imposes on the FSP and recipients, and that coupon processing imposes on stores, banks, and the Federal Reserve System, the appeal of systems that transfer benefits electronically is obvious. But technological advances raise complex policy questions. In the case of electronic benefit transfer (EBT), these questions reach back to the enduring issue of in-kind versus cash benefits. Might EBT offer some of the advantages of cash assistance as well as those of an earmarked benefit?

This volume of research papers is intended to shed light on these policy questions and to underscore the often difficult tradeoffs policymakers must make to meet the goals of the FSP. Of the six papers, four focus on cashout. The first in this set provides an overview of cashout research; the following three present findings from four demonstration projects. The fifth paper in the volume examines research on EBT. The final paper explores the application of geographic information system (GIS) technology, or electronic mapping, to food stamp research and case management. Together, the papers offer a broad overview of current research on alternative approaches to benefit and service delivery. This introduction provides the policy context for the questions and issues raised in the research papers and sets the stage for their detailed examinations of cashout, EBT, and GIS.

"The papers offer a broad overview of current research on alternative approaches to benefit and service delivery."

CASHOUT IN THE FOOD STAMP PROGRAM

The debate over the form food assistance should take—coupons or cash—casts in sharp relief the complex tradeoffs implicit in the FSP's broad policy goals. The basic objective of the program, as stated in the Food Stamp Act of 1977, is to permit low-income households to obtain a more nutritious diet by increasing their food purchasing power. Since achievement of this goal must be gauged on the basis of a range of outcome measures, any program change must likewise be weighed in terms of its potential effects on such measures as households' food expenditures, the nutritional quality of recipients' diets, administrative costs, program vulnerability to benefit loss and fraud, and rates of participation among eligible households.

The original FSP was designed to ensure that households increased their home food expenditures, in the belief that by spending more on food, families would obtain more nutritious diets. Recipients were required to purchase a specific amount of subsidized food coupons, with the monthly allotment determined by the government on the basis of household size and composition. Although the purchase requirement was waived for households with extremely limited resources, some program analysts argued that the difficulty of budgeting for the monthly purchase of stamps discouraged some eligible households from participating in the program. When Congress responded to this criticism and revoked the purchase requirement in 1977, however, opponents of the change argued that it would weaken the link between FSP benefits and food expenditures. Today's critics of cashout contend that switching from coupons to cash assistance would completely sever that link and seriously compromise the program's nutrition-related objectives.

Comparing the Impact of Coupons with Cash Income

The case for preserving the coupon system rests on three basic propositions: because coupons can be spent only on food, they are more effective than cash assistance in increasing household food spending; increased spending translates to improved nutrition; and for both these reasons, coupons are a more acceptable form of assistance from taxpayers' perspective. Advocates of cashout do not necessarily dispute these claims. However, they believe that any drop in home food use caused by cashout will be minimal and more than counterbalanced by administrative cost savings and by increased program participation among needy households that might otherwise have declined to seek benefits because of the perceived stigma and burden attached to the use of coupons.

Researchers have sought to analyze the potential impacts of cashout on recipients' food expenditures by examining the different ways in which households respond to food stamps and cash income. These studies consistently show that food stamps have a substantially greater marginal effect on food expenditures than does ordinary income. For instance, while an additional dollar of income prompts an average low-income household to increase its food expenditures by 5 to 10 cents, an additional dollar of food stamps prompts a 20- to 45-cent increase in the food expenditures (Fraker, 1990). Nutrient availability—defined as the total nutrient content of foods used from the household food supply—is also higher with food stamps. One study, for example, found food stamps to have a three to seven times greater marginal effect than ordinary income on the availability of seven key nutrients (Devaney, Haines, and Moffitt, 1989).

These results are somewhat surprising, given the fact that the vast majority of food stamp households spend more on food than they are allotted in stamps—which would suggest that few are constrained to buy more food than they would otherwise. One possible explanation is that the preferences of a different household member may predominate when coupons form part of the budget than when the household's total resources are in cash.

The Effects of Cashout: Early Experiences

While intriguing, comparisons of food stamps and cash income provide only limited insight into the potential effects of cashout, since households may respond differently to cash food assistance than they do to ordinary income. Among the factors that may come into play are differences in terms of when the money is received and who in the household controls its use. Recipients' knowledge of the intended purpose of food benefits may also affect how the money is spent.

The first direct comparison of the effects of coupons and cash food assistance was made possible by a demonstration authorized by FNS in 1980. FSP benefits were issued in the form of checks to elderly food stamp recipients and others receiving Supplemental Security Income (SSI) in nine sites around the country. Other evidence comes from the Commonwealth of Puerto Rico, where food stamps were cashed out in 1982 under the Commonwealth's Nutrition Assistance Program (NAP). Evaluations of cashout in these two instances suggest that dispensing with coupons could significantly reduce the program's administrative costs and losses caused by fraud and theft without significantly affecting household food expenditures and the nutritional quality of foods used (Blanchard et al., 1982 and Beebout et al., 1985). The unique settings of these studies, however, raise questions about whether the findings can be generalized to the food stamp population nationwide.

Evidence from Four Cashout Demonstrations

To address these questions and provide greater insight into the potential effects of implementing cashout on a large scale, FNS funded four additional demonstration projects. The evaluations of these demonstrations are discussed in four papers in this volume. The first of the four, the Carlson paper, provides an overview of the demonstrations. The paper outlines FNS's research agenda, describes the studies' data collection procedures, defines outcome measures, and offers possible explanations for the studies' divergent findings.

Two of the four demonstrations, begun in 1989 and 1990 in Alabama and San Diego, were what are termed "pure" cashout demonstrations; the switch from coupons to cash was the only program change implemented at the time. The results from the evaluations of these

demonstrations are discussed in Fraker et al. The other two tests were conducted as part of broader welfare reform demonstrations begun in Alabama and Washington State in 1990. Results of the Alabama Avenues to Self-Sufficiency through Employment and Training Services (ASSETS) cashout evaluation are discussed in the Davis paper; results of the Washington State Family Independence Program (FIP) cashout evaluation are discussed in Cohen and Young.

"While three of the four studies suggest cashout reduces household food expenditures, the magnitude of the the effect varies widely."

The picture of cashout that emerges from the studies is not entirely clear. While three of the four studies suggest cashout reduces household food expenditures, the magnitude of the effect varies widely. One study, the Alabama "pure" cashout demonstration, found no significant effect on household food expenditures. In San Diego, the money value of purchased food used from the home food supply (adjusted to reflect the age and sex of household members) dropped by 7 percent. The Washington State study found a larger effect; households that received their FSP benefits in the form of checks spent 17 percent less on food used at home than did households that continued to receive coupons. The most substantial impact is suggested by the Alabama ASSETS demonstration, where check households spent 22 percent less on food used at home than did coupon households.

Three of the four studies also examined the effects of cashout on nutrients available from the household food supply. The Alabama and San Diego studies found nutritional effects to roughly parallel expenditure effects; nutrient availability decreased by about 5 percent in San Diego and remained constant in Alabama. In Washington, check households used less food and consequently had access to fewer nutrients than did coupon households. Across the nutrients studied, the significant differences ranged from 6 to 11 percent; Washington check households partly compensated for decreased expenditures by obtaining significantly more nutrients per dollar. Moreover, even in Washington, most check households had access to far more than the recommended daily allowance (RDA) of most nutrients.

To date, findings on administrative costs are available only from the Alabama "pure" study. As expected, cashout substantially reduced the cost of issuing FSP benefits—from $2.05 to $1.03 per case-month. Because the government replaced lost or stolen checks, whereas it does not replace coupons that are received by clients and subsequently lost or stolen, benefit losses borne by recipients also decreased under cashout.

Recipients in the San Diego and Alabama "pure" demonstrations and in the Washington State FIP study generally responded favorably to

cashout, and some said they preferred checks to coupons because they felt coupons are embarrassing to use. However, few coupon recipients felt they were treated differently from other customers by store personnel. This finding raises a question about the degree to which the stigma purportedly associated with coupons actually discourages participation in the program. Data on changes over time in the level of participation under cashout, forthcoming from the San Diego study, may shed some light on this question.

The Carlson paper offers several possible explanations for the divergent findings of the four studies. Differences in saturation and recipient awareness, the presence or absence of concurrent welfare reforms, and differences in the study designs are among the factors that may have influenced the results. Although the findings on household food expenditures are inconsistent and therefore inconclusive, Carlson observes that the impact of cashout is not so overwhelmingly negative as to outweigh such other policy considerations as admininistrative costs and participation rates.

"Another issue facing policymakers is the apparent tradeoff between economic efficiency and public support for the FSP."

Another issue facing policymakers is the apparent tradeoff between economic efficiency and public support for the FSP. From the perspective of recipient households, cash is more efficient than coupons in that it permits each household to allocate its resources as it sees fit. (The discrepancies observed in the demonstrations between check and coupon households' food expenditures provide some indication of the degree of inefficiency imposed by the earmarked benefit.) But in a more general sense, recipients' welfare clearly depends on public support for the program. And what evidence we have suggests that taxpayers are more comfortable providing in-kind, rather than cash, benefits and may consequently be more generous in their support of a coupon-based program. The question of which benefit form best promotes the welfare of financially needy households is thus more complex than it might appear.

ELECTRONIC BENEFIT TRANSFER

EBT offers policymakers an alternative benefit delivery mechanism that preserves the earmarked benefit, yet promises some of the advantages of cash assistance. An extension of electronic credit and debit procedures developed as part of commercial payment systems, EBT issues and redeems benefits through an electronic funds transfer network and point-of-sale (POS) technology. In most cases, recipients are issued access cards (much like those used in automated teller machines), which can be used at special terminals at grocery store check-out counters to access a central computer that maintains FSP account information and debits recipients' accounts with each purchase. At the end of each

business day, retailers' authorized EBT sales are totaled, and funds are transferred electronically to the stores' bank accounts. An alternative to this type of EBT system is the so-called off-line system, where benefit information is stored on the card itself, thus eliminating the need to access the central computer with each purchase.

The potential advantages of EBT are substantial. EBT reduces program vulnerability to some kinds of benefit loss and diversion and provides an audit trail that facilitates investigation and successful prosecution of fraud. Proponents also believe that permitting food stamp recipients to pay for their groceries through the same kind of POS technology now becoming widely available to other customers may reduce the stigma attached to the use of coupon benefits, which might in turn encourage higher rates of participation among eligible households. Moreover, the earmarking of the benefit ensures that these advantages can be realized without compromising the program's nutritional goals.

The Evidence From EBT Demonstrations

To assess whether EBT can measure up to the large claims made for it, FNS has implemented an ambitious research program, with six demonstration projects begun since 1984. The results that are now available are summarized in the Olander paper. The studies clearly demonstrate the operational feasibility of EBT systems; in general, funds transfers are accomplished accurately and efficiently. In addition, recipients, retailers, and banks are for the most part highly enthusiastic about the technology. Recipients report lower participation costs (with the elimination of a trip to claim benefits) and lower benefit losses. Retailers report EBT is faster, easier, and more efficient and eliminates the burdensome counting, stamping, and bundling of paper coupons. For retailers, the resulting cost savings is small, however, amounting to just $14 a month for the average store. Banks' savings with EBT are more substantial: over $6 for each $1,000 in benefits redeemed, a 90 percent savings over the cost of processing coupons.

"Studies clearly demonstrate the operational feasibility of EBT systems."

The evidence on government costs is less conclusive. Even in the longest running EBT project, costs per case-month still exceed those of the coupon system by more than three to one. This differential is partly attributable to the small caseload served in the demonstration and the limited availability of commercial POS technology. Substantial savings may be achieved through economies of scale and cost-sharing with commercial POS users, making EBT cost-competitive with the coupon system, as is required by law for full-scale implementation.

To a large extent, implementation costs will depend on the outcomes of several key policy debates. One such debate concerns the proportion of

store check-out lanes that should be equipped with EBT devices. Mandating universal lane coverage will significantly raise EBT start-up and operating costs. But against these cost considerations policymakers must weigh potential impacts on service delivery—in this case, the possibility that some retailers may choose not to participate if supplied with a limited number of POS devices, thus reducing recipients' grocery shopping options. Forthcoming results from the EBT demonstrations should shed some light on the magnitude of the tradeoffs involved in this and other policy decisions that will inevitably arise with EBT.

GEOGRAPHIC INFORMATION SYSTEMS

In the FSP, as in other assistance programs, clients' ability to access benefits and services is a key concern. The final paper in this volume discusses the contribution geographic information systems (GIS) technology can make to improving client access to services and to enhancing policymakers' understanding of such issues as the impact of neighborhoods on individuals' likelihood of welfare receipt.

Essentially a computerized mapping system that permits analysis of geographically referenced information such as caseload data, a GIS has both research and case management applications. As described in the Welsh paper, computer mapping provides a unique perspective on such issues as the distribution of FSP-authorized retailers and recipients' proximity to different types of stores.

"Computer mapping provides a unique perspective on such issues as the [geographic] distribution of FSP-authorized retailers and recipients."

The technology's case management applications are illustrated by the prototype system called PLACES (Promoting Local Access to Comprehensive Employment Services). Designed to help employable food stamp and welfare recipients find services such as child care and job counseling, the PLACES system works from a city-wide map. Caseworkers can zero in on a client's neighborhood, locate service providers (which appear as symbols on the on-screen map), pull up information on relevant providers, and even identify bus routes for the client.

The PLACES system directly responds to a growing emphasis on comprehensive case management in human services. As policymakers at all levels of government have increasingly sought to address clients' multiple needs, program administrators have looked to new technology to enhance coordination and integration of services. FNS funding of research into GIS applications acknowledges the special role the federal government can play in helping state and local governments select the technology needed to facilitate case management and improve service delivery to food stamp recipients.

RESEARCH AND POLICY

The papers in this volume highlight one facet of FNS's wide-ranging research agenda: the agency's ongoing exploration of alternative approaches to benefit and service delivery. Like the research reports presented at previous FNS conferences, these papers explore the important social and economic issues raised by technological innovations, changing participation dynamics, or proposed program modifications. Although research in these areas continues and many questions remain, the papers that follow are intended to stimulate discussion and elicit new ideas about alternative approaches to achieving the objectives of the FSP.

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An Overview of Food Stamp Cashout Research in the Food and Nutrition Service

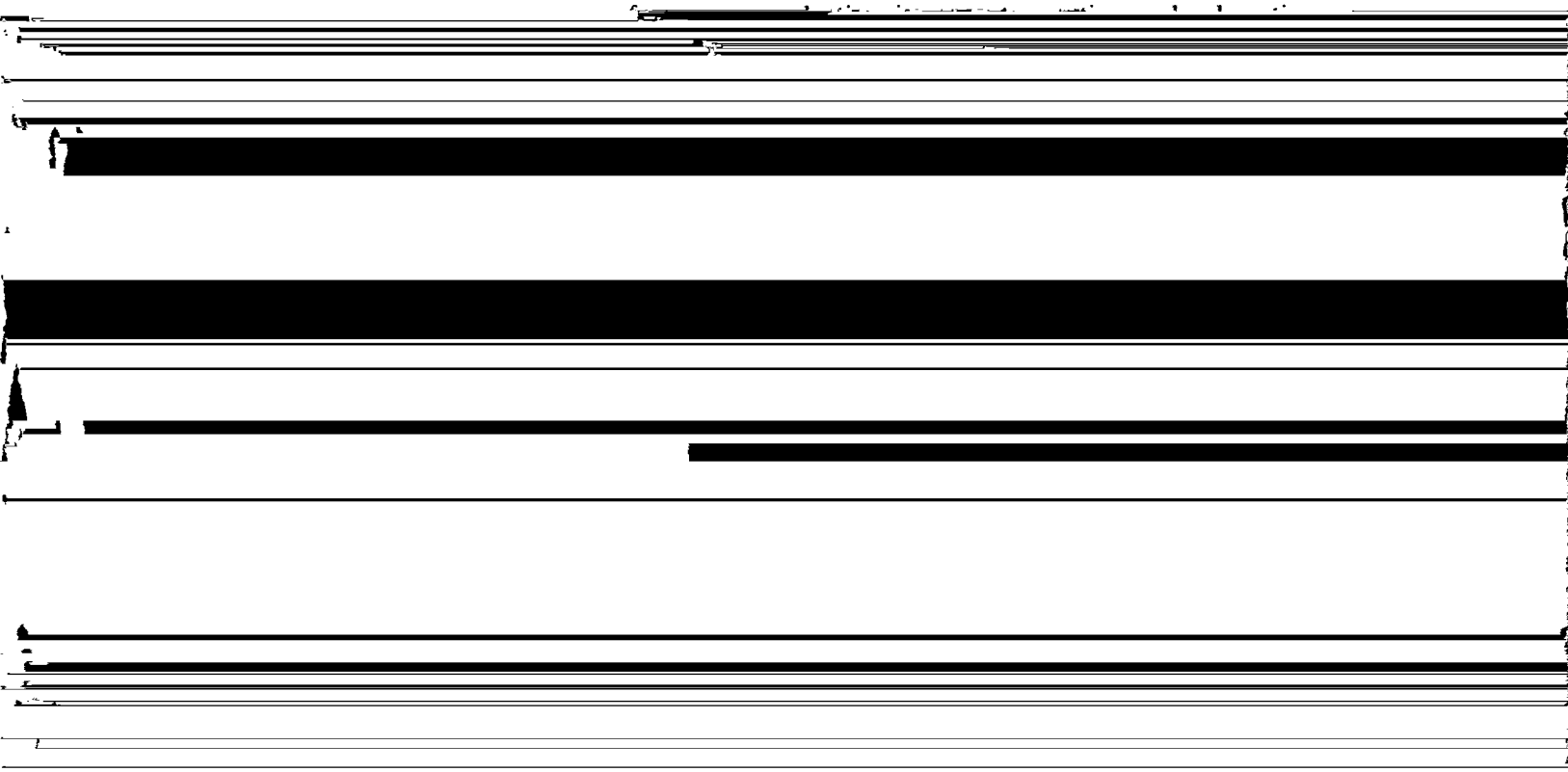
Steven Carlson

INTRODUCTION AND BACKGROUND

A fundamental issue in the design of the Food Stamp Program (FSP) is the form benefits take. From the inception of pilot programs in the early 1960s to the contemporary FSP, the vehicle of choice has been the food stamp coupon, a voucher redeemable only for food at authorized retailers. For nearly that same period, analysts have considered the relative merits of meeting the food-assistance needs of the country with in-kind, restricted transfers and unrestricted cash transfers (see, for example, MacDonald, 1977; Butler and Kondratas, 1987).

"A reasonable rhetorical argument can be made for coupons or cash."

A reasonable rhetorical argument can be made for coupons or cash. Advocates of the coupon system argue that coupons are a direct and inexpensive way to ensure that participants use food stamp benefits to purchase food, that the unauthorized use of food stamps is relatively limited despite some evidence of fraud and benefit diversion, and that coupons provide some measure of protection to food budgets from other demands on limited household resources. Advocates of cash benefits argue that the current system limits the purchasing choices of participants, places a stigma on participation, and entails excessive costs



The debate over the desirability of one benefit form over the other has

policy through state-sponsored and community-based demonstration projects" (Domestic Policy Council, 1986, page 3). Under the aegis of the Interagency Low Income Opportunity Advisory Board, created to provide states with a single, federal point of contact when requesting waivers to test innovations, several states began to consider the possibility of changing the food stamp benefit from coupons to cash. Analysts and policymakers in FNS and the U.S. Department of Agriculture saw in this renewed interest both an opportunity to close an important gap in our understanding of the consequences of cashout and a need to develop a coherent research strategy to do so.

This paper describes the research strategy that emerged from the agency's deliberations. Key elements of the strategy include selection of sites to ensure variation along several dimensions; a comprehensive statement of research issues, interests and needs; the development of research designs tailored to site characteristics; and the selection of a core set of outcome measures that would facilitate cross-site comparisons. The way in which this strategy was implemented and the findings it generated are subjects of the following three papers in this volume.

DEMONSTRATION SITES

In late 1987, Congress amended the Food Stamp Act to authorize cashout as part of the Family Independence Program (FIP) in Washington State. The following spring, FNS signaled its willingness to consider additional proposals to replace food stamp coupons with cash. With an eye to expanding our knowledge of the effects of cash food assistance, the agency required any test of cashout to meet several criteria:

- In keeping with the FSP's demonstration authority, the proposed demonstration had to be clearly related to improving program administration and effectiveness.

- The demonstration had to substantially enhance existing knowledge by covering different population groups and geographic areas.

- The demonstration had to provide a sound evaluation.

Four major projects in three states met these criteria and received approval to cash out all or a portion of the food stamp caseload: the San Diego Food Stamp Cashout Demonstration, the Alabama "Pure" Cashout Demonstration, the Alabama Avenues to Self-Sufficiency through Employment and Training (ASSETS) Program,[1] and the Washington State Family Independence Program (FIP).[2] Table 1

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Table 1. Characteristics of Four Food Stamp Cashout Demonstration Sites

Site Characteristic	Washington State	San Diego	Alabama ASSETS	Alabama "Pure"
Location	5 community service field offices	San Diego County	Clark, Madison, and Limestone counties	2 urban and 10 rural counties
Project dates	Phased in from July 1988 to July 1989	20% of caseload converted to cash in July 1989; balance of caseload converted in September 1990	Limestone converted in May 1990; Clarke in September 1990; Madison in November 1990	Converted to cash in May 1990; returned to coupons in January 1991
Target group	AFDC participants in FIP	All food stamp cases	All food stamp cases	All food stamp cases
Number of participants receiving cash	14,000 cases in July 1991	48,000 cases in September 1990	15,600 cases; 37,600 people in August 1992	2,000 cases; 5,700 people in an average month
Other policy changes	Yes	No	Yes	No
Case characteristics				
% on AFDC	100	88	18	25
% with earnings	23	20	34	29
% with elderly	< 1	2	19	25
Average benefits				
Food Stamps	$193	$116	$168	$169
AFDC	398	659	96	128

summarizes some of the key features of each project. Two deserve particular attention.

First, in the San Diego and Alabama "pure" demonstrations, cashout is the only change; in the Washington FIP and Alabama ASSETS demonstrations, cashout is only one component of a broader welfare reform plan. In general, the welfare reform initiatives altered numerous program rules, resulted in higher benefits for some recipients and lower benefits for others, placed more emphasis on individual responsibility and movement toward self-sufficiency, and often entailed more frequent or intensive interactions between participants and local case managers. The sheer number and variety of simultaneous program changes render the task of isolating the effect of cashout more difficult in these sites.

"[Cashout] sites...represent significant variation in geographic location, degree of urbanization, and caseload demographics."

Second, while the sites were neither randomly selected nor necessarily representative of the nation, they do represent significant variation in geographic location, degree of urbanization, and caseload demographics. Perhaps most important, the sites represent the welfare assistance continuum—from high Aid to Families with Dependent Children (AFDC) and low food stamp benefits to low AFDC and high food stamp benefits.

San Diego Food Stamp Cashout Demonstration

The San Diego demonstration is one of two in which the only change is the replacement of coupons with checks. The demonstration started up in two phases. First, in July 1989, the county cashed out 20 percent of the food stamp caseload. The cases assigned to receive checks were selected at random. In September 1990, the entire caseload (approximately 48,000 cases) started to receive checks. The entire county caseload continues to receive cash food assistance as of this writing.

Two aspects distinguish the San Diego setting from the other sites: It is predominantly urban, and a relatively high proportion of the food stamp caseload (88 percent) receives AFDC. This proportion is far higher than the national average for at least two reasons. First, Supplemental Security Income (SSI) recipients in California receive food stamp benefits in cash as part of their SSI benefit and are not part of the food stamp caseload. The pool of non-AFDC food stamp households is thus smaller than it would otherwise be. Second, California had one of the most generous AFDC payment levels and highest eligibility thresholds in the nation. As a result, households that would not have qualified for AFDC assistance in many other states were eligible for AFDC in California. Because AFDC income is relatively high, food stamp benefits are lower in San Diego than in many parts of the country.

Alabama "Pure" Cashout Demonstration

To strengthen the evaluation of cashout in the Alabama ASSETS program and to provide a sharp contrast to the demonstration in San Diego, FNS urged Alabama to consider a second, independent test of cashout. In contrast to the ASSETS test, this "pure" demonstration did not alter other program rules or policies; the only change was the replacement of coupons with checks for a randomly selected sample of food stamp participants in two urban and ten rural counties. Between May and December 1990, approximately 2,000 households received food assistance checks each month.

The contrast to the San Diego demonstration is created by the fact that the Alabama "pure" demonstration ran in a mix of urban and rural areas. And while San Diego had one of the most generous AFDC benefits in the country, Alabama had one of the least generous. As a result, the food stamp benefit accounted for the majority of the public assistance package available to most households in Alabama.

Alabama ASSETS

The ASSETS Program is one of two demonstrations in which cashout is one component of a broader welfare reform initiative. Alabama implemented the ASSETS demonstration on a staggered basis in three counties from May 1990 through January 1991. ASSETS makes four key policy and program innovations: it consolidates two separately administered assistance programs (food stamps and AFDC) by standardizing some eligibility requirements and providing a single cash grant; it broadens requirements for participation in employment and training programs; it requires additional recipients to cooperate with child support enforcement efforts; and it introduces a case management system in which a single worker is responsible for all aspects of a case.

Alabama cashed out the entire food stamp caseload in each of the three demonstration counties during 1990 (at staggered intervals beginning with the first county in May and ending with the final county in November). As of August 1992, approximately 37,600 persons in 15,600 families received food assistance checks.

Washington State Family Independence Program (FIP)

The Washington State FIP, a state-initiated alternative to the AFDC program, is designed to increase the self-sufficiency of welfare families. FIP provides financial incentives to clients who are working, in school, or receiving training; emphasizes employment and training services; offers a variety of support services; and consolidates public assistance rules. Between July 1988 and July 1989, AFDC recipients who enrolled in one of five randomly selected welfare offices across the state began receiving food stamp benefits in cash. By July 1991, approximately 14,000 families received food assistance checks. (Another 10,000

families in five other sites also received checks. These sites were not part of the evaluation.)

KEY POLICY RESEARCH ISSUES

The Food Stamp Act of 1977 as amended authorizes the FSP to help low-income households obtain a more nutritious diet through normal channels of trade by increasing food purchasing power for all eligible households who apply for participation. Neither coupon nor cash advocates have argued to change this fundamental policy goal. A full assessment of the relative merits of cash and coupons must therefore address three central issues. First, what effect will the substitution of checks for coupons have on participating households; in particular, will cashout weaken the link between the food stamp benefit and food consumption, reducing the likelihood that low-income households obtain a more nutritious diet? Second, what effect will cashout have on authorized retailers, the "normal channels of trade" envisioned in the Food Stamp Act? And finally, what effect will cashout have on program participation and costs?

Household Effects

Perhaps the most critical issue in the debate of cashout is its effect on household expenditures and food consumption. Each demonstration addresses one or more of the following facets of the issue:

- Does cashout change the amount of money households spend on food used at home and away from home?
- Does cashout change the amount of nutrients available to households in the foods used at home?
- Does cashout change the incidence of acute food shortages or the household's perception of the adequacy of its food supply?
- Does cashout change general expenditure patterns? If households spend less money on food, do they spend more money on shelter, transportation, medical care, or other major household budget categories?
- Do households prefer coupons or checks?

Retailer Effects

The core of this issue is whether authorized food retailers lose sales volume if household food purchasing habits change through either a reduction in food expenditures or a shift in shopping locations. Any such loss may be offset at least partly by retailer savings resulting from the elimination of coupon processing. Whether the magnitude of savings is large enough to offset this loss (or the perception of lost

business) is likely to be important to the retail community's preference for cash or coupons.

Program Effects

Cashout is expected to affect program participation, benefit expenditures, and administrative costs. First, eliminating coupons may reduce the "stigma" of participation, and make the program more attractive to some eligible nonparticipants, thus leading to increased participation. Under current program funding arrangements, the federal government bears the entire cost of any increase in benefit expenditures.

A major reason for states' interest in eliminating coupons is the expected savings in administrative costs. Printing, distributing, storing, and accounting for coupons is expensive, and a substantial portion of the expense is borne by states. These costs would be avoided in a cash transfer system.

EVALUATION DESIGN

No single evaluation design can effectively address each of the preceding policy issues. Because of the numerous difficult choices among competing research objectives and trade-offs between the need for methodological rigor and practical feasibility, a combination of designs provides a better approach. Consider, for example, three outcomes of particular interest: household food expenditures and consumption, program participation, and administrative costs.

- Experimental design, in which some households are randomly assigned to receive checks and others to receive coupons, is the best approach for measuring changes in household food expenditures and use. Random assignment creates two directly comparable research groups. The difference in food expenditures, use, and nutrient availability between the group receiving checks and the group receiving coupons reliably isolates the effect of the conversion from coupons to checks.

- Saturation design, the implementation of cashout on a large scale (in entire counties or similar areas), permits the best estimate of changes in participation. This saturation approach more closely mimics actual program operations should cashout ever be adopted as national policy. Some have suggested that recipient reactions may be more "normal" when all recipients in an area receive checks (see Davis). Others argue that randomization of individuals cannot capture the effect of a policy change (like cashout) on the probability of entering a program (Garfinkel et al., 1992; Moffitt, 1992) and hence, on total participation. Randomization of sites (and, to a lesser extent, matching of sites) allows a comparison of

caseload changes in treatment (cash) and comparison (coupon) sites. In the absence of other external factors that differentially influence caseload size, the difference between the treatment and comparison sites offers a measure of the effect of cashout on participation.

- Either design yields reasonable estimates of changes in administrative costs. Full implementation (saturation) is preferred to separate the effects of cashout from other simultaneous changes, but most costs of issuing checks or coupons are usually identifiable in various administrative records or in other sources.

A full assessment of the effects of cashout on the range of important outcomes requires a mix of both research designs. In cooperation with the selected sites, FNS tailored a mixture to address its own research interests and the sites' particular constraints. Table 2 summarizes the general features of the overall strategy as implemented in the four research sites.

"FNS sponsored classical experiments in two sites: San Diego ... and the Alabama "pure" test."

FNS sponsored classical experiments in two sites: San Diego (during the first phase of implementation) and the Alabama "pure" test. The remaining sites (Washington State FIP and Alabama ASSETS) relied on a quasi-experimental comparison of treatment and matched-comparison counties, in which *all* members of the target group in randomly selected treatment counties received checks in place of coupons. The saturation design was also implemented in the second phase of the San Diego demonstration, but there was no explicit comparison site.

Design considerations influenced the research questions addressed in each demonstration site. All four evaluations report information on expenditures and participant attitudes. All but the Alabama ASSETS evaluation report on food use and nutrient availability. The evaluation of the Alabama "pure" demonstration also presents information on administrative costs. Work in progress will provide information on retailer effects in San Diego; administrative costs in Washington State, San Diego, and Alabama ASSETS; and program participation in San Diego and Alabama ASSETS.

Data Collection

The major findings on household effects in each evaluation are based on data obtained from in-person interviews conducted in 1990 and 1991. In all but one site, the target sample size was 1,200 completed interviews. This target was doubled in the Alabama "pure" test to permit some comparisons between urban and rural counties. In all sites, the target samples were equally divided between check and coupon

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Table 2. Evaluation Design Characteristics in Four Food Stamp Cashout Demonstration Sites

Design Feature	Washington State	San Diego	Alabama ASSETS	Alabama "Pure"
Evaluation design	Quasi-experimental comparison of treatment and matched comparison counties	Random assignment of participants to check or coupons during first phase of implementation; all participants converted to checks in second phase	Quasi-experimental comparison of treatment and matched comparison counties	Random assignment of participants to check or coupons
Target household sample size				
Check	600	600	600	1,200
Coupon	600	600	600	1,200
Overall response rate	75%	78%	83%	78%
Date of field work	August to October 1990	May to August 1990	August to November 1991	August to November 1990
Retailer sample size	N/A	500	150	N/A
Household effects				
Food expenditures	•	•	•	•
Nutrient availability	•	•		•
Perceived adequacy of food supply	•	•	•	•
Other expenditures	•	•	•	•
Preferences	•	•	•	•
Retailer effects				
Costs		o	•	
Preferences		o	•	
Program effects				
Administrative costs	o	o	o	•
Participation		o	o	

Key: • = Completed; o = Forthcoming

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Other expenditures	•	•	•	•
Preferences	•	•	•	•
Retailer effects				
Costs		o	•	
Preferences		o	•	
Program Effects				
Administrative costs	o	o	o	•
Participation		o	o	

Key: • = Completed; o = Forthcoming

households. Overall response rates ranged around 80 percent in each site.

"To ensure comparability of data across the four research sites, FNS developed a core questionnaire for administration in each of the four sites."

The main focus of the interviews was household expenditures and food use. Interviewers recorded information on the number and types of meals eaten from the home food supply during the seven days preceding the interview. (A screening visit before the interview offered instructions on keeping food records in preparation for this interview.) Information was also collected on both the type and quantity of food used; on household characteristics, income, and consumer expenditures; and on experiences with checks and coupons. To ensure the comparability of data across the four research sites, FNS developed a core questionnaire for administration in each of the four sites (Cohen et al., 1990). The household food use section was omitted from the Alabama ASSETS evaluation.

The major findings on retailers' perceptions of the effect of cashout on store operations, sales, and profits are based on telephone interviews with samples of retailers in San Diego and Alabama ASSETS counties. Retailers were asked to report the change caused by cashout in time spent on coupon- and check-related activities, total staff hours, food sales, and profits. A core instrument was used in both sites to ensure cross-site comparability.

Findings on administrative effects are based on in-person and telephone interviews with county and state program staff, mail surveys of the staff who handle check-issuance problems, and data from various administrative records.

Outcome Measures

"Many of the results...of cashout are based on measures of food use adjusted to reflect differences among households in size, age and gender composition."

The outcome measures were the same for each of the research sites. Members of the household were defined as people who eat from the same food supply as the food stamp household head. Many of the results of the household effects of cashout are based on measures of food use adjusted to reflect differences among households in size, age and gender composition, and the number of meals eaten from the home food supply. The number of *adult male equivalents* (AMEs) adjusts for the age and sex of household members by weighting each by the recommended dietary allowance (RDA) for that member for a given nutrient, typically, food energy, relative to the RDA for that nutrient for an adult male age 25 to 50. The number of *equivalent nutrition units* (ENUs) incorporates a further adjustment for the proportion of meals eaten at home. Both adjustments standardize measures of food use and nutrient availability across households with different nutritional requirements.

Each study used several measures of food use. *Food used at home* includes all food from the household food supply consumed at home (including food served to guests), food taken from the home and eaten elsewhere, food prepared elsewhere but eaten in the home, and food prepared for consumption but thrown away or fed to pets. *Purchased food used at home* includes food purchased with cash, credit, or food stamps. *Nonpurchased food used at home* includes food received as a gift or as payment-in-kind; food that is home-grown or produced; food received through WIC and USDA commodity programs; and other food obtained from food banks, pantries, or churches. To measure the *quantity of food used at home,* all reported food amounts were converted to pounds and reported both in total and for 31 separate food groups corresponding to the USDA's Thrifty Food Plan (plus alcoholic beverages and, in one instance, new foods on the market not yet coded for the food plan).

Nutrient availability refers to nutrients that are present and available in the food used at home during the seven-day period for which food use data were collected. Nutrient availability is different from nutrient intake: the data reflect the amount of food used by a household (whether eaten or thrown away), not the amount of food actually consumed. Thus, a measure of nutrient availability tends to overstate the nutrients actually ingested by household members. Nutrient availability is calculated by multiplying the nutrient content per pound of each food type by the number of pounds used and summing across all food types. Nutrient content of each food type was taken from a USDA nutrient database of approximately 4,000 foods and food combinations.

Many of the measures of nutrient availability entail comparing the sample mean availability of a nutrient per ENU with the RDA for an adult male or determining the percentage of sample households for whom the availability of a nutrient per ENU equals or exceeds the RDA. To accommodate the variability of individual nutrient requirements, the RDA for all nutrients except food energy exceeds the average requirements of most individuals. Therefore, if a group's mean intake of a nutrient equals or exceeds the relatively high standard of the RDA, the probability of inadequate intake is quite low for members of that group. An individual whose intake of a nutrient (other than food energy) is less than the RDA might not be at nutritional risk since the RDA exceeds the nutritional requirements of most individuals. Consequently, the measures of nutrient availability reported in each evaluation are used to make only relative comparisons between check and coupon recipients rather than absolute estimates of the numbers of households at nutritional risk.

"The measures of nutrient availabiity reported in each evaluation are used to make only relative comparisons between check and coupon recipients."

The nutrient analyses focus on (1) food energy, (2) three macronutrients (protein, fat, and carbohydrates), which are the principal sources of food energy, and (3) seven micronutrients (vitamins, minerals, and trace elements), which are essential for the proper growth and maintenance of the human body. The specific micronutrients selected for analysis (vitamins A, C, and B_6; folate, calcium, iron, and zinc) are those considered a current or potential public health issue (Life Sciences Research Office, 1989).

The *money value of food used at home* is obtained by multiplying the quantity of each food item used by its price and summing across all food items. Money value is reported for all food used at home, for purchased food, and for nonpurchased food (using imputed prices). *Expenditures for food used at home* are measured in two ways. In the first, the weekly money value of food used at home is multiplied by 4.3 weeks. The second reflects the household's response to a screening interview question about monthly expenditures for food from supermarkets, neighborhood grocers, convenience stores, and specialty stores. Consumer *expenditure shares* are the proportions of all reported expenditures allotted to a specific budget category: total food (with separate categories for food used at home and away from home), housing, utilities, medical care, transportation, clothing, education, dependent care, recreation, and personal items.

Methods of Analysis

Each of the following papers identifies the effect of cashout with a simple comparison of means: a comparison of the differences between the mean outcome values for check and coupon households. If cashout has no effect, the expected difference is zero. The standard t-test is used to determine the statistical significance of the observed differences.

Simple differences in the mean values of outcome variables between the samples of check and coupon recipients are unbiased estimates of the true effects of cashout in the San Diego and Alabama "pure" tests in which individuals were randomly assigned to one group or the other. They may not, however, be the most precise estimates. Accordingly, the researchers in these sites regressed several key outcome measures of greatest interest (those based on household food use data) on a limited set of household characteristics. The regression-adjusted estimates did not prove to be substantially more precise than the simple difference-in-means estimates in either San Diego or Alabama.

In the quasi-experiments of the Washington FIP and Alabama ASSETS demonstrations, interpretation of the simple difference-in-means is more problematic. It is important to consider whether the differences in the

sample means can be ascribed *only* to the different form of benefits issued to the sample households. To compensate for known differences in the characteristics of check and coupon households in the treatment and comparison counties, researchers in both sites also regressed several key outcome measures on a set of characteristics that may influence household food behavior. Again, however, the regression-adjusted estimates did not alter the basic conclusions drawn from the simple difference-in-means.

CONCLUSIONS AND FUTURE RESEARCH

The results of this research strategy are presented in detail in the following three papers. The most complete information now available describes the effect of cashout on household expenditures, food use, nutrient availability, and preferences. There is only limited information on administrative costs and retailer preferences and, as yet, no information on program participation. A more complete assessment of the effects of cashout must await these forthcoming analyses. We can, however, draw some limited, tentative conclusions about the effect of cashout on food stamp households.

"Cashout appears to reduce household food expenditures...It is not clear, however, that households receiving checks are at significantly greater nutritional risk."

First, cashout appears to reduce household food expenditures, but the size of the reduction remains uncertain. Three of the evaluations found statistically significant reductions in food expenditures (or the money value of food used at home). The reduction in San Diego was relatively modest (roughly 5 percent), the reduction in Alabama ASSETS was substantially larger (about 20 percent), and the reduction in Washington fell between the two (about 15 percent). In the Alabama "pure" test, however, there were virtually no differences between households with checks and coupons.

Second, there is some evidence that cashout reduces the availability of some nutrients. It is not clear, however, that households receiving checks are at significantly greater nutritional risk. The Alabama "pure" test found virtually no difference in the availability of key macronutrients, vitamins, and minerals, between check and coupon households. The San Diego and Washington State evaluations found some statistically significant reductions in the availability of food energy, protein, and selected micronutrients. These reductions, however, were uniformly modest (generally between 5 and 10 percent). Moreover, average nutrient availability for both groups exceeded the RDA by fairly wide margins in all three sites. The evaluations of the San Diego and Alabama "pure" demonstrations addressed particular concerns about the effect of cashout on food stamp recipients who tend to use relatively small amounts of food and who, therefore, are presumably at greater nutritional risk. In both sites, cashout had no discernable effect on food

use and the availability of selected key nutrients among households in the lower end of the distribution of food use. The ASSETS evaluation did not collect food-use data.

Third, there is little evidence of any increase in the incidence of acute food shortages or deterioration in the perceived adequacy of the home food supply due to cashout. There is little evidence in any of the four research sites of any increase in the number of households reporting they do not have enough to eat, days with no food or resources to buy food, or skipped meals. There is little evidence of increased reliance on other food assistance programs with one exception: Three of the four sites reported statistically significant increases in the number of households seeking USDA surplus commodities under cashout.

Fourth, there is some evidence that cashout leads to higher expenditures on some items other than food. The San Diego, Alabama ASSETS, and Washington State evaluations all showed statistically significant increases in the share of household budgets devoted to shelter, the Alabama ASSETS and Washington State evaluations showed increases in the share devoted to transportation, and the San Diego evaluation found increases in the share devoted to medical and education expenses. The Alabama "pure" test found virtually no difference between check and coupon households in terms of changes in household budgets. In no site were meaningful increases found in expenditures for food away from home.

"Households that receive checks prefer them to coupons."

Finally, households that receive checks prefer them to coupons. The advantage of checks most commonly cited by both check and coupon recipients is the ability to purchase items other than food. Conversely, both coupon and check recipients typically cited as the major advantage of coupons the fact that they ensure that benefits are spent on food.

An important, puzzling question remains. Why do the results differ so dramatically across research designs? There are several possible explanations, none of which is fully satisfactory. First, it could be that cashout does indeed have different effects in different sites. This explanation would be more plausible if the results in the two Alabama sites were not so divergent. Alternatively, it may be that the quasi-experimental research designs in the Alabama ASSETS and Washington State demonstration were unable to control for confounding differences in the characteristics and behaviors of households in the treatment and comparison counties. Davis, for example, reports some evidence of differences in expenditure patterns—particularly for rent—that existed *before* cashout. Moreover, both the Alabama ASSETS and the

Washington State demonstrations included numerous changes to procedures and benefits in addition to the replacement of coupons with checks. And finally, the results might be traced to differences in the demonstrations themselves. The Alabama "pure" test was relatively small, less visible than the other projects, and operated for only a short time. It is possible that these characteristics affected recipients' behavior in response to checks.

Several important questions about the consequences of cashout remain as well. Forthcoming analyses will attempt to determine the extent to which cashout makes the program more attractive to some eligible nonparticipants, leads to increased participation, and thus makes the benefits of program participation more widely available. Additional analyses will assess the effects of cashout on administrative costs and the retailer community. This new information will permit a more complete assessment of the relative merits of cash and coupons.

NOTES

1. The San Diego demonstration and one of the two Alabama demonstrations are considered "pure" in that cashout was the only program change implemented at the time. To distinguish between the two Alabama studies, we refer to one as the Alabama "pure" cashout demonstration, and the other, which took place in the context of broader welfare reform, as the Alabama ASSETS program.

2. FNS also approved smaller projects in New York, Minnesota, and Vermont. The New York Child Assistance Program provides cash food assistance to certain single-parent families that receive AFDC and have valid child support orders. In Vermont and Minnesota, applicants eligible for expedited service receive all or part of their first allotment in a check; subsequent payments are made in coupons. The agency required minimal evaluations of these projects given their limited scale and focus. The Food Stamp Act of 1977 as amended also authorizes cashout in the Minnesota Family Investment Plan. This project is expected to begin operations in April 1994.

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Food Stamp Cashout Demonstration Findings: San Diego and Alabama

Thomas M. Fraker, Alberto P. Martini, James C. Ohls, Michael Ponza, and Elizabeth A. Quinn

INTRODUCTION

In 1989 and 1990, San Diego County, California, and the state of Alabama conducted demonstrations of food stamp cashout—the issuance of food stamp benefits in the form of checks rather than the traditional coupons. The San Diego and Alabama cashout demonstrations were designed to permit the assessment of the impact of cashout on household food use and expenditure patterns and on the cost of administering the Food Stamp Program (FSP). In addition, the San Diego demonstration was designed to answer questions about the impact of cashout on program participation and on food retailers.

Two features distinguish the San Diego and Alabama demonstrations from other demonstrations of cashout. First, these demonstrations had experimental designs: food stamp recipients were randomly assigned to treatment status (benefits in the form of checks) and control status (benefits in the form of coupons). With random assignment, observed differences in outcomes between check and coupon recipient households can be attributed to the impact of cashout and not other factors. Second, these demonstrations were designed to test only one program change. Food stamp cashout was not accompanied by other changes in the FSP or in other assistance programs, hence the name, "pure" demonstrations. These features greatly simplified the analysis of the impacts of cashout on food use and expenditure patterns by recipient households and on the cost of administering the FSP. This paper summarizes findings from evaluations of these demonstrations that Mathematica Policy Research, Inc. (MPR) conducted for the U.S. Department of Agriculture, Food and Nutrition Service (FNS). Ohls et al. (1992) and Fraker et al. (1992) provide additional information on the evaluations.

BACKGROUND

The evaluations of the San Diego and Alabama cashout demonstrations were designed primarily to provide policymakers with reliable findings on the comparative costs of check and coupon issuance and on the differential effect of the two benefit forms on household food expenditures, household food use, and nutrient availability. This section describes the context and design of these cashout demonstrations and the research questions addressed by the evaluations.

The Context and Design of the San Diego and Alabama Cashout Demonstrations

"The San Diego and Alabama cashout demonstrations provided opportunities to observe food stamp cashout in two very different settings."

The San Diego and Alabama cashout demonstrations provided opportunities to observe food stamp cashout in two very different settings. California (San Diego in particular) provides a sharp contrast to Alabama in terms of such characteristics as household composition; proportion of households with earned income; proportion of households receiving Aid to Families with Dependent Children (AFDC); and average AFDC payments, income, and shelter expense. San Diego is a highly urbanized county in a state with relatively high AFDC benefits. In contrast, Alabama has relatively low AFDC benefit levels, and 10 of the 12 counties included in the Alabama demonstration are predominantly rural. Compared with food stamp households in California, food stamp households in Alabama consist less often of a married couple with children, have lower average monthly gross and net incomes, less often receive AFDC, receive much lower AFDC payments, depend more heavily on food stamps, and usually have lower expenses for shelter. Food stamp households in Alabama are more often black, more often elderly, and are generally smaller than food stamp households in California.

The designs of the San Diego and Alabama cashout demonstrations also differed. Cashout was implemented in two phases in San Diego. The first phase, limited cashout, which began in July 1989, entailed the issuance of benefits in the form of checks to 20 percent of the existing food stamp caseload and to 20 percent of newly certified cases. The check recipients were selected randomly on the basis of the final digit in the sequential portion of their food stamp case numbers. The second phase, full cashout, began 14 months later (September 1990) and expanded check issuance to the entire existing caseload and all new cases. The demonstration design called for full cashout to continue for 3-1/2 years. Alabama cashed out approximately 4 percent of its food stamp caseload in 12 of 67 counties in May 1990. Cashout continued on that partial basis through December 1990, at which time the form of benefits reverted to coupons for all demonstration households.

Limited cashout in Alabama and in the first phase of the San Diego demonstration, during which time a random subset of the food stamp caseloads in each site received check benefits, provided the opportunity to assess the impact of cashout on recipient outcomes and program administration. The second (full cashout) phase in the San Diego demonstration, during which time the entire food stamp caseload received check benefits, provided an opportunity to more fully assess the impacts of cashout on administrative costs and program integrity, and to examine the impact of cashout on program participation and food retailers.

Thus, the San Diego demonstration is capable of supporting the analysis of a wider range of research questions than is the Alabama demonstration. However, only the household impacts component of the analysis of the San Diego demonstration has been published; findings on the effects of cashout in San Diego on administrative costs of the FSP and program integrity, on participation in the FSP, and on food retailers are currently under review. The analysis of the Alabama demonstration has been completed, yielding findings on the effects of cashout on households and on the administration of the FSP.

Research Questions

The cashout demonstrations were designed to answer questions about the impact of cashout on (1) food stamp households, (2) administrative costs and program integrity, (3) program participation, and (4) food retailers. The research questions addressed under each of these areas are described in the following sections.

"Both demonstrations were also designed to answer questions on program administration, program participation, and food retailers."

Impacts on Households. The San Diego and the Alabama food stamp cashout demonstrations were both designed to provide answers to the following five questions about the impacts of cashout on food stamp households:

1. What are the effects of cashout on the money value and nutritional quality of food used at home?

2. Does cashout affect households' perceptions of the adequacy of their food supplies?

3. Does cashout shift expenditures from food used at home to food purchased and used away from home or to nonfood items?

4. What are the attitudes of food stamp recipients toward checks and coupons?

5. What are the experiences of food stamp recipients in cashing food stamp checks?

The answers to these questions, based on both evaluations, are summarized in the section, "Research Findings," which begins on page 33.

Impacts on Program Administration. Both demonstrations were also designed to answer the following three questions about the administration of the FSP:

1. What are the costs of planning and implementing cashout?

2. Does cashout reduce the cost of issuing food stamp benefits?

3. Does cashout reduce the vulnerability of the FSP to fraud and other benefit loss?

To date, answers to these three questions are available only from the Alabama demonstration. They too are summarized in the section, "Research Findings."

Impacts on Program Participation. The San Diego cashout demonstration has an extended period during which the entire food stamp caseload will receive food stamp benefits in the form of checks. Therefore, only this demonstration is capable of supporting research on the question of how cashout affects the number of households that participate in the FSP. Research using program data on FSP participation in San Diego County and in other counties in California is in progress; results are not yet available.

Impacts on Food Retailers. The extended period of full cashout in San Diego also makes this demonstration capable of addressing the question of how cashout affects retail food sales and the operations of retail food stores. Research using data from a survey of retail food stores in San Diego County on this question is underway; results are not yet available.

DATA AND METHODS

Household surveys provided the data for our analyses of the impacts of cashout on food stamp recipients in San Diego and in Alabama. Interviews with and surveys of program staff and others connected with the program provided the data for our analyses of the impacts of cashout on the administration of the FSP in Alabama. These data sources are described below along with the analytic methods used in our evaluations.

Data Sources

Household Impacts. The findings on household impacts presented in this paper are based on data obtained in 1990 through in-person interviews with 1,143 food stamp recipients in San Diego and 2,386 food stamp recipients in Alabama. In both San Diego and Alabama, approximately half of the interviews were with coupon recipients, and half were with check recipients. In Alabama, slightly less than half of the interviews were with recipients in two urban counties, and slightly more than half were with recipients in ten rural counties. Thus, the Alabama sample closely mirrors the 46/54 percent urban/rural distribution of the state's full food stamp caseload. A survey response rate of 78 percent was achieved in both sites.

The household surveys obtained highly detailed data on the types, quantities, and prices of foods used by members of each household in meals prepared from their home food supply during the seven days preceding the interview. These data were used to calculate measures of the money value of food used from the home food supply and measures of nutrient availability. Also collected were data on household demographics, income, and expenditures on food and nonfood goods and services. Survey respondents were also asked about household attitudes toward and experiences with cashout.

There are some limitations associated with using food-use data to evaluate the impact of cashout on the nutrition of members of recipient households. First, the only nutrient measures that can be computed on the basis of food-use data are measures of nutrient availability. Availability of nutrients from the household food supply, overstates intake by household members to the extent that food is lost, wasted, or fed to pets. Second, the food-use data exclude nutrition data on food purchased for use away from home (such as food consumed at restaurants). Expenditures for food used away from home, however, comprise less than 10 percent of food stamp households' total expenditures for food, so the absence of information on the types and quantities of food consumed away from home is not likely to seriously distort the findings.

Administrative Impacts. The findings on the administrative impacts of cashout in Alabama that are summarized in this paper are based on information obtained through in-person and telephone interviews with county-level and state-level FSP staff, telephone interviews with representatives of advocacy groups, a mail survey of FSP staff who had handled check-issuance problems, and administrative data that FSP staff compiled for this evaluation. We supplemented these sources with information obtained from program procedures manuals, official reports on program operations, and other material.

Analytic Methods

Our methods for analyzing the household and administrative impacts of cashout are described below.

Household Impacts. The random assignment of households in the demonstrations to treatment (check) or control (coupon) status provided an ideal environment in which to evaluate the effects of cashout on households' use of food, availability of nutrients, and other household outcome measures. Random assignment allowed us to ascribe observed differences in outcomes between the two groups only to the demonstration policies or to statistical sampling error. Thus assured by

the experimental design that other variables would not affect our results, our principal approach to analyzing the household survey data was to compare mean values of outcome measures for the samples of coupon and check recipients in each site and test for the significance of the observed differences between the treatment and control groups.[1] If the difference in the mean values for check and coupon households was significantly different from zero for any given outcome, then we concluded that cashout had affected that outcome.

Many of the measures of nutrient availability used in the study entail either a comparison between the sample mean availability of a nutrient per household member and the recommended dietary allowance (RDA) or a determination of the percentage of sample households for whom the availability of a nutrient per household member equals or exceeds the RDA.[2] There are some limitations to using RDAs as standards for evaluating the nutritional adequacy of food used by households. First, an individual whose intake of a nutrient other than food energy is less than the RDA for that nutrient might not be at nutritional risk because the RDA is set to exceed the nutritional requirements of most individuals. Second, because nutrient availability is likely to overstate actual intake of nutrients by household members, the finding that a nutrient is available in an amount that equals or exceeds the RDA does not necessarily mean that the supply of that nutrient is sufficient to permit the members of those households to have intakes of the nutrient that equal or exceed the RDA. For these reasons, we use the findings on the availability of nutrients relative to the RDAs only to make relative comparisons between check and coupon recipients in the nutritional adequacy of food used from the home food supply.

"We use the findings on the availability of nutrients relative to the RDAs only to make relative comparisons between check and coupon recipients."

Administrative Impacts. The analysis of administrative impacts examines the impact of cashout on the costs of issuing FSP benefits (including the costs of planning and implementing cashout) and on benefit loss. The analysis of the impact of cashout on the costs of issuing benefits entailed disaggregating issuance activities into specific tasks and then estimating the costs of labor and other resources used by the different levels of government in performing those tasks. We used a similar approach to estimate the costs of planning and implementing cashout. We analyzed benefit losses in terms of (1) the dollar amount of issuances lost as a percentage of the total amount issued, (2) the number of issuances lost as a percentage of the total number of issuances, and (3) the per-case-month cost of benefit loss (obtained by dividing a monthly cost by the monthly food stamp caseload).

RESEARCH FINDINGS

The discussion in this section is devoted primarily to the findings from the analyses of the household impacts in the San Diego and Alabama cashout demonstrations. Findings from the analysis of the administrative impacts in the Alabama demonstration are then briefly discussed.

We begin our summary of the household impacts of cashout in San Diego and Alabama with findings based on the food use data that were collected during the household surveys. We show that San Diego and Alabama food stamp households responded differently to cashout. We go on to discuss findings based on other survey data, including participation in other federal food and nutrition programs, perceptions of the adequacy of the home food supply, nonfood expenditures, and recipients' attitudes toward and experiences with cashout.

Household Impacts

"Cashout caused a relatively small, but statistically significant, reduction in household food use in San Diego, but not in Alabama."

The Money Value of Food Used at Home. The evidence from the household surveys suggests that cashout caused a relatively small, but statistically significant, reduction in household food use in San Diego, but not in Alabama. Table 1 shows that in San Diego, the money value of purchased food used from the home food supply per person was $2.42 less per week for check households than for coupon households. This reduction in the money value of purchased food was offset somewhat in that check households in San Diego used nonpurchased food at home worth $0.74 more per week per person than did coupon households. Overall, check households in San Diego used food that was worth an average of $1.68 less per week per person than that used by coupon households. This reduction equals 4.5 percent of the dollar value of household food used per week per person by coupon households. All of the differences for San Diego households are significant at conventional levels of statistical precision. In contrast, there is virtually no difference in Alabama between check and coupon households in the money value of food used from the home food supply.

"The availability of food energy was 5 percent lower among check recipients in San Diego than among coupon recipients."

The Nutritional Quality of Food Used at Home. The reductions in the money value of food used at home by check households in San Diego were accompanied by decreases in the amounts of food energy in the food that was used. Table 1 shows that the availability of food energy was 5 percent lower among check recipients in San Diego than among coupon recipients. The percentage of food stamp households in San Diego for which the availability of food energy equaled or exceeded the RDA was 5 points lower among check recipients than among coupon recipients. In Alabama, there was virtually no difference between check and coupon households in the availability of food energy from food used from the home food supply or in the percentage of households for which the availability of food energy equaled or exceeded the RDA.

We also examined the impact of cashout on the availability of protein and seven selected micronutrients.[3] Again, we observed some significant check-coupon household differences in San Diego but not in Alabama. In San Diego, check recipients used food with 4 to 5 percent less protein, vitamin B_6, and calcium (Table 2). These estimated negative effects of cashout on nutrient availability in San Diego are statistically significant. However, the reduced availability of these nutrients for check recipients is not reflected in significantly smaller proportions of check households in San Diego whose members met the RDA for these nutrients: The San Diego evaluation found no statistically significant effects on the percentages of households that met

Table 1. Effects of Cashout on Selected Measures of Household Food Use in San Diego and Alabama

	Mean Value		Difference in Means		
Measure of Food Use	Check	Coupon	Absolute	Percentage	t-Statistic
Money value of food used at home per ENU per week					
Purchased food					
San Diego	33.28	35.70	-2.42	-6.78	2.45 **
Alabama	33.43	33.66	-0.23	-0.68	0.31 **
Nonpurchased food					
San Diego	2.67	1.93	0.74	38.34	2.06 **
Alabama	2.82	2.75	0.07	2.55	0.29
All food					
San Diego	35.95	37.63	-1.68	-4.46	1.62 *
Alabama	36.25	36.41	-0.16	-0.44	0.21
Food energy availability per ENU					
Availability as a percentage of RDA					
San Diego	133.58	140.00	-6.42	-4.59	1.76 **
Alabama	162.19	161.46	0.73	0.45	0.22
Percentage of households for which availability equals or exceeds RDA					
San Diego	68.75	74.09	-5.34	-7.21	1.94
Alabama	79.65	79.81	-0.16	-0.20	0.10
Sample size					
San Diego	**542**	**536**			
Alabama	**1,209**	**1,080**			

Source: Evaluations of the San Diego and Alabama Food Stamp Cashout Demonstrations, household surveys (weighted tabulations

* Statistically significant at the 90 percent confidence level, one-tailed test.
** Statistically significant at the 95 percent confidence level, one-tailed test.

"No statistically significant differences between check and coupon households were found in the Alabama data for any of the nutrients studied."

the RDA for protein or any of the seven micronutrients (results not shown). No statistically significant differences between check and coupon households were found in the Alabama data for any of the nutrients studied.

Participation in Other Federal Food and Nutrition Programs. The household survey asked respondents about participation in four other federally funded food and nutrition assistance programs: the National School Lunch Program (NSLP), School Breakfast Program (SBP), the Special Supplemental Food Program for Women, Infants, and Children

Table 2. Effects of Cashout on Nutrient Availability per ENU in San Diego and Alabama (percentage of RDA)

	Mean Value		Difference in Means		
Nutrient	Check	Coupon	Absolute	Percentage	t-Statistic
Protein					
San Diego	249.34	263.06	-13.73	-5.22	1.98 **
Alabama	258.18	258.99	-0.81	-0.31	0.15
Vitamin A					
San Diego	210.92	214.40	-3.48	-1.63	0.38
Alabama	227.32	229.71	-2.39	-1.04	0.26
Vitamin C					
San Diego	265.51	276.14	-10.63	-3.85	0.75
Alabama	250.63	255.40	-4.77	-1.87	0.60
Vitamin B_6					
San Diego	154.96	161.56	-6.60	-4.08	1.38 *
Alabama	157.59	157.30	0.29	0.19	0.09
Folate					
San Diego	225.38	230.54	-5.16	-2.24	0.54
Alabama	223.94	221.69	2.25	1.02	0.39
Calcium					
San Diego	118.25	123.72	-5.47	-4.42	1.36 *
Alabama	121.34	117.61	3.73	3.18	1.23
Iron					
San Diego	163.43	160.61	2.82	1.76	0.49
Alabama	183.99	183.87	0.12	0.06	0.02
Zinc					
San Diego	119.60	123.73	-4.13	-3.33	1.21
Alabama	127.28	128.87	-1.59	-1.23	0.56
Sample size					
San Diego	**542**	**536**			
Alabama	**1,209**	**1,080**			

Source: Evaluations of the San Diego and Alabama Food Stamp Cashout Demonstrations, household surveys (weighted tabulations for San Diego).

* Statistically significant at the 90 percent confidence level, one-tailed test.
** Statistically significant at the 95 percent confidence level, one-tailed test.

(WIC), and USDA commodity distribution programs. Of the four programs examined, only in the commodity distribution programs were check households significantly more likely than coupon households to participate. In both San Diego and Alabama, check households were 3 percentage points more likely than coupon households to participate in commodity distribution programs (8 percent versus 5 percent in San Diego; 20 percent versus 17 percent in Alabama). In San Diego, check households were between 1 and 6 percentage points more likely to participate in the NSLP (88 percent versus 85 percent), the SBP (63 percent versus 57 percent), and WIC (16.7 percent versus 15.5 percent).[4] However, none of these differences were statistically significant. In Alabama, check households containing a pregnant or lactating woman or a child younger than 5 years of age were 3 percentage points more likely than comparable coupon households to participate in WIC (50 percent versus 47 percent), but the difference was not statistically significant. Check and coupon households in Alabama were equally likely to participate in the NSLP and SBP.

Perceptions of Food Adequacy. We did not find that cashout affected household respondents' perceptions of the adequacy of the home food supply in either San Diego or Alabama. According to the three measures shown in Table 3, no evidence from either demonstration indicates that check recipients were more likely than coupon recipients to perceive their home food supplies to be inadequate. In fact, check recipients were somewhat less likely to report not having enough food, going entire days without food or the resources to buy food, or skipping meals because of an inadequate supply of food. However, none of the differences are statistically significant.

"No evidence from either demonstration indicates that check recipients were more likely...to perceive their home food supplies to be inadequate."

Expenditures on Food Used Away from Home and on Nonfood Budget Categories. Table 4 shows the shares of total household expenditures allocated to food used at home, food used away from home, and eight nonfood budget categories. In San Diego, the lower money value of food used at home by check recipients relative to coupon recipients (Table 1) is reflected in a statistically significant lower expenditure share for food used at home. The resources freed up by reduced food expenditures were shifted to medical and education expenditures as well as to expenses for shelter. Check recipients in San Diego allocated a significantly higher share of total expenditures to shelter (housing and utilities), medical care, and education than did coupon recipients.[5] In Alabama, there was one statistically significant check-coupon difference in expenditure shares: check households allocated a share of expenditures to shelter that was one percentage point higher than the share allocated to shelter by coupon households.[6]

"The resources freed up by reduced food expenditures were shifted to medical and education expenditures as well as to expenses for shelter."

"Recipients in both sites also believed that checks helped them to avoid embarrassment when purchasing food."

Attitudes Toward Checks and Coupons. Check and coupon recipients in San Diego and Alabama generally gave similar responses when asked what is good about checks and coupons. The most commonly cited advantage of checks was that they can be used to purchase items other than food; about 40 percent of check and coupon recipients in both sites mentioned this advantage (Table 5). Recipients in both sites also believed that checks helped them to avoid embarrassment when purchasing food and allowed them to shop in a wider range of stores, but recipients in San Diego were three to four times more likely than their Alabama counterparts to cite these features. In Alabama, where food stamp coupons are typically issued over the counter at county food stamp offices, and where checks were issued by mail, recipients liked the fact that under cashout, they no longer had to go to the food stamp office to pick up their benefits. Recipients in San Diego did not mention this feature as an advantage of checks because benefits were mailed to most recipients under both issuance systems in that county.

Between roughly one-fourth and one-half of check and coupon recipients in both San Diego and Alabama preferred coupons because they ensure that the benefits are spent on food; however, recipients in San Diego

Table 3. Effects of Cashout on Recipients' Perceptions of Adequacy of Household Food Supply (percentage of households)

	Percentage		Difference in Percentages		
Measure	Check	Coupon	Absolute	Percentage	t-Statistic
Sometimes or often not enough food during past month					
San Diego	26.88	30.90	-4.02	-13.01	1.50
Alabama	16.02	18.57	-2.55	-13.74	1.64
Days household went without food or resources during past month					
San Diego	33.53	37.77	-4.24	-11.23	1.50
Alabama	21.20	23.43	-2.23	-9.54	1.31
Household members who skipped meals because of inadequate food or resources during past month					
San Diego	17.77	21.63	-3.86	-17.85	1.64
Alabama	8.21	9.90	-1.69	-17.12	1.44
Sample size					
San Diego	**572**	**571**			
Alabama	**1,255**	**1,131**			

Source: Evaluations of the San Diego and Alabama Food Stamp Cashout Demonstrations, household surveys (weighted tabulations for San Diego).

Note: Two-tailed statistical tests were performed on all check-coupon differences shown in this table.

Table 4. Expenditure Shares, by Budget Category

Budget Category	Percentage Share of Total Expenditures		Difference in Means		
	Check	Coupon	Absolute	Percentage	t-Statistic
Food at home					
San Diego	29.87	31.18	-1.31	-4.20	1.80 **
Alabama	41.34	41.27	0.07	0.17	0.09
Food away from home					
San Diego	2.51	2.77	-0.26	-9.75	0.94
Alabama	1.98	2.17	-0.19	-8.77	0.94
Shelter					
San Diego	51.42	49.42	2.00	4.05	2.02 **
Alabama	33.98	32.80	1.18	3.59	1.53 *
Medical care					
San Diego	0.85	0.43	0.42	97.67	2.43 **
Alabama	4.70	4.43	0.27	5.87	0.66
Transportation					
San Diego	6.37	6.45	-0.08	-1.24	0.14
Alabama	8.28	8.60	-0.32	-3.72	0.72
Clothing					
San Diego	3.97	4.35	-0.38	-8.74	1.04
Alabama	5.23	5.62	-0.39	-6.94	1.08
Education					
San Diego	0.49	0.32	0.17	53.13	1.65 **
Alabama	1.02	1.26	-0.24	-19.05	1.91
Dependent care					
San Diego	0.63	0.87	-0.24	-27.59	-1.11
Alabama	0.62	0.81	-0.19	-23.46	1.37
Recreation					
San Diego	2.31	2.52	-0.21	-8.33	0.77
Alabama	1.47	1.61	-0.14	-8.70	0.89
Personal items					
San Diego	1.58	1.69	-0.11	-6.51	0.98
Alabama	1.39	1.43	-0.04	-3.50	0.42
Sample size					
San Diego	**542**	**536**			
Alabama	**1,209**	**1,080**			

Source: Evaluations of the Alabama and San Diego Food Stamp Cashout Demonstrations, household surveys (weighted tabulations for San Diego).

* Statistically significant at the 90 percent confidence level, one-tailed test.
** Statistically significant at the 95 percent confidence level, one-tailed test.

were more likely than recipients in Alabama to mention this feature. Eighteen percent of check recipients and 26 percent of coupon recipients in Alabama cited the absence of sales taxes on coupon purchases of food as an advantage of coupons.[7] These households may not have been aware that the state of Alabama added an extra amount to all check benefits to offset the sales taxes that are charged on cash purchases of food.

Table 5 also shows that in Alabama, the majority of both check and coupon recipients agreed with the statement, "food stamp coupons are more helpful in planning and budgeting the household's monthly food expenses." In San Diego, responses to this statement depended on the form of benefit: Most coupon recipients agreed with the statement, whereas most check recipients disagreed with it.

Check-Cashing Experiences. In San Diego, 38 percent of check recipients cashed their food stamp checks at a supermarket, grocery, or other food store; another 37 percent cashed or deposited them at a bank (Table 6). Nineteen percent of check recipients in San Diego used

Table 5. Recipients' Attitudes Toward Checks and Coupons in San Diego and Alabama (percentage of households)

	Check Recipients		Coupon Recipients	
Attitude	San Diego	Alabama	San Diego	Alabama
Advantages of checks				
Can be used for items other than food	42.1	42.9	39.7	39.4
More choices of stores	19.0	5.7	13.3	4.0
Do not feel embarrassed	16.2	5.3	10.5	2.8
Do not have to go to issuance office[a]	NA	16.2	NA	6.9
Advantages of coupons				
Make sure benefits are spent on food	40.1	26.2	55.4	37.8
No taxes charged[b]	NA	17.8	NA	25.8
Coupons are more helpful in planning and budgeting food expenses				
Strongly agree or agree	44.4	52.2	63.4	79.4
Strongly disagree or disagree	55.6	47.8	36.6	20.7
Sample size	**572**	**1,255**	**571**	**1,131**

Source: Evaluations of the San Diego and Alabama Food Stamp Cashout Demonstrations, household surveys (weighted tabulations for San Diego).

[a]In Alabama, food stamp coupons were issued primarily over the counter, at local food stamp offices. In San Diego, food stamp coupons were issued primarily by mail.
[b]In Alabama, a sales tax is imposed on cash purchases of food, but not on coupon purchases of food. In California, no sales tax is imposed on food.

NA = not applicable.

check-cashing agencies. In Alabama, 73 percent of check recipients cashed their food checks at a supermarket, grocery, or other food store; another 23 percent cashed or deposited them at a bank. Fewer than 1 percent of check recipients used check-cashing outlets.

Most check recipients in both San Diego and Alabama did not pay a fee to cash their food stamp checks. Sixty-three percent of check recipients in San Diego did not pay a fee to cash their checks. Most of the rest (80 percent of fee payers or 29 percent of all check recipients) paid a fee of $5 or less. In Alabama, 91 percent of check recipients did not pay a fee to cash their benefit check. Most of those that did pay a fee paid $1 or less (57 percent of fee payers or 5 percent of all check recipients).

Food stamp recipients in both San Diego and Alabama rarely experienced difficulties in cashing their benefit checks. Fifteen percent of all check recipients in San Diego reported one or more problems cashing their benefit checks, compared with 9 percent of all check recipients in Alabama. Problems mentioned by check recipients in both demonstration sites included (1) not having the proper ID or a sufficient number of IDs to cash the benefit check, (2) the store limited the amount of the check that it would cash, (3) the store refused to cash the check, and (4) the store had insufficient funds to cash the checks.

Table 6. Check-Cashing Experiences of Check Recipients in San Diego and Alabama

Measure	Check Recipients	
	San Diego	Alabama
Place where check is usually cashed (in percentages)		
Supermarket, grocery store, or other food store	37.9	73.3
Bank	36.9	23.4
Check-cashing agency	19.3	0.3
Other	5.8	3.0
Percent paying a fee to cash check	37.3	9.2
Fee paid to have checks cashed (in percentages)[a]		
$1.00 or less	38.1	56.9
$1.01 to $5.00	42.0	38.8
$5.01 or more	20.0	4.3
Median fee (in dollars)[a]	1.99	1.00
Percentage having problems cashing checks	14.6	8.5
Sample size	**572**	**1,255**

Source: Evaluations of the San Diego and Alabama Food Stamp Cashout Demonstrations, household surveys (weighted tabulations for San Diego).

[a]Based on data for 208 households in San Diego and 116 households in Alabama that both paid a fee to have checks cashed and reported the amount of the fee.

Possible Reasons for Different Effects of Cashout on Households in San Diego and Alabama. Evidence from the household surveys shows small but significant reductions in food consumption by San Diego FSP households in response to cashout and essentially no change in food consumption by Alabama households. These findings conflict with our *a priori* expectations of the impact of cashout in San Diego and Alabama. Because food stamp benefits constitute a much larger percentage of the total monthly resources available to FSP households in Alabama than San Diego (28 percent versus 12 percent), and a considerably larger percentage of San Diego FSP households use some of their cash (non-FSP) income to make supplemental purchases of food (94 percent versus 67 percent), we expected that cashout would be more likely to reduce food consumption in Alabama than in San Diego. Five possible explanations for the larger negative effect of cashout on food consumption in San Diego than in Alabama are:

1. **Differences in the Visibility of the Demonstrations.** Cashout was much more visible in San Diego than in Alabama. In San Diego, 20 percent of existing and new FSP cases were cashed out compared with only 4 percent in the 12 affected counties in Alabama. Moreover, the San Diego Department of Social Services was extremely enthusiastic about the demonstration, issued several news releases, and promoted the change in issuance procedures using other similar measures, whereas pure cashout received relatively little media attention in Alabama. These differences in demonstration visibility might have led check recipients in San Diego to be more aware of the change in the program and to consider that change as permanent. This perception could have led them to make more complete adjustments in their food consumption behavior than they otherwise would have made.

"Differences in demonstration visibility might have led check recipients in San Diego to be more aware of the change in the program."

2. **Differences in the Duration of the Demonstrations.** The demonstration of pure cashout lasted merely eight months in Alabama, whereas the San Diego cashout demonstration is scheduled to last five years. Given the relatively brief duration of the Alabama demonstration, some check recipients may have decided that it made more sense to simply continue to use the check benefits as they used coupon benefits. If the demonstration had been longer or if recipients had perceived the change as permanent, they might have regarded adjustments in budgeting, shopping, and food use patterns as being more worthwhile.

"Some check recipients may have decided that it made more sense to simply continue to use the check benefits as they used coupon benefits."

3. **Differences in the Elapsed Time Between Initial Cashout and Data Collection.** In San Diego, FSP households whose benefits were

converted from coupons to checks had at least 10 months, and as many as 14 months, to adjust their food-use behavior before being interviewed. In contrast, Alabama FSP households participating in the cashout evaluation had a minimum of 3 months, and a maximum of 7 months, to adjust their food-use behavior before being interviewed. If households require more than just a few months to fully adjust their food-use behavior in response to the cashing out of their food stamp benefits, then the short time between the commencement of cashout in Alabama and the collection of food-use data might have resulted in estimates of cashout effects that are small relative to the effects that might have been manifested over a longer period. We would not expect this to be the case in San Diego, where most of the survey respondents were interviewed a year or more after cashout began. However, we examined check-coupon household differences in the money value of food used at home by month of interview and found no evidence to support this hypothesis.

4. **Differences in the Form of Benefit.** In Alabama, all food stamp checks were issued independent of other assistance checks and were mailed in separate envelopes according to a schedule that was unique to the FSP. In contrast, San Diego issues a combined AFDC and food stamp benefit check (a notice that accompanies the check provides a breakdown of the combined benefit into its component amounts). Eighty-eight percent of FSP check recipients in San Diego also receive AFDC benefits and hence, receive a combined check. Many recipients of combined AFDC and FSP checks in San Diego were unable to correctly report their food stamp benefit amounts to our survey field staff. When the FSP benefit is so intermingled with the AFDC benefit that the recipient has difficulty distinguishing between the two benefits, it is possible that the recipient will use the food stamp benefit in much the same way as he or she uses the AFDC benefit and other cash income as opposed to how he or she uses food stamps. Combining the AFDC and food stamp benefits in San Diego might have contributed to the finding that cashout had a number of significantly negative effects on food use and food expenditures in San Diego, but had essentially no effects in Alabama.

"Combining the AFDC and food stamp benefits in San Diego might have contributed to the finding that cashout had...significantly negative effects on food use and food expenditures."

5. **Differences in Attitudes Toward Change.** An examination of several variables that might be proxies for the degree to which a population group is "traditional," or "conservative," in its attitude toward change supports the contention that the Alabama caseload is likely to be more traditional, or conservative, than the San Diego caseload. The

Alabama caseload is much more likely to live in rural locations, more likely to be elderly, and less likely to have completed high school. Those who live in rural areas, are elderly, or have little education might be more likely to follow established routines in many aspects of their lives rather than to experiment with new ways of doing things, or if they do change behavior, the process of change may be longer. In our regression-adjusted analyses of check-coupon household differences in the principal food-consumption outcome measures, we included controls for rural residence, education, and age. However, we still found a number of negative effects of cashout in San Diego and essentially no effects in Alabama. However, these controls are rather crude; the data sets do not contain good measures, much less proxies, for subtle characteristics of populations that might affect their response to cashout.

Administrative Impacts

We defined administrative impacts in terms of the cost of planning and implementing cashout, the cost of issuing benefits in the form of checks rather than coupons, and the vulnerability of the FSP to benefit losses and diversions. This section summarizes our findings from the Alabama cashout demonstration about the impact of cashout on these areas. Findings from the evaluation of the administrative impacts of the San Diego demonstration are not yet available.

Planning and Implementing Cashout. We estimate that the labor and associated costs of planning and implementing cashout were $180,000. Software development accounted for most of this amount. This estimate includes fringe benefits, but not overhead. It also includes the cost of contracted services and products.

Before cashout could be implemented, it was necessary to determine how to compensate check recipients for state and county sales taxes, which are levied on cash purchases of food, but not on coupon purchases of food. Alabama's Department of Human Resources (DHR) elected to use its own funds to augment the food stamp benefit of each check recipient by 7 percent, the approximate amount of the sales tax. This recurring monthly cost made DHR sensitive to the duration of the demonstration.[8]

The development of the computer software, an integral component of the check-issuance system, was a major challenge in implementing the demonstration. This work required more labor hours by the staff of DHR and a DHR contractor, and more calendar time, than was originally anticipated. The additional time resulted in a four-month delay in the implementation of cashout, from January to May of 1990.

With this exception, cashout was implemented smoothly.

"Overall, check issuance cost $1.03 per case-month, or about one-half the cost of coupon issuance."

Issuance Costs. As anticipated, we found that the cost of issuing food stamp benefits was lower with checks than with coupons. Overall, check issuance cost $1.03 per case-month, or about one-half the cost of coupon issuance, which was $2.05 per case-month. Columns A and B of Table 7 show that issuance costs incurred at the federal level ($0.51 per case-month under coupon issuance) were eliminated under check issuance. Issuance costs incurred at the state and county levels were $1.54 per case-month under coupon issuance, but were only $1.03 per case-month under check issuance. The federal government pays 100 percent of issuance costs incurred at the federal level, as well as 50 percent of the costs incurred at the county and state levels. This allocation of responsibility for the payment of issuance costs is reflected in Columns C, D, and E of Table 7, which show that three-quarters of the savings in issuance costs resulting from cashout accrued to the federal government, and one-quarter accrued to the state government.

Benefit Losses. In Alabama, food stamp coupons are typically issued over the counter, a relatively secure (although expensive) procedure. The issuance of coupons by mail is generally limited to clients who have difficulty traveling to the food stamp office. Under cashout, food stamp benefit checks were mailed to program participants, a procedure that is substantially more vulnerable to loss. Costs resulting from checks lost or stolen in the mail and then fraudulently cashed averaged $0.14 per case-month under cashout. Because the average mailed benefit amount is substantially lower under coupon issuance than it was under check issuance, the loss of benefits as a fraction of mail issuance is much lower ($0.05 per mail-issuance case-month) under coupon issuance. Because this difference is due primarily to the lower average benefit amount

Table 7. Alabama Coupon-Issuance and Check-Issuance Costs Per Case-Month, by Level of Government at Which Costs Are Incurred and Paid (in dollars)

	Costs Incurred		Costs Paid		
	Coupon Issuance (A)	Check Issuance (B)	Coupon Issuance (C)	Check Issuance (D)	Savings (E=C-D)
Federal government	0.51	0.00	1.28	0.515	0.765
State/county government	1.54	1.03	0.77	0.515	0.255
Total	2.05	1.03	2.05	1.030	1.020

Source: Evaluation of the Alabama Food Stamp Cashout Demonstration.
Note: The amounts shown under "Costs Paid" reflect federal sharing of 50 percent of costs incurred at the state and county levels.

under mail issuance of coupons, it should not be interpreted as evidence that coupons are more secure than checks when issued through the mail.

The benefit losses associated with lost or stolen checks were borne by the third parties that cashed the fraudulent checks (such as banks and retail stores), rather than by government at any level. Under coupon issuance, the federal government bears the cost of replacing benefits lost or stolen in the mail.

Coupons must be printed and repeatedly shipped, stored, and handled. This process creates opportunities for theft and error. Cashout in Alabama virtually eliminated losses in benefit production and handling that had been borne by either the state or the federal government under coupon issuance. However, because such losses are quite small under coupon issuance, check issuance does not generate substantial cost savings in this area.

"The benefit losses borne by food stamp recipients dropped under cashout."

The benefit losses borne by food stamp recipients dropped under cashout because the FSP replaced checks that were lost or stolen (before being endorsed and cashed), whereas it does not replace coupons that are received by clients and subsequently lost or stolen.

SUMMARY AND CONCLUSIONS

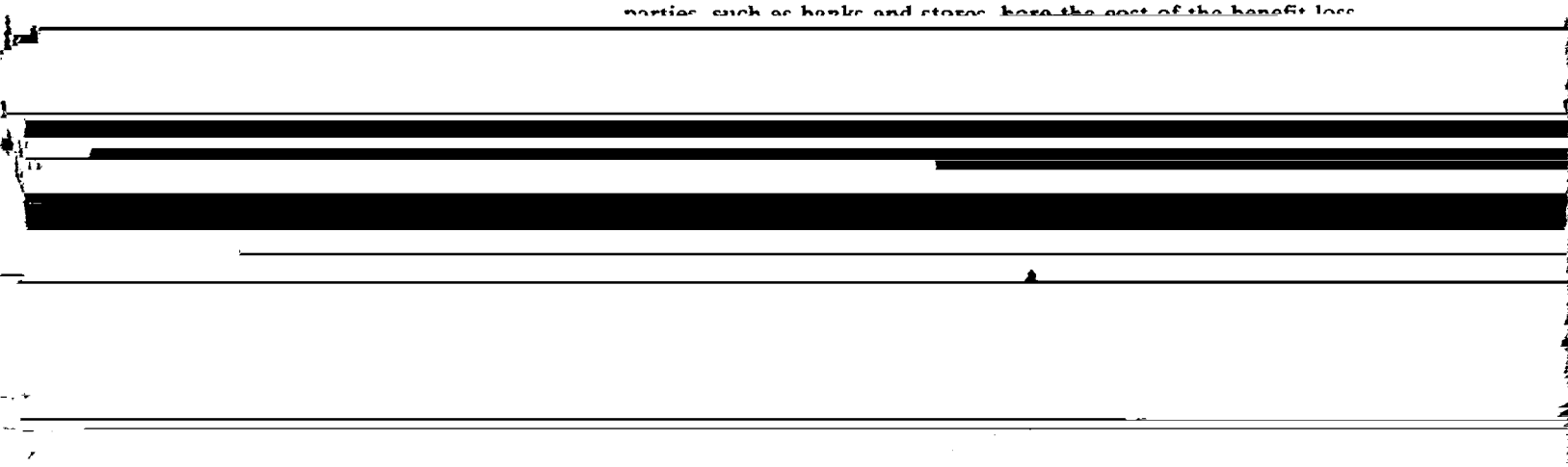
The potential impact of cashout on the ability of the FSP to target its benefits to the purchase of food has been a central component of the debate about the desirability of cashout as a policy alternative. Opponents of cashout have been concerned that it would greatly weaken the program's impact on food use, whereas proponents have felt that the purchase of food would remain a high priority for recipients even without the link between coupons and food purchases. Proponents have also argued that cashout would lower the cost of administering the FSP and reduce benefit losses.

The evidence from the San Diego Food Stamp Cashout Demonstration suggests that cashout reduced the use of food by more than its proponents had hoped, but less than its critics had feared. In San Diego, the money value of purchased food used from the home food supply per person was $2.42 less per week for check than for coupon households. The reduction in the money value of purchased food used at home caused by cashout was offset somewhat in that check households consumed more nonpurchased food at home than did coupon households. Overall, check households used food that was worth an average of $1.68 less per week per person than that used by coupon households. This reduction equals 4.5 percent of the dollar value of household food used per week per person by coupon households.

Similarly, the availability of food energy, protein, and two of the seven selected micronutrients (calcium and vitamin B_6) was 4 percent to 5 percent lower among check recipients. All of these differences are statistically significant.

The evidence from the Alabama Food Stamp Cashout Demonstration suggests that cashout had virtually no impact on the money value or nutritional value of food used from the home food supply by food stamp recipients in Alabama. The differences between check and coupon recipients in the mean values of these outcome variables are 3 percent or less, are mixed in sign, and are not statistically significant.

The impacts of cashout on the cost of administering the FSP and on the loss of benefits are also relevant in assessing this policy alternative. In Alabama, we found that the cost of issuing benefits was 50 percent lower with checks than with coupons. Three-quarters of the savings accrued to the federal government, and one-quarter accrued to the state government.[9] Cashout eliminated benefit losses associated with the production and handling of coupons, but this advantage was offset by a higher incidence of the loss or theft of check benefits in the mail. Third parties, such as banks and stores, bore the cost of the benefit loss



resulting from the fraudulent cashing of lost or stolen checks. Food stamp recipients lost fewer benefits under cashout because their lost or stolen checks were replaced, whereas lost or stolen coupons are not replaced.

The evaluations of the San Diego and Alabama Food Stamp Cashout Demonstrations were designed to provide policymakers with reliable findings on the comparative costs of check and coupon issuance and on the effects of the two benefit forms on household food use and nutrient availability. The findings from Alabama suggest that switching from coupon to check benefits would reduce the costs of administering the FSP without substantially affecting the food expenditures and nutrient availability of recipient households. The analysis of administrative outcomes in San Diego is in progress and results are not yet available. However, we anticipate that cashout will reduce the costs of administering the FSP in San Diego. If so, the findings from San Diego will show that replacing coupons with check benefits will reduce

NOTES

1. We supplemented the comparative analysis of mean values with an analysis of regression-adjusted mean values. By controlling for slight differences between check and coupon households in characteristics such as household size and income, regression models could, in principle, reduce the influence of sampling variation in the household analysis, thus resulting in more precise estimates of the effects of cashout. In practice, the estimates based on regression-adjusted mean values were virtually identical in both magnitude and statistical significance to those based on simple mean values. Therefore, this paper presents only the estimates that are based on simple mean values of the outcome measures for check and coupon recipients. Full results can be found in Ohls et al. (1992) and Fraker et al. (1992).

2. The per person measure equals a particular measure of household food use divided by the number of equivalent nutrition units (ENUs) in the household.

3. The seven micronutrients are vitamins A, C, and B_6, and folate, calcium, iron, and zinc. These micronutrients have been classified by the Expert Panel on Nutrition Monitoring as current or potential public health issues (Life Sciences Research Office, 1989).

4. The percentages of FSP households participating in the NSLP and SBP apply only to FSP households with children who attend schools that serve complete USDA lunches or breakfasts. Similarly, the percentage of FSP households participating in WIC apply to FSP households with pregnant/lactating women or children younger than age 5.

5. The primary source of the increased share of expenditures allocated to shelter in San Diego was housing costs. Cashout caused an increase of 1.52 percentage points in the share of total household expenditures allocated to housing; this increase was statistically significant. There was an increase of 0.48 percentage points in the share of total household expenditures allocated to utilities, but this increase was not statistically significant.

6. In contrast to San Diego, the primary source of the increased share of expenditures allocated to shelter in Alabama was utilities costs. There was an increase of 1.06 percentage points in the share of total household expenditures allocated to utilities; this increase was statistically significant. There was an increase of 0.12 percentage points in the share of total household expenditures allocated to housing, but this increase was not statistically significant.

7. In California, no sales tax is imposed on food.

8. The sales tax issue had no net impact on the combined budgets of the state and county governments. However, the amount funded by DHR to offset sales tax appeared as a debit in DHR's budget, and the associated sales tax receipts were additional general revenue for the state and county governments.

9. This result takes into account the fact that 50 percent of FSP administrative costs that are incurred at the state and local levels are reimbursed by the federal government.

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The Impact of Food Stamp Cashout on Household Expenditures: The Alabama ASSETS Demonstration

Elizabeth E. Davis

INTRODUCTION

The Alabama ASSETS program is a comprehensive, four-year welfare reform demonstration project that was implemented in three counties in Alabama in 1990. The ASSETS program represents a major restructuring of the administration of the Food Stamp Program (FSP) and the Aid to Families with Dependent Children (AFDC) program. As one feature of the demonstration, FSP benefits are provided in the form of a check rather than coupons. Families receiving assistance from both the AFDC program and the FSP receive both benefits in one check. (The separate amounts for AFDC and food stamps are indicated on the check stub.)

"The evaluation...is based on a quasi-experimental design in which each of three ASSETS (treatment) counties is matched with a similar comparison county not operating the ASSETS program."

The evaluation of the ASSETS program is based on a quasi-experimental design in which each of three ASSETS (treatment) counties is matched with a similar comparison county not operating the ASSETS program. As one component of the evaluation of the ASSETS program, we analyzed the impact of cashout on food benefit recipients and on food retailers (Davis and Werner, 1992). This paper summarizes the key findings of that study.

Research Questions

Food stamp coupons can be used legally only to purchase authorized food items at food stores authorized by the FSP. Because cashed-out food benefits are not earmarked for food purchases in the same way as food stamp coupons, there is concern that benefits intended to be used for food might be diverted to nonfood uses. A decrease in spending on food under cashout could undermine the key purpose of the FSP by adversely affecting the adequacy of household food supplies.

Regardless of any changes in the level of food expenditures, households may allocate those expenditures differently after cashout. For example, they may spend more on prepared foods, such as meals at restaurants or from take-out stores, which typically cannot be purchased with coupons. In addition, cashout may prompt households to spend less on food and more on nonfood items.

These concerns prompt the following research questions that are addressed in this paper:

1. Does cashout cause households to change the amount they spend on food?

2. Does cashout cause households to spend more in absolute terms, or as a proportion of their total food expenditures, on food away from home?

3. Does cashout cause households to change their level of total expenditures or the proportions of total expenditures spent on nonfood budget categories?

4. Does cashout change households' perceptions of the adequacy of their food supply?

The implementation of cashout in entire counties under the ASSETS program affects food retailers as well as program recipients. While cashout may reduce coupon-related costs for retailers, any changes in recipients' shopping patterns or food expenditures may affect retailers' sales and profits. These possibilities give rise to two other research questions addressed in this paper:

5. Does cashout affect food retailers' sales and profits?

6. Do food retailers prefer cashout or coupons, and why?

DATA AND METHODS

The overall ASSETS evaluation is based on a quasi-experimental matched comparison design. All counties in Alabama were divided into three strata: rural/north, rural/south, and urban. Within each stratum, the counties were compared in terms of a number of population and caseload characteristics.[1] Within each stratum, the "best," or most closely matched, pair of counties was selected for the demonstration.[2] Finally, for each of the three matched pairs of counties, one county was randomly assigned to implement the ASSETS program, and the other county in the pair became its comparison site. Households from the treatment counties, which received checks, were compared with households in the matched counties, which received coupons.

In the ASSETS demonstration, cashout was implemented in entire counties, so the impacts of the program may be more representative of the effects of cashout in a full-scale implementation than are impacts observed in demonstrations that have cashed out only a portion of the

caseload. It is possible that recipients' reactions to cashout may be more "normal" when all recipients in the area receive their benefits by this means.

Cashout was implemented in each of the three ASSETS demonstration counties in 1990, as shown in Table 1. The survey was conducted from August to November 1991, 10 to 16 months after cashout was implemented in each ASSETS county. The treatment sample was drawn from households participating in the ASSETS program in the three demonstration counties, and the comparison sample was drawn from households participating in the FSP in the three comparison counties. The size of the sample drawn in each county was proportional to the size of the ASSETS or food stamp caseload in the county (in July 1991). Within each county, the households were selected randomly for the sample.

To evaluate the impact of cashout on food retailers, we used a retrospective pre-post research design rather than a comparison group design. A sample of food retailers in the three ASSETS demonstration counties was interviewed in one wave of data collection. Retailers were asked to compare their costs, sales, and profits under cashout to costs, sales, and profits under the coupon system. The sample of food retailers was drawn from the population authorized to participate in the FSP prior to cashout in the three ASSETS counties. Retailers were divided into two strata: supermarkets and smaller stores. The sample was weighted by food stamp redemptions before cashout.

Methods of Analysis

Two main techniques were used to analyze the impact of cashout on households: difference-in-means tests and regression analysis. The

Table 1. Matched County Pairs and Implementation Schedule for the Assets Evaluation

	Rural - North		Rural - South		Urban	
	Limestone County	Chilton County	Clarke County	Butler County	Madison County	Tuscaloosa County
Food Stamp caseload[a]	2,392	1,452	1,998	1,541	10,368	6,361
Implementation of food stamp cashout	May 1, 1990	NA	September 1, 1990	NA	November 1, 1990	NA
Household survey	August - November 1991 in all counties					
Food retailer survey	January - February 1992 in all counties					

Source: Alabama Department of Human Resources.

[a]July 1991.

"We conducted multivariate regression analyses to control for differences between households in the ASSETS and comparison counties."

most straightforward approach is to compare the mean value of each outcome measure for the ASSETS households with the mean for the comparison households. However, differences in the characteristics of the households in the two groups may result in differences in their expenditure patterns that are unrelated to cashout. We conducted multivariate regression analyses to control for differences between households in the ASSETS and comparison counties. This paper focuses on the results of the differences-in-means analysis because we found that the regression analysis and the comparison of means analysis yielded very similar results. A description of the regression models and results for key outcome measures are presented in Appendix 1 at the end of this paper.

The analysis of the impact of cashout on food retailers is primarily descriptive and is based on retailers' perceptions of the impact of cashout on their stores. Retailers' responses are weighted using two methods: the first makes the sample representative of all stores in the three counties, and the second weights retailers' responses by food stamp redemptions before cashout.

Characteristics of the Household Sample

Members from a total of 1,371 households—720 in the three ASSETS counties and 651 in the three comparison counties—were interviewed in person. Of the sample ASSETS households, 68.6 percent are located in an urban county (Madison), and 31.4 percent are located in two rural counties (Clarke and Limestone). In the comparison sample, 69.6 percent of households are located in an urban county (Tuscaloosa), and 30.4 percent are located in two rural counties (Butler and Clarke).

The characteristics of the sample households in the ASSETS and comparison counties are fairly similar, as shown in Table 2. About three-quarters of the cases have a female head of household, although the proportion is slightly higher in the comparison counties. A higher proportion of heads of households are black in the comparison counties: 65.3 percent compared with 51.1 percent in the ASSETS counties.[3] The heads of sample ASSETS households are slightly younger: 49.8 percent of ASSETS household heads are younger than 36 compared with 44.6 percent in the comparison sample. For both groups, just over 20 percent of the household heads are 60 or older.

Household size is very similar in both groups, although a slightly larger percentage of comparison households have at least one child (61.6 percent compared with 56.8 percent of ASSETS households). Of households with children, 65.1 percent in comparison counties have only one adult present, compared with 55.8 percent in ASSETS counties.

"The sources and levels of income are similar for the ASSETS and comparison households."

The sources and levels of income are similar for the ASSETS and comparison households, as shown in Table 3. ASSETS households have a mean total income of $648.46, slightly below the mean income of comparison households ($675.89). About one-third of households in both groups report earnings, and mean earnings are about $50 higher (per month) for ASSETS households than for comparison households. Slightly more of the comparison households than the ASSETS households report receiving AFDC (21.7 percent compared with 17.5 percent). Mean food stamp benefits are similar for both groups: $167.62 for ASSETS households and $169.47 for comparison households.[4]

Table 2. Demographic Characteristics of Sample Households

Characteristics of:	ASSETS Counties (N=720)	Comparison Counties (N=651)
Household head		
Percent female	72.6	76.2
Percent married	22.6	20.6
Percent employed	23.4	28.0
Education (in percent)		
Less than 8th grade	24.0	26.0
Some high school	31.0	33.0
High school graduate	26.4	22.4
Beyond high school	18.6	18.6
Race/Ethnicity (in percent)		
Black	51.1	65.3
White	46.0	34.4
Other	2.9	0.3
Age		
Under 18	1.5	0.8
19-35	48.3	43.8
36-59	28.9	32.9
60+	21.2	22.6
Household		
Mean household size	2.6	2.8
Mean household size in AMEs	1.9	2.0
Percentage of households that include children	56.8	61.6
Percentage of households with children that include only one adult	55.8	65.1
Percentage of households that include elderly	18.5	18.6

The characteristics of households in urban counties differ somewhat from those in rural counties (see Appendix 2 at the end of this paper for details). The heads of rural households (both ASSETS and comparison) are more likely to be older, less well-educated, and married than are the heads of households in the urban counties. More than one-quarter of the rural households include elderly persons, compared with about 15 percent of the urban households. While the average household size is similar, fewer of the rural households include children. In addition, fewer heads of rural households are employed. These differences suggest that food expenditure patterns of rural households may differ from those of urban households.

Characteristics of the Food Retailer Sample

The sample of 152 food retailers who completed interviews includes 46 supermarkets and 106 smaller stores in the three ASSETS demonstration counties. While the 152 retailers represent just over 40 percent of all authorized retailers in the three counties, they account for about 85 percent of the food stamp redemptions in the counties before cashout. The average supermarket in the sample has been in operation

Table 3. Sources and Amount of Income for Sample Households

	ASSETS Counties (N=720)	Comparison Counties (N=651)	Difference
Sources of income			
Percentage of households with wages	34.3	33.5	0.8
Percentage of households receiving AFDC benefits	17.5	21.7	-4.2
Percentage of households receiving other public assistance	41.5	49.6	-8.1
Mean reported income[a]			
Mean wages	$637.67	$585.99	$51.68
Mean food stamp benefits[b]	$167.62	$169.47	$9.88
Mean AFDC benefits	$96.45	$123.71	-$27.26
Mean other public assistance	$329.83	$358.10	-$28.27
All households			
Mean total income per household	$648.46	$675.89	-$27.43

[a]Mean computed for households receiving that type of income.

[b]In ASSETS, food stamp benefits are called Nutrition Assistance. Benefits reported by ASSETS households have been divided by 1.07 to adjust for the increment added by the state to cover sales tax on food purchases.

for close to 16 years, has 40 full-time equivalent employees, and monthly gross sales of $470,000. The average nonsupermarket is considerably smaller, having an average of 4 full-time equivalent employees and monthly sales of less than $50,000. Food stamp coupons represent a larger proportion of sales for the smaller stores than for supermarkets: smaller stores report, on average, that food stamps account for 28 percent of sales compared with an average of 19 percent reported by supermarkets.

Limitations of the Data

Multivariate regression analysis can control for differences in household characteristics between the treatment and comparison groups that may affect expenditure patterns. However, because the ASSETS and comparison households in the study are from different counties, there may also be county-level differences that affect expenditure patterns. For example, prices, rent levels, other economic conditions, and cultural differences between counties may influence food expenditures. We cannot include county-level variables in the regression models (other than the ASSETS indicator and rural county variable) given the research design (that is, because there are only three counties in each group). We present some evidence of county differences in the next section and discuss how they affect the interpretation of the results.

This study is also limited by the fact that it did not collect information on food use. We cannot assume that lower food expenditures necessarily result in lower food use or lower nutrient availability. We do, however, report findings on recipients' perceptions of the adequacy of food available to their households.

Finally, the findings concerning the impact of cashout on food retailers are based on retailers' perceptions of changes associated with cashout; the study did not collect quantitative measures of sales, costs, or profits. It may have been difficult for retailers to separate any impact of cashout from impacts of concurrent conditions such as changes in the local economy. Nonetheless, the perceptions and preferences of food retailers are important to the success of ASSETS and the FSP and so we include them in our findings.

RESEARCH FINDINGS

In this section we present the findings on the impact of cashout on households and food retailers. The discussion is organized by the six research questions identified at the beginning of this paper. We present the results of the comparison of means analysis here and provide the full regression results for key outcome measures in Appendix 1, which follows this paper on page 73.

1. **Does cashout cause households to change the amount they spend on food?**

Households in the ASSETS counties reported spending significantly less on food than did the households in the comparison counties. As shown in Table 4, mean total expenditures on food per household were $176.67 in the ASSETS counties and $231.14 in the comparison counties.[5] Total food expenditures per household were thus almost 24 percent lower in the ASSETS households. This difference is statistically significant at the 1 percent level.

"Total food expenditures per AME were 18.5 percent lower for ASSETS households than for comparison households."

When we control for household size and composition by measuring food expenditures per adult male equivalent (AME), the results are similar, though the percentage effect is smaller. Total food expenditures per AME were 18.5 percent lower for ASSETS households than for comparison households. ASSETS households spent $103.44 per AME on food compared with $126.86 spent by comparison households, a difference of $23.42.

The ASSETS-comparison difference in food expenditures is smaller for households in the rural counties than for those in the urban counties. In the urban counties, total food expenditures for ASSETS households were $176.13 compared with $235.55 for comparison households (see Table 5). Thus, urban ASSETS households spent nearly $60 (25.2 percent) less than urban comparison households. In contrast, ASSETS households in the rural counties spent $43.23 (19.6 percent) less than rural comparison households.

2. **Does cashout cause households to spend more in absolute terms, or as a proportion of their total food expenditures, on food away from home?**

One hypothesized effect of the switch to cash food benefits is that households might choose to spend more of their food money on food away from home, at restaurants or for take-out meals, which cannot typically be purchased with food stamp coupons. The findings suggest, however, that ASSETS households spent about the same amount on food away from home, but that the amount is a larger share of their food expenditures.

As shown in Table 4, comparison households spent $20.65 per month on food away from home, compared to $22.70 spent by ASSETS households. The difference of $2.05 is not statistically significant at the

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Table 4. Monthly Food Expenditures per Household and per Adult Male Equivalent

Expenditure Category	Mean Expenditures		Difference in Means		
	ASSETS Households	Comparison Households	Absolute Difference	Percentage Difference	t-statistic
Total food expenditures					
Per household	$176.67	$231.14	-$54.47 **	-23.6	-7.43
Per AME	103.44	126.86	-23.42 **	-18.5	-7.08
Food from stores	153.81	210.25	-56.44 **	-26.8	-8.72
Per household	90.44	115.87	-25.43 **	-21.9	-8.77
Per AME					
Food away from home	22.70	20.65	2.05	9.9	0.83
Per household	12.85	10.81	2.05	18.9	1.56
Per AME					
Percentage of total food expenditures on food away from home	11.19	7.27	4.02 **	55.8	4.94

* Significant at the 5 percent level, one-tailed test.
** Significant at the 1 percent level, one-tailed test.

households also reported eating about the same number of meals away from home each week. Households in both groups ate an average of just under three meals per week, or 14 percent of their meals, away from home.[6]

"ASSETS households spent less on food for use at home and about the same amount on food away from home."

While ASSETS and comparison households spent about the same amount per household on food away from home, the proportion of the food budget spent away from home was significantly larger for the ASSETS households. ASSETS households spent about 11.2 percent of their food budget on food away from home compared with 7.3 percent for comparison households (see Table 4). In sum, ASSETS households spent less on food for use at home and about the same amount on food away from home; thus, total food expenditures were lower than for comparison households.

Households in rural counties spent less on food away from home than did households in urban counties. However, in both urban and rural counties, ASSETS households spent somewhat more on food away from home than did comparison households. As shown in Table 5, the difference between ASSETS and comparison households is significant only in rural counties, however. ASSETS households in rural counties spent $5.39, or nearly 40 percent, more per household than did comparison households in rural counties. This suggests that food expenditures in rural ASSETS counties may have shifted somewhat toward food away from home.

Table 5. Monthly Food Expenditures in Rural and Urban Counties

	Mean Expenditures		Difference in Means		
Expenditure Category	ASSETS Households	Comparison Households	Absolute Difference	Percentage Difference	t-statistic
Rural counties					
Total food expenditures	$177.84	$221.07	-$43.23**	-19.6%	-3.11
Food from stores	158.18	206.94	-48.76**	-23.3	-3.73
Food away from home	19.45	14.06	5.39*	38.3	1.67
Urban counties					
Total food expenditures	176.13	235.55	-59.42**	-25.2	-6.91
Food from stores	151.80	211.70	-59.90**	-28.3	-8.16
Food away from home	24.18	23.52	0.66	2.8	0.20

* Significant at the 5 percent level, one-tailed test.
** Significant at the 1 percent level, one-tailed test.

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households. ASSETS households also spent $23.57 more on transportation, a difference of 38.9 percent relative to comparison households. Spending in the remaining nonfood budget categories was similar for the two groups.

Table 7 shows expenditures in each major budget category as a percent of total expenditures. Food and shelter costs dominate the expenditures of both groups; they account for more than 70 percent of expenditures. Given that both groups spent about the same in total, the differences in expenditure shares between the two groups parallel the differences in spending levels. ASSETS households allocated about 6 percentage points less of their total expenditures to food than did comparison households (34 percent versus 40 percent of expenditures). ASSETS households allocated 2.9 percentage points more of their total spending to housing and utilities, and 2.4 percentage points more to transportation.

The differences in nonfood spending by ASSETS and comparison households in rural counties are not the same as the differences in nonfood spending by ASSETS and comparison households in urban counties. As shown in Table 8, total nonfood expenditures were $88.50 (23.3 percent) higher for the rural ASSETS households than for rural comparison households. Rural ASSETS households spent more on transportation but did not spend more on housing and utilities than

Table 7. Expenditure Shares

Budget Category	Proportion of Total Expenditures		Difference in Means		
	ASSETS Households	Comparison Households	Absolute Difference	Percentage Difference	t-statistic[a]
Food	33.66	39.55	-5.90**	-14.9%	-5.20
Food at home	29.99	36.90	-6.91**	-18.7	-6.20
Food away from home	3.67	2.66	1.01**	38.0	2.97
Nonfood	66.34	60.45	5.90**	9.8	5.20
Housing and utilities	37.19	34.27	2.92**	8.5	2.64
Transportation	10.56	8.15	2.41**	29.5	4.04
Medical	5.08	4.74	0.33	7.1	0.60
Clothing	7.34	7.23	0.11	5.2	0.19
Education	1.73	2.22	-0.49	-22.3	-1.81
Dependent care	0.97	0.77	0.20	25.8	1.01
Recreation	1.89	1.64	0.25	15.2	1.08
Personal services	1.59	1.37	0.22	16.4	1.42

[a]One-tailed significance tests were conducted on all food expenditure differences and on positive nonfood expenditure differences. Two-tailed tests were done on negative nonfood expenditure differences.

** Significant at the 1 percent level, one-tailed test.

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Table 8. Total and Nonfood Expenditures in Rural Counties

Expenditure Category	Mean Expenditures		Difference in Means		
	ASSETS Households	Comparison Households	Absolute Difference	Percentage Difference	t-statistic[a]
Total food expenditures	$177.85	$221.08	-43.23 **	-19.6 %	-3.11
Total nonfood expenditures[b]	468.00	379.50	88.50 **	23.3	2.60
Housing and utilities	205.97	197.33	8.65	4.4	0.67
Transportation	94.95	55.64	39.31 **	70.7	3.50
Medical	45.15	35.58	9.57	26.9	1.05
Clothing	73.45	55.29	18.16	32.8	1.58
Education	22.26	13.34	8.92	66.9	0.96
Dependent care	4.81	7.06	-2.25	-31.9	-0.75
Recreation	10.52	6.90	3.62	52.5	1.46
Personal services	10.89	8.37	2.53	30.2	1.42
Total expenditures	645.56	599.11	46.45	7.8	1.10

[a]One-tailed significance tests were conducted on all food expenditure differences and on positive nonfood expenditure differences. Two-tailed tests were done on negative nonfood expenditure differences.

[b]Components do not sum to total because of small differences in sample size due to missing data.

** Significant at the 1 percent level, one-tailed test.
* Significant at the 5 percent level, one-tailed test.

rural comparison households. In the urban counties, however, ASSETS households spent only $17.05 (3.7 percent) more on all nonfood expenditures than did comparison households, and this difference is not statistically significant (Table 9). However, urban ASSETS households did spend more than urban comparison households on three nonfood budget categories: shelter, transportation, and dependent care expenses. Thus, results from the demonstration show that differences between ASSETS and comparison households in nonfood expenditure patterns vary somewhat from urban to rural counties.

4. **Does cashout change households' perceptions of the adequacy of their food supply?**

The sizeable difference in the level of food expenditures between ASSETS and comparison households may raise concerns about the adequacy of the food available to ASSETS households. We did not collect data on food use and thus cannot draw any definitive conclusions about the effect of lower food expenditures on food use or nutrient availability. However, the survey did include a number of questions about food sufficiency and actions that may indicate inadequate food

Table 9. Total and Nonfood Expenditures in Urban Counties

Urban Counties	Mean Expenditures		Difference in Means		
	ASSETS Households	Comparison Households	Absolute Difference	Percentage Difference	t-statistic[a]
Total food expenditures	$176.13	$235.55	-59.42**	-25.2%	-6.91
Total nonfood expenditures[b]	472.64	455.59	17.05	3.7	0.60
Housing and utilities	255.14	228.82	26.32*	11.5	2.24
Transportation	79.32	62.84	16.47*	26.2	2.15
Medical	30.56	32.29	-1.73	-5.4	-0.33
Clothing	52.92	62.00	-9.08	-14.6	-1.42
Education	18.69	34.21	-15.53	-45.4	-1.28
Dependent care	13.25	7.02	6.23*	88.7	2.15
Recreation	13.79	18.30	-4.51	-24.6	-0.92
Personal services	8.98	10.10	-1.13	-11.2	-0.95
Total expenditures[b]	650.44	691.32	-40.88	-5.9	-1.28

[a]One-tailed significance tests were conducted on all food expenditure differences and on positive nonfood expenditure differences. Two-tailed tests were done on negative nonfood expenditure differences.

[b]Components do not sum to total because of small differences in sample size due to missing data.

** Significant at the 1 percent level, one-tailed test.
* Significant at the 5 percent level, one-tailed test.

"Findings...are mixed, and overall show only weak evidence of a greater proportion of ASSETS households than comparison households having insufficient food."

supplies. The findings, discussed below, are mixed, and overall show only weak evidence of a greater proportion of ASSETS households than comparison households having insufficient food.

We compared three measures of reported food sufficiency, which are shown in Table 10. The first two measures do not show any significant difference between the two groups. The proportion of households that report not having enough to eat is slightly higher for ASSETS than for comparison households, though the difference is not statistically significant. In addition, a similar proportion of households (about 20 percent) in both groups report that in the month before the interview, there were days when they had no food and no money or food stamps to buy food. Based on these measures, the proportion of households reporting inadequate food and resources is similar for the two groups.

Table 10. Recipients' Perceptions of Food Sufficiency

Measures of Reported Food Sufficiency	ASSETS Counties	Comparison Counties	Difference
Adequacy of food supplies (percentage of households)			
Enough of the kinds of food we want to eat	29.2	34.1	-4.9
Enough but not always the kinds of food we want to eat	54.6	52.7	1.9
Sometimes not enough to eat	11.7	9.7	2.0
Often not enough to eat	4.4	3.4	1.0
Adequacy of food and resources			
Households reporting days without food, food stamps, or money in the past month			
Percentage of households	19.2	19.8	-0.6
Mean number of days[a]	5.0	5.8	-0.8
Skipping meals because of inadequate resources			
Households reporting members skipped meals in the past month because of lack of food and resources			
Percentage of households	9.4	5.5	3.9 **
Mean number of days[b]	9.5	5.5	4.0 **

[a]For households reporting at least one day without food or resources in the past month.
[b]For households reporting that member(s) skipped meals on at least one day in the past month due to lack of food and resources.

**Significant at the 1 percent level, one-tailed test.

Using the third measure, we did find some evidence of greater frequency of perceived food insufficiency for ASSETS households than for comparison households. As shown in Table 10, 9.4 percent of ASSETS households reported skipping meals because of a lack of food and resources, compared with 5.5 percent of comparison households. ASSETS households that reported skipping meals missed meals on an average of 9.5 days per month, while comparison households that skipped meals reported missing meals on 5.5 days in a month. Averaging across all households, ASSETS households reported skipping meals on an average of just less than 1 day (0.90) per month compared with 0.30 days per month for comparison households.

We also compared the reported frequency with which ASSETS and comparison households undertook particular actions or used other sources of food or food assistance, in order to gauge whether ASSETS households are offsetting their lower food expenditures by these means. Recipients may borrow food or money, eat at other people's homes, or prepare smaller or less expensive meals when they run short of food and money. About half of the households in each group took some action of this type: 53.3 percent of ASSETS households and 55.6 percent of comparison households said they took at least one such action in the month before the interview because of a lack of food.[7]

"For the most part, there were no significant differences in the participation rates of ASSETS and comparison households in other food assistance programs."

In addition, ASSETS and comparison households have available to them a number of other sources of food or food assistance, such as the WIC program, USDA surplus commodity program, subsidized school meal programs, and home-produced food from such sources as gardens, fishing, or hunting. For the most part, there were no significant differences in the participation rates of ASSETS and comparison households in other food assistance programs. However, a significantly larger fraction of ASSETS households (14.2 percent) reported producing food at home than did comparison households (8.9 percent). But while the proportion of ASSETS households producing food at home is nearly twice that of comparison households, it is still a small fraction of all ASSETS households. Thus, the difference in the proportion using home-produced food cannot alone explain the difference in food expenditures between ASSETS and comparison households.

The survey findings do not offer clear evidence that ASSETS households were more apt than comparison households to suffer from inadequate food supplies, to take particular actions to deal with food shortages, or to use other sources of food. While the survey did not directly measure the adequacy of food available to the household, the

evidence does not suggest any substantially greater problem with food sufficiency for ASSETS than for comparison households.

6. **Does cashout affect food retailers' sales and profits?**

"The net impact [of cashout] reported by most retailers is an overall decrease in total sales."

In general, most food retailers believe that cashout caused a decrease in "food stamp" sales and an increase in "non-food-stamp" sales (that is, sales of nonfood items and of food items that cannot be purchased with food stamps). As shown in Table 11, just over half of all stores (55.2 percent) reported a decrease in sales of food items that can be bought with food stamps, and about 39 percent reported an increase in sales of other food items and in nonfood items. The net impact reported by most retailers is an overall decrease in total sales: 43.7 percent of retailers, representing 85.8 percent of total food stamp sales before cashout, reported a decrease in total sales as a result of cashout.

Managers of supermarkets overwhelmingly reported that cashout has had a negative impact on their store profits. Managers of 78.3 percent of supermarkets, representing 92.6 percent of total food stamp sales before cashout, reported that profits decreased because of cashout (Table 12). Over one-third of supermarkets, representing 49.5 percent

Table 11. Retailers' Perceptions of Impact of Cashout on Store Sales

	Store Sales			
	Food items that can be purchased with food stamps	Food items that cannot be purchased with food stamps	Nonfood items	Total sales
Percentage of stores reporting:				
Increase in sales	6.9	39.7	38.9	17.3
Small increase	3.4	22.9	19.3	11.0
Large increase	3.5	16.8	19.6	6.3
Decrease in sales	55.2	7.5	4.3	43.7
Small decrease	13.5	3.6	2.0	17.5
Large decrease	41.7	3.9	2.3	26.2
No change	37.9	52.8	56.9	39.0
Percentage of food stamp redemptions				
Increase in sales	5.3	32.8	56.7	5.9
Small increase	1.3	20.6	30.8	2.7
Large increase	4.0	12.2	25.9	3.2
Decrease in sales	85.7	7.1	3.6	85.8
Small decrease	16.9	4.2	1.3	22.0
Large decrease	68.8	2.9	2.3	63.8
No change	9.0	60.2	39.7	8.3

of redemptions, reported a "large" decrease in profits because of cashout.

Fewer smaller stores reported that cashout had had a negative impact on profits. Just over half of the smaller stores (51.9 percent) reported no change in profits, and another 10.6 percent reported an increase in profits resulting from cashout. However, when these responses are weighted by food stamp redemptions, the stores with larger coupon volumes before cashout reported a greater negative impact: managers of stores representing 64.5 percent of redemptions at smaller stores reported a decrease in profits because of cashout.

7. **Do food retailers prefer cashout or coupons, and why?**

Most food retailers in the three ASSETS counties prefer coupons to cashout. As shown in Table 13, 87 percent of supermarket managers prefer coupons; their stores represent 94.6 percent of coupon redemptions before cashout. The managers of small stores were more divided in their preferences: 40.4 percent prefer coupons, and 20.2 percent prefer cashout (the remaining 39.4 percent have no preference). However, when the responses of the smaller stores are weighted by redemptions before cashout, those that prefer coupons represent 64 percent of redemptions compared with 20 percent of redemptions for those that prefer cashout. Thus, even among smaller stores, those that

Table 12. Retailers' Perceptions of Impact of Cashout on Store Profits

	All Stores	Supermarkets	Smaller Stores
Percentage of stores reporting:			
Increase in profits	9.2	2.2	10.6
Small increase	8.8	2.2	10.1
Large increase	0.4	0.0	0.5
Decrease in profits	44.1	78.3	37.5
Small decrease	27.4	43.5	24.3
Large decrease	16.7	34.8	13.2
No change in profits	46.7	19.6	51.9
Percentage of food stamp redemptions:			
Increase in profits	1.7	0.1	7.8
Small increase	1.7	0.1	7.6
Large increase	0.0	0.0	0.2
Decrease in profits	86.8	92.6	64.5
Small decrease	39.5	43.1	25.8
Large decrease	47.3	49.5	38.7
No change in profits	11.5	7.3	27.8

Table 13. Retailers' Preferences for Coupons and Cashout

	Number of retailers	Percentage of retailers	Percentage of food stamp redemptions
All stores			
Prefer food stamp coupons	85	47.2	88.2
Prefer cashout	31	17.4	6.4
No preference	36	35.4	5.3
Supermarkets			
Prefer food stamp coupons	40	87.0	94.6
Prefer cashout	2	4.3	2.9
No preference	4	8.7	2.5
Smaller stores			
Prefer food stamp coupons	45	40.4	64.0
Prefer cashout	29	20.2	20.0
No preference	31	39.4	15.9

redeemed more coupons before cashout are more likely to prefer coupons.

Most retailers who prefer coupons felt strongly that food assistance benefits should be spent on food, and they perceive that under cashout, less of the benefits are being spent on food. In contrast, the food retailers who prefer cashout usually did so for reasons related to the reduction in staff time needed for the handling and reconciliation of coupons.

CONCLUSIONS

The ASSETS study found that, per adult male equivalent, ASSETS households spent 18.5 percent less than comparison households on food. Despite the difference in food expenditures, total expenditures per household were similar for both groups. ASSETS households spent a larger proportion of their budgets on shelter and transportation, and a smaller proportion on food, relative to comparison households. ASSETS households spent about the same dollar amount as comparison households on food away from home, though these expenditures are a larger share of their total food spending.

Although food expenditures of ASSETS households differ considerably from those of comparison households, we cannot necessarily assume that the (entire) difference is a result of cashout. Three factors may be responsible for part of the difference in food expenditures between the ASSETS and comparison households:[8]

1. Food expenditures were lower in the ASSETS counties than in the comparison counties before cashout.

2. Recipients of cashed-out food benefits systematically underreport food expenditures to a greater degree than do coupon recipients.

3. Food expenditures (of ASSETS households) decreased in response to cashout.

Our belief is that the difference in food expenditures is explained by a combination of these factors. There is some evidence of differences in expenditure patterns between the two groups before cashout. One striking difference is in housing costs, particularly in rent levels. On average, ASSETS households that rent pay about 50 percent more for housing than do comparison households that rent. However, the evidence suggests that most of the rent differential existed before cashout.[9] Thus, it appears that even in the absence of cashout, ASSETS households would have spent a larger share of their budgets on housing and as a result, may have spent less on food.

"Even in the absence of cashout, ASSETS households would have spent a larger share of their budgets on housing, and as a result, may have spent less on food."

Another factor that may account for at least some of the difference in food expenditures between ASSETS and comparison households is differential measurement error. According to this hypothesis, households that receive coupons are more aware than households that receive check benefits of the total amount of money they spend on food. Using food stamp coupons may make recipients more conscious of what they spend on food, possibly because they are more apt to know the total amount of the food benefits they receive, or because it is easier to distinguish between food transactions and other transactions when using coupons than when using cash.

"Using food stamp coupons may make recipients more conscious of what they spend on food."

Evidence from another cashout study suggests that check recipients underreport food expenditures somewhat more than do coupon recipients (Fraker et al., 1992). If we compare reported food expenditures with the estimated value of food used based on extensive food use survey data, we see that check recipients underreported food expenditures by about 21 percent; coupon recipients underreported food expenditures by about 18 percent. While we have no data on the actual measurement error for the ASSETS and comparison households in this study, it is certainly plausible that coupon recipients are better able than check recipients to recall food spending.

While there is evidence of some cross-county differences that affected spending levels before cashout, there is also evidence that some decrease in food expenditures occurred since cashout. If we compare mean food expenditures in each of the matched county pairs, food expenditures are lower for ASSETS households than for comparison

households in each matched pair. Even in the pair of counties with only a small difference in rent levels, total food expenditures are about 12 percent lower (per AME) for ASSETS than for comparison households. In addition, food retailers in the ASSETS counties report that food sales have decreased, in their view, as a result of cashout. A decrease in food sales is consistent with a reduction in food expenditures by ASSETS households.

Despite the difference in food expenditures between the two groups, total expenditures are about the same. In addition to spending more on housing, ASSETS households spend more than comparison households on transportation. The survey shows that ASSETS households spend more, in particular, on car-related expenses. The proportion of households that had any expenditures for car repair, car maintenance, car insurance, or car payments is about 8 percentage points higher for ASSETS households than for comparison households; the difference is statistically significant (29.4 percent compared to 21.5 percent for comparison households). One hypothesis is that these are the types of expenses that households tend to defer when money is tight. It is plausible that this difference in expenditures represents a shift in consumption patterns related to cashout.

"We conclude that ASSETS participants have decreased their food expenditures as a result of cashout, shifting some of their spending to other necessities."

Factors such as measurement error and pre-existing rent differentials may also explain part of the difference in food expenditures between ASSETS and comparison households. However, these factors are difficult to quantify, and it seems unlikely that they account for the entire difference in food expenditures between the two groups. We conclude that ASSETS participants have decreased their food expenditures as a result of cashout, shifting some of their spending to other necessities such as housing and transportation. The actual average decrease, however, is somewhat less than the 18.5 percent difference in food expenditures per AME between the two groups.

The matched county treatment/comparison design cannot control for all county-level differences between the two groups that may have existed before cashout. In particular, even without cashout, ASSETS households may have spent a larger share of their budgets on housing, spending less on food. Nonetheless, the evidence suggests that ASSETS households shifted consumption patterns as a result of cashout.

The sizeable difference in the level of food expenditures between ASSETS and comparison households may raise concern about the adequacy of the food available to ASSETS households. The survey did not find evidence that the lower food expenditures in the ASSETS

counties have substantially affected households' perceptions of the adequacy of their food supply.

Food retailers in the ASSETS counties generally did not view cashout favorably. Managers of supermarkets overwhelmingly prefer coupons and believe that their sales are lower because of cashout. Most supermarket managers also perceive that store profits have decreased because of cashout. Managers of smaller stores were more divided in their preferences: about 40 percent prefer coupons, and 20 percent prefer cashout. About half of the smaller stores reported that cashout did not affect profits, though close to 40 percent of the managers of smaller stores believe cashout has caused a decrease in profits. However, it may have been difficult for retailers to separate any impact of cashout from the impact of concurrent changes.

NOTES

1. These variables included population; adult population; number of children of school age and under age 5; employment rate; number of out-of-wedlock births; food stamp caseload; AFDC caseload; and average earnings of food stamp recipients, of AFDC recipients, and of the population.

2. Counties were matched and pairs selected by FNS and the Alabama Department of Human Resources using cluster analysis techniques.

3. The difference in racial background between the ASSETS and comparison samples reflects the demographic differences between northern Alabama and the rest of the state.

4. Alabama added an increment of 7 percent of FSP benefits to ASSETS households' checks to cover the 7 percent sales tax on food purchases not made with food stamp coupons. We divided ASSETS households' reported food benefit amount by 1.07 to equalize the benefit levels of the two groups.

5. Food expenditures reported by ASSETS households are adjusted to account for sales tax paid on food purchases in Alabama. Purchases made with food stamp coupons, however, are exempt from sales tax by federal law. To make the levels of food expenditures comparable between ASSETS and comparison households, we decreased ASSETS households' reported expenditures on food in stores by the tax rate multiplied by the household's food stamp benefit amount. We used a tax rate of 8 percent for households in Madison County and 7 percent for households in Limestone and Clarke counties. (Alabama added an increment of 7 percent to ASSETS benefits to offset the sales tax on food purchases not made with food stamp coupons.)

6. There was no significant difference in the number of free meals eaten per week by ASSETS and comparison households.

7. Respondents were asked a series of questions about actions they may have taken in the past month in response to a lack of food or money. The differences in proportions between ASSETS and comparison households for each separate action were small and not significant.

8. We also investigated whether changes in the composition of the caseload in ASSETS counties since cashout resulted in a decrease in food expenditures. First, we compared food expenditures of households new to the ASSETS program with those of households on the program before cashout. Second, we compared the difference in expenditures between ASSETS and comparison households who had been on the program less than one year. In both cases we found no evidence that changes in the caseload would explain lower food expenditures reported by ASSETS households.

9. About the same percentage of renters in each group reported paying more rent than one year ago. In addition, based on the size of the reported increase in rent, we estimated last year's rent for each household that is currently renting. The difference in last year's rent between the two groups was only slightly smaller than the difference in current rent.

APPENDIX 1

Regression Analysis of the Impacts of Cashout on Household Food Expenditures

The standard regression model we employed in the household expenditures analysis is of the form:

$$Y_h = b_0 + b_1 * ASSETS_h + b_2 * X_h + b_3 * RURAL_h + e_h,$$

where Y_h is the outcome measure of interest for household h, $ASSETS_h$ is an indicator for the ASSETS counties, X_h represents a range of household characteristics, and $RURAL_h$ is an indicator for the rural counties. (The last term, e_h, represents the remaining random error.) The regression models include all important household characteristics hypothesized to affect household expenditures. Explanatory variables include, for example, household income; food stamp benefit amount; household size; whether the household includes elderly persons or children; whether the household receives AFDC or WIC benefits; and the education, race, and age of the head of household. Table A1.1 compares the difference-in-means estimates and the regression-adjusted estimates for key expenditure outcome measures. Tables A1.2 to A1.4 present the full regression models for the key outcomes.

Table A1.1. Comparison of Difference-in-Means Estimates and Regression Estimates

	Difference-in-Means Estimate	Regression Estimate
Total food expenditures per AME	-23.42 **	-26.71 **
Food expenditures from stores per AME	-25.43 **	-28.09 **
Expenditures on food away from home per AME	2.05	1.49
Total food expenditures per household	-54.47 **	-52.27 **
Nonfood expenditures per household	38.73 *	43.97 *
Total expenditures per household	-14.34	-7.67
Shelter expenditures per household	20.47 *	17.53 *
Transportation expenditures per household	23.57 *	23.26 **
Food expenditures as a percent of total expenditures	-5.90 **	-6.00 **

** Significant at the 1 percent level, one-tailed test.
* Significant at the 5 percent level, one-tailed test.

Table A1.2. Regression Coefficients for Food Expenditure Outcome Measures

	Food from Stores per AME	Food Away from Home per AME	Total Food per AME
Intercept	141.42 **	6.75**	148.44 **
	(5.37)	(2.54)	(6.17)
ASSETS indicator	-28.09 **	1.49	-26.71 **
	(2.79)	(1.34)	(3.21)
Income excluding food benefits[a,b]	0.53	0.66	1.18 *
	(0.44)	(0.21)	(0.51)
Food benefit amount[a,b]	7.38 **	-0.90	6.41 **
	(1.74)	(0.83)	(2.01)
	(4.02)	(1.91)	(4.63)
Rural county	-5.50	0.39	-5.20
	(3.08)	(1.46)	(3.54)
Household size in AMEs	-17.57 **	-1.91	-19.37 **
	(2.09)	(0.99)	(2.41)
Household includes children	-2.21	0.65	-1.69
	(4.47)	(2.12)	(5.14)
Household includes elderly	11.00	-5.11 *	6.16
	(4.43)	(2.10)	(5.09)
Household has savings	0.51	5.92 **	6.49
	(3.02)	(1.44)	(3.48)
Public housing	-1.63	0.21	-1.47
	(3.36)	(1.60)	(3.87)
Pays rent	-2.43	-0.03	-2.54
	(2.85)	(1.36)	(3.28)
Receives AFDC benefits	6.53	1.39	7.95
	(3.66)	(1.74)	(4.20)
Received surplus commodities	7.51	-1.05	6.50
	(3.84)	(1.83)	(4.42)
Income of other household members[c]	0.74	0.22	0.96
	(0.49)	(0.23)	(0.57)
Household head is male	-5.85	-1.53	-7.35
	(3.42)	(1.63)	(3.94)
Minority	-11.26 **	3.01 *	-8.37 *
	(2.97)	(1.41)	(3.42)
Under age 30	-0.84	5.75 **	4.92
	(3.50)	(1.66)	(4.03)
Less than a 9th grade education	7.69	1.43	8.94

	Food from Stores per AME	Food Away from Home per AME	Total Food per AME
Receiving food benefits for less than 1 year	-0.64 (3.11)	2.55 (1.48)	1.89 (3.59)
Number of observations	**1353**	**1356**	**1350**
R-squared	**0.20**	**0.07**	**0.16**

[a]All income amounts have been divided by 100 so that the coefficient represents the impact per $100 of income or benefits.

[b]We divided all cash income amounts and ASSETS food benefit amounts by 1.07 or 1.08, to account for the 7 to 8 percent sales tax on food purchases in Alabama. This adjustment is necessary because coupon purchases are not subject to sales tax.

[c]Total income of household members who do not eat from the same food supply as the head of household.

** Significant at the 1 percent level, two-tailed test.
* Significant at the 5 percent level, two-tailed test.

Table A1.3. Regression Coefficients for per Household Expenditure Measures

	Total Expenditures	Nonfood Expenditures	Food Expenditures
Intercept	124.56 **	58.33	65.96 **
	(37.55)	(34.69)	(10.46)
ASSETS indicator	-7.67	43.97 *	-52.27 **
	(19.51)	(18.05)	(5.44)
Income excluding food benefits[a,b]	50.57 **	48.22 **	2.51 **
	(3.05)	(2.83)	(0.85)
Food benefit amount[a,b]	24.77 *	6.76	19.21 **
	(12.21)	(11.29)	(3.40)
Receives WIC benefits	-85.45 **	-76.15 **	-8.87
	(28.13)	(26.13)	(7.84)
Rural county	-35.93	-27.08	-8.68
	(21.55)	(19.96)	(6.01)
Household size in AMEs	117.96 **	65.60 **	50.49 **
	(14.63)	(13.51)	(4.08)
Household includes children	20.22	2.30	19.47
	(31.27)	(28.90)	(8.71)
Household includes elderly	-74.80 *	-76.48 **	2.72
	(30.97)	(28.65)	(8.63)
Household has savings	55.99 **	44.42 *	13.38 *
	(21.16)	(19.61)	(5.90)
Public housing	-101.82 **	-89.48 **	-11.36
	(23.51)	(21.82)	(6.55)
Pays rent	70.73	69.91 **	-0.53
	(19.94)	(18.48)	(5.56)
Receives AFDC benefits	-17.70	-38.34	21.86 **
	(25.56)	(23.67)	(7.12)
Received surplus commodities	31.11	19.64	11.71
	(26.90)	(24.89)	(7.50)
Income of other household members[c]	-5.21	-5.74	0.52
	(3.44)	(3.20)	(0.96)
Household head is male	-79.34 **	-72.81 **	-4.28
	(23.95)	(22.13)	(6.67)
Minority	-18.51	-9.27	-9.46
	(20.77)	(19.21)	(5.79)
Under age 30	46.65	31.19	14.14 *
	(24.48)	(22.68)	(6.82)
Less than a 9th grade education	23.93	9.19	13.54
	(28.03)	(25.97)	(7.81)
Graduated high school	83.54 **	73.58 **	9.84
	(22.43)	(20.77)	(6.25)

(continued)

	Total Expenditures	Nonfood Expenditures	Food Expenditures
Receiving food benefits for less than 1 year	32.18 (21.83)	30.55 (20.18)	1.15 (6.08)
Number of observations	**1350**	**1360**	**1350**
R-squared	**0.48**	**0.40**	**0.50**

[a]All income amounts have been divided by 100 so that the coefficient represents the impact per $100 of income or benefits.

[b]We divided all cash income amounts and ASSETS food benefit amounts by 1.07 or 1.08, to account for the 7 to 8 percent sales tax on food purchases in Alabama. This adjustment is necessary because coupon purchases are not subject to sales tax.

[c]Total income of household members who do not eat from the same food supply as the head of household.

** Significant at the 1 percent level, two-tailed test.
* Significant at the 5 percent level, two-tailed test.

Table A1.4. Regression Coefficients for Food Expenditure Share, Shelter, and Transportation

	Food as a Percent of Total Expenditures	Shelter Expenditures	Transportation Expenditures
Intercept	46.50 **	106.26 **	-3.86
	(1.99)	(14.97)	(11.60)
ASSETS indicator	-6.00 **	17.53 *	23.26 **
	(1.03)	(7.79)	(6.04)
Income excluding food benefits[a,b]	-1.49 **	10.47 **	10.00 **
	(0.16)	(1.22)	(0.95)
Food benefit amount[a,b]	2.20 **	-13.27 **	-4.70
	(0.65)	(4.87)	(3.78)
Receives WIC benefits	1.68	-30.17 **	-5.18
	(1.49)	(11.28)	(8.74)
Rural county	-2.22	-36.06 **	5.37
	(1.14)	(8.61)	(6.68)
Household size in AMEs	0.87	31.85 **	12.16 **
	(0.78)	(5.83)	(4.52)
Household includes children	-2.62	26.57 *	7.00
	(1.66)	(12.47)	(9.67)
Household includes elderly	-2.89	-15.55	-30.67 **
	(1.64)	(12.37)	(9.58)
Household has savings	-2.69 *	15.86	0.03
	(1.12)	(8.46)	(6.56)
Public housing	1.60	-71.69 **	-17.94 *
	(1.25)	(9.42)	(7.30)
Pays rent	-10.05 **	90.51 **	-0.73
	(1.06)	(7.97)	(6.18)
Receives AFDC benefits	3.61 **	-22.64 *	-11.38
	(1.35)	(10.21)	(7.92)
Received surplus commodities	0.28	0.57	5.57
	1.42	(10.74)	(8.33)
Income of other household members[c]	0.45 *	-5.30 **	-0.48
	0.18	(1.38)	(1.07)
Household head is male	3.61 **	-29.65 **	4.69
	(1.27)	(9.55)	(7.40)
Minority	0.46	-6.49	-15.91
	(1.10)	(8.21)	(6.42)
Under age 30	2.23	-0.61	13.34
	(1.30)	(9.79)	(7.59)
Less than a 9th grade education	0.09	11.74	6.47
	(1.48)	(11.21)	(8.69)
Graduated high school	-1.99	17.97 *	25.38 **
	(1.19)	(8.97)	(6.95)

(continued)

	Food as a Percent of Total Expenditures	Shelter Expenditures	Transportation Expenditures
Receiving food benefits for less than 1 year	1.50 (1.16)	15.80 (8.71)	8.76 (6.75)
Number of observations	**1350**	**1360**	**1360**
R-squared	**0.25**	**0.34**	**0.22**

[a]All income amounts have been divided by 100 so that the coefficient represents the impact per $100 of income or benefits.

[b]We divided all cash income amounts and ASSETS food benefit amounts by 1.07 or 1.08, to account for the 7 to 8 percent sales tax on food purchases in Alabama. This adjustment is necessary because coupon purchases are not subject to sales tax.

[c]Total income of household members who do not eat from the same food supply as the head of household.

** Significant at the 1 percent level, two-tailed test.
* Significant at the 5 percent level, two-tailed test.

APPENDIX 2 Characteristics of the Sample Households in Rural and Urban Counties

Table A2.1. Characteristics of Sample Households in Rural Counties

Characteristics of:	ASSETS Counties (N=226)	Comparison Counties (N=198)
Household head		
Percent Female	73.9	71.2
Percent Married	26.6	28.3
Percent Employed	21.2	21.7
Education (percentages)		
Less than 8th grade	31.0	35.9
Some high school	31.4	36.4
High school graduate	25.7	21.7
Beyond high school	12.0	6.1
Race/Ethnicity (percentages)		
Black	48.2	46.0
White	51.3	53.5
Other	0.4	0.5
Age (percentages)		
Under 18	1.8	0.5
19-35	35.8	32.8
36-59	31.9	37.9
60+	30.5	28.8
Household		
Mean household size	2.8	2.8
Mean household size in AMEs	2.0	2.1
Percent of households that include children	53.3	54.1
Percent of households with children that include only one adult	55.0	59.8
Percent of households that include elderly	26.1	26.3

Table A2.2. Characteristics of Sample Households in Urban Counties

Characteristics of:	ASSETS Counties (N=494)	Comparison Counties (N=453)
Household head		
Percent Female	72.1	78.4
Percent Married	20.8	17.2
Percent Employed	24.3	30.8
Education (percentages)		
Less than 8th grade	20.8	21.6
Some high school	30.8	31.6
High school graduate	26.7	22.7
Beyond high school	21.7	24.1
Race/Ethnicity (percentages)		
Black	52.4	73.8
White	43.5	25.9
Other	4.0	0.2
Age (percentages)		
Under 18	1.4	0.9
19-35	54.0	48.6
36-59	27.5	30.7
60+	17.0	19.9
Household		
Mean household size	2.6	2.8
Mean household size in AMEs	1.9	2.0
Percent of households that include children	58.4	64.8
Percent of households with children that include only one adult	62.7	70.9
Percent of households that include elderly	15.0%	15.2%

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Impacts of the Washington State Food Stamp Cashout Demonstration on Household Expenditures and Food Use

Barbara E. Cohen and Nathan Young[1]

INTRODUCTION

Washington State's welfare reform initiative, the Family Independence Program (FIP), incorporates food stamp benefits into public assistance checks, a form of food stamp cashout. This paper documents the findings from the evaluation of the Washington State cashout demonstration on household expenditures, food use, nutrient availability, and client attitudes toward check benefits.[2] We present some of the key background issues and research questions in the Washington State cashout evaluation, as well as the basic research methodology, the key research findings, and a summary and discussion of the implications of the findings.

BACKGROUND ISSUES AND RESEARCH QUESTIONS

The cashout demonstration is one component of FIP. FIP is a state-initiated alternative to Aid to Families with Dependent Children (AFDC) and to the Washington Employment and Opportunities Program (WEOP)—the state work-welfare program component of AFDC that was in existence when FIP was implemented (July 1988). WEOP was replaced with the Job Opportunities and Basic Skills (JOBS) Program in October 1990, as required by the Family Support Act of 1988. FIP operates as a modified AFDC/JOBS program under waivers—exemptions from federal welfare regulations that allow states to offer alternatives to the standard AFDC and Food Stamp programs. The major goal of FIP is to reduce poverty and dependence on welfare among families with children. To reach this goal, FIP offers enhanced employment and training opportunities to all recipients to assist them in becoming economically self-sufficient. FIP also incorporates changes to some benefit features of AFDC and the Food Stamp Program (FSP), including the cashout of food stamps for FIP participants. FIP provides recipients with the actual cash equivalent of the food stamp coupon allotment.

The purposes of the cashout evaluation are (1) to evaluate the *households' response* to the form of food stamp benefits, giving special attention to the impact of cashout on food expenditures and nutrient availability, as well as to participants' attitudes toward and experiences with check benefits, and (2) to evaluate the impact of cashout on *administrative outcomes,* such as administrative costs and program

vulnerability to benefit losses, fraud, and theft. Administrative outcomes are reported in Young and Yudd (1992). This paper addresses household responses, focusing on the following research questions.

1. Are the food expenditures of households that receive cash benefits different from those that receive coupon benefits?

2. Are the relative budget shares devoted to food and nonfood categories different for cashout than for coupon households?

3. Is participation in other food assistance programs, such as WIC and commodities distribution programs, different for cashout than for coupon households?

4. Is the nutrient availability of the household food supply different for cashout than for coupon households?

5. Is recipients' perceived control over food spending, difficulty in budgeting food expenses, and degree of stigmatization different for cashout than for coupon households?

DATA AND METHODS

The evaluation of the Washington State cashout demonstration is based on a quasi-experimental design of matched pairs of treatment and comparison sites. Five pairs of community service offices (CSOs) in the state were chosen as evaluation sites to be representative of the overall state welfare caseload. Five sites (one chosen randomly from each pair) were designated as treatment sites, and five sites (the other in each pair) were designated as comparison sites. Sites were matched on a number of criteria including rural or urban location, geographic area, local area employment, number of single-parent AFDC cases, out-of-wedlock birth rate, average monthly earnings of single-parent AFDC cases, ratio of single-parent to two-parent AFDC cases, and average earnings of all workers in designated occupations in the county. In the treatment sites, AFDC recipients were given cash (added to their AFDC check) instead of coupons for their food stamp benefit amount. Non-AFDC food stamp recipients continued to receive coupons.

In the treatment sites, AFDC-eligible applicants to welfare who applied after FIP implementation were automatically enrolled in FIP. Recipients who were already receiving AFDC before FIP startup were given the option of either continuing to receive AFDC or changing to FIP. Some of these recipients chose to change to FIP, but a substantial proportion chose to continue to receive AFDC and food coupons,

introducing a problem of self-selected treatment. To avoid bias, the analyses presented in this paper are based on data from the group that applied for welfare *after* FIP implementation—those who entered the FSP at a treatment site after the site had converted to FIP and those who entered the FSP at a control site after the matched treatment site had converted to FIP.

Data Collection Procedures

Data were collected from August through October 1990. Interviewers conducted initial screening visits to gather preliminary data on the household's demographic structure and to instruct respondents on how to keep food records in preparation for the household survey interview. Seven days after the screening visits, longer in-person interviews were conducted with respondents. These interviews focused on household expenditures and food use: information was gathered on the numbers and types of meals eaten from the household food supply by household members and guests and the number of meals eaten away from home by each family member. For each type of food used in the household, interviewers recorded the exact type of food, its form when brought into the house (fresh, frozen, or canned), the quantity brought into the house, the quantity used, the price paid, and the source (purchase, WIC, gift, payment-in-kind).

Analysis Methods

The primary tool used to identify the impact of cashout is a two-sample *comparison of means,* which computes the simple difference between the mean outcome values for check and coupon households. Since sample means tend to vary based on the households surveyed, sample mean differences will probably not be exactly zero even in the absence of a real effect. Therefore, some method must be applied to determine whether the difference is large enough for analysts to be confident that it is not simply random. This determination is made by dividing the difference between the sample means by its expected standard deviation to produce a t-statistic. The t-statistic is compared to numbers in a standard statistical table to determine its relative level of significance. We considered three levels of significance—the .10 level, the .05 level and the .01 level—using a two-tailed test criterion.

For a two-sample comparison of means test to be a valid test for the Washington State cashout evaluation, the differences in check and coupon average outcomes must be a result of the different forms of benefits that the two samples receive, and not a result of some other sample differences. If the check and coupon samples differ greatly in other characteristics thought to influence household food expenditures and food use ("auxiliary differences"), a simple comparison of means cannot be used to estimate the difference in food use caused by the

difference in food benefit form. In nonexperimental data analysis, these auxiliary differences are controlled for by using multiple regression. In the quasi-experimental design employed in the FIP evaluation, multiple regression may also be applied. To control for other sample and population differences that might exist between check and coupon households, *regression adjustments* were applied to selected evaluation outcomes. Regression adjustments do not necessarily control for all sample differences, but generally are effective if the specified control variables are able to predict the outcome variable. As discussed in the next section, regression adjustments made no difference in the basic conclusions concerning the impact of cashout.

The largest remaining concern about the validity of causal inferences based on the Washington State evaluation is related to the grouping of FIP and non-FIP households by site. FIP households were drawn from five sites. Non-FIP households were drawn from five different, but matched, sites. This is a clustered and stratified sample design. The clustering of observations reduces our effective sample size, since households are not "independent." In the extreme case of absolute dependence where all households in a site are identical, the sample size is ten (five FIP sites, five non-FIP sites). The greater the reduction in effective sample size, the greater the "design effect." Analysis suggests that the size of the design effect, after controlling for regression adjustments, is small.[3] Thus, while the causal relationship between food benefit form and differences in check and coupon household food use cannot be established absolutely, this design yields sample differences between check and coupon households that serve as a valid guide to the expected impact of cashout for the welfare population.

RESEARCH FINDINGS

The Washington State cashout evaluation addresses the impact of cashout on an important subgroup of food stamp participants—households made up of families participating in AFDC. FIP and non-FIP households in the analysis sample tend to match the typical profile of AFDC households in Washington State, aside from the fact that all households in the sample had been on AFDC or FIP consecutively for at most two years (the period for which follow-up data were collected). The majority of the sample are single-parent families. The main food preparer (most often a female single parent) has at least a high school diploma or its equivalent in 73 percent of the check households and 67 percent of coupon households. In both samples, she is most likely to be white and younger than 35 years of age (Table 1).

Differences between the two samples are minor in terms of the key characteristics of household size and income. Total cash income (other

than food benefits) averages $646 for check households and $687 for coupon households. AFDC income, which averages $398 for check households and $362 for coupon households, makes up more than half of the average household cash income. On average, food benefits constitute 29 percent of the combined total of cash and food benefit income for both groups of households. Average household size for the check and coupon samples is not different in a statistical sense for number of persons, number of equivalent nutritional units (ENUs), or number of adult male equivalents (AMEs). The biggest difference between check and coupon households in measures of average household size is in ENUs. Even here, the average household size for the check sample differs from the coupon sample by only 3.5 percent. The small size of these differences obviates the need for any complex adjustment based on post-stratification weighting, especially after scaling food use by an appropriate household size measure.

Table 1. Household Characteristics

	Check Sample	Coupon Sample	Percent Difference
Number of persons in the food consumption unit			
Number of persons	3.2	3.3	-2.9
Number of equivalent nutritional units (ENUs)	2.8	3.0	-3.5
Number of adult male equivalents (AMEs)	2.2	2.2	-1.1
Characteristics of the main food preparer (in percentages)			
Female	82.2	89.8	-8.4**
Employed	16.8	16.8	0.0**
Younger than 35 years	75.9	84.0	-9.6**
High school completed	73.2	66.7	9.8***
Asian	5.0	1.3	282.0**
Hispanic	6.0	10.2	-41.2***
Black	5.0	10.5	-52.3*
White	79.7	72.7	9.6
Other	4.3	5.3	-18.8
Household income			
Total cash income excluding food benefits ($ per month)	646.38	687.22	-5.9***
Food benefits received ($ per month)	193.49	175.71	10.1**
Total cash and food benefit income ($ per month)	839.88	862.93	-2.7
AFDC benefits received ($ per month)	398.50	362.15	10.0
Food benefit as percentage of total cash and food benefit income (percentage)	28.8	29.3	-1.6
Sample size	**399**	**381**	

Source: Washington State Cashout Survey.
Percent difference is (mean check-mean coupon)/mean coupon.

* Statistically significant at .10 level.
** Statistically significant at .05 level.
*** Statistically significant at .01 level.

Despite similarities in some household characteristics, the check and coupon households differ substantially in others. There are statistically significant differences in such personal and household characteristics as marital status, age, education, race, the amount of food stamp benefits received, and the amount of AFDC benefits received. But differences in the samples do not necessarily invalidate the two-sample comparison of means. In fact, regression analysis indicates that these differences have no appreciable effect on the estimated impact of cashout.[4]

The following sections present key findings concerning the impact of cashout on household expenditures (food and nonfood), nutrient availability of the household food supply, participation in other food assistance programs, and recipient attitudes toward food stamp checks and coupons.

Household Expenditures (Food and Nonfood)

Substantial differences were found in check and coupon household expenditure patterns. However, these differences were not in keeping with our expectations. Since coupons may not be used to purchase food at restaurants, it was anticipated that check recipients might purchase more food away from home while decreasing home food expenditures. The amount spent on food away from home remained extremely small for both samples, however, and any shift from food used at home to food used away from home was not statistically significant.

The two groups differed in terms of expenditure shares allocated to food used at home and to nonfood items such as shelter and transportation (Table 2).[5] On average, home food expenditures accounted for 27 percent of the check household budget ($107 per AME) and 30.3 percent of the coupon household budget ($129 per AME). This 3.3 percentage point (10.8 percent) greater share for coupon households was significant at a .01 level. Shelter costs accounted for 41.5 percent of the check household budget ($182 per AME) and 39.5 percent of the coupon household budget ($189 per AME); the difference was significant at a .10 level. Sample differences in average dollar expenditures on shelter were not statistically significant. Transportation costs accounted for 10.2 percent of the check household budget and 8.6 percent of the coupon household budget (a difference significant at a .05 level). The combined budget share for shelter and transportation was 7.5 percent greater for check households than for coupon households (average expenditures were $466 for check households and $439 for coupon households), while the total budget share for food was 6.7 percent less for check households than for coupon households. Expenditures per AME for check households tended to be less across the board than for coupon households. In the AME scale, even shelter

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Table 2. Major Household Expenditures

	Mean Household Expenditures (dollars per month per AME)			Mean Household Expenditures (dollars per month)			Mean Household Budget Share (percentage of total expenditures)		
	Check	Coupon	Percent[a] Difference	Check	Coupon	Percent[a] Difference	Check	Coupon	Percent[a] Difference
Food expenditures									
Purchased food at home	106.73	128.85	-17.2***	234.22	266.30	-12.1***	27.0	30.3	-10.8***
Nonpurchased food at home	28.73	29.07	-1.2***	55.66	51.03	9.1**	6.2	5.7	9.3***
Food away from home	16.81	17.97	-6.5	34.03	32.17	5.8	3.4	3.3	2.9
Total food	152.27	175.89	-13.4	323.91	349.51	-7.3	36.7	39.3	-6.7
Nonfood expenditures									
Shelter costs	182.34	188.59	-3.3*	360.58	350.58	2.9*	41.5	39.5	5.2*
Transportation	50.01	44.72	11.8***	105.06	88.55	18.6	10.2	8.6	18.7***
All other	52.12	72.42	-28.0	106.79	138.13	-22.7	11.5	12.7	-8.8***
Total nonfood	284.48	305.2	-6.8	572.43	576.33	-0.7	63.3	60.7	4.4
Total expenditures	**436.75**	**480.00**	**-9.0**	**896.33**	**925.84**	**-3.2**	**100.0**	**100.0**	**0.0**

Source: Washington State Cashout Survey.
Percent difference = (mean check-mean coupon)/mean coupon.
* Statistically significant at .10 level.
** Statistically significant at .05 level.
*** Statistically significant at .01 level.
[a]Percent differences need not add up.

costs are lower for the check households.

The evidence suggests that in addition to influencing the proportion of home food purchases, cashout influenced where such purchases were made (Table 3). Households were asked to recall their previous month's expenditures for food and nonfood items at supermarkets, neighborhood groceries, convenience stores, and specialty stores. The average share of food expenditures at supermarkets was 5 percent greater for coupon households than for check households (a difference significant at a .01 level). Coupon households were more likely to purchase food at supermarkets and less likely to purchase food at neighborhood groceries and specialty stores. The average share of dollars spent at neighborhood groceries was 7.8 percent for check households and only 4.9 percent for coupon households. The average share of dollars spent at specialty stores was 4.8 percent for check households and only 3.2 percent for coupon households. It is not known whether these differences were a result of the limited acceptance of food stamp coupons by neighborhood groceries and specialty stores, reluctance of households to use food stamp coupons in stores close to their homes, or some other reason.

Table 3. Retail Food Expenditures by Source as a Percent of Total Retail Food Expenditures

	Check	Coupon	Percent Difference[a]
Supermarkets	84.4	88.8	-5.0***
Neighborhood groceries	7.8	4.9	60.9***
Convenience stores	3.1	3.1	0.0
Specialty stores	4.8	3.2	46.6*
	100.0	100.0	

Source: Washington State Cashout Survey.
[a]Percent difference is (mean check-mean coupon)/mean coupon.
* Statistically significant at .10 level.
** Statistically significant at .05 level.
*** Statistically significant at .01 level.

Quantity, Value, and Nutrient Availability of the Household Food Supply

Check households spent less on food than did coupon households. Households may lower their food expenditures by buying less food, less expensive versions of the same types and amounts of food, less expensive and different foods; or by increasing the amounts of nonpurchased foods used at home to supplement their purchases. How

the household lowers its food expenditures matters. If households simply buy less expensive versions of the same food items, then cashout has no effect on the nutritional quality of household food supplies. If, on the other hand, households lower their food expenditures by buying less food, or different food items, then nutrient availability is potentially affected. Finally, if households lower food expenditures by obtaining more nonpurchased food, cashout may affect other food assistance programs.

Quantity of Food Used at Home per ENU (by Food Group). Cashout was associated with a substantial and statistically significant difference in the amount of food used at home (Table 4). Check households used an average of 40 pounds of food per week per ENU, compared to the 44 pounds used by coupon households (a difference significant at a .01 level). More specifically, for 22 of the 32 food subgroups analyzed,

ENU. Among these 22 food subgroups, the differences for 9 food subgroups were significant at least at a .10 level. These differences were not concentrated in any one or two broad categories of food. Instead, drops in the quantity of food used were observed in each of the five major food groups—vegetables and fruits, grain products, milk and milk products, meat and meat alternatives, and other food. This suggests that there was no substitution among major food groups. Cashout

Table 4. Quantity and Money Value of Food Used at Home by Food Group (per ENU)

Food Group	Quantity of Food Used (lbs/week)			Money Value of Food Used ($/week)		
	Check	Coupon	Percent Difference[a]	Check	Coupon	Percent Difference[a]
Vegetables and fruit						
Potatoes	1.40	1.50	-6.45 *	.55	.61	-9.38 **
High-nutrient vegetables	1.65	1.58	4.33 ***	1.29	1.18	10.08 ***
Other vegetables	2.29	2.58	-11.00	1.70	1.97	-13.66
Condiments, mixtures	0.38	0.62	-38.37	.58	.93	-37.24
Vitamin C-rich fruit	1.14	1.26	-9.34	.79	.86	-8.93
Other fruit	3.67	3.87	-5.03	2.49	2.79	-10.63
Grain products						
Whole grain/high fiber breakfast cereal	0.46	0.42	8.95 *	1.00	.95	5.21
Other breakfast cereals	0.34	0.40	-16.41 ***	.94	1.09	-14.08
Higher fiber flour, meal, rice, pasta	0.09	0.13	-36.24	.14	.18	-20.82
Other flour, meal, rice, pasta	1.31	1.22	7.22	1.00	1.12	-11.05
High fiber bread	0.38	0.34	13.66	.27	.24	15.54
Bakery products	1.05	1.15	-8.66	.73	.83	-12.05
Grain mixtures	0.65	0.85	-23.37	1.49	1.74	-14.26
Milk, cheese, and cream						
Milk, yogurt	10.49	10.92	-3.89 **	5.84	7.26	-19.60 *
Cheese	0.49	0.60	-17.87	1.17	1.41	-17.25
Cream, mixtures mostly milk	0.64	0.71	-9.33	.69	.76	-10.27
Meat and alternatives						
Lower-cost or variety meat	1.33	1.61	-17.39 ***	2.19	2.61	-16.10 **
High-cost or variety meats	0.93	0.85	8.64 **	2.11	1.98	6.63 ***
Poultry	1.23	1.33	-7.47	1.52	1.86	-18.27
Fish, shellfish	0.60	0.50	19.45	1.37	1.27	8.45
Bacon, sausage, lunch meat	0.79	0.89	-11.74	1.49	1.66	-10.35
Eggs	0.71	0.74	-3.35	.47	.50	-4.58
Dry beans, peas, lentils	0.24	0.25	-2.24	.19	.20	-6.14
Mixtures	0.55	0.70	-21.64	1.46	1.80	-18.52
Nuts, peanut butter	0.22	0.22	0.25	.43	.47	-8.87
Other foods						
Fats, oils	0.85	0.90	-4.73 *	.86	.89	-3.35 *
Sugar, sweets	1.11	1.27	-12.95 ***	1.18	1.37	-13.31 ***
Seasonings	0.01	0.00	0.00	0.02	0.00	0.00
Soft drinks, punches, ades	3.88	5.29	-26.71	1.71	2.25	-23.92
Coffee, tea	0.15	0.13	20.20	.44	.42	5.97
Alcohol	0.63	0.59	7.17	.47	.38	24.49
Miscellaneous new food	0.01	0.01	-0.53	.02	.02	24.42
Total, all food	40.27	44.11	-8.69 ***	37.30	42.40	-12.05 **
Sample size	**399**	**381**		**399**	**381**	

Source: Washington State Cashout Survey.
[a]Percent difference is (mean check-mean coupon)/mean coupon.

* Statistically significant at .10 level.
** Statistically significant at .05 level.
*** Statistically significant at .01 level.

similar difference in the availability of nutrients in that household. In general, the results bear this out. Cashout appears to result in a statistically significant decrease in the availability of many nutrients (Table 5). Households receiving cash instead of coupons used less food, and as a result had access to less energy, protein, and other key nutrients than did coupon households.

A primary measure of nutrient availability is that of food energy and protein availability. Inadequate availability of these macronutrients puts a household at risk of undernutrition. The mean availability of food energy and protein was significantly less (at the .05 level) for check than for coupon households, though mean availability still exceeded the RDAs. The mean availability of food energy per ENU was 132 percent of the RDA for check households and 144 percent for coupon households. The proportion of households with food energy less than the RDA was 31 percent for check households and 25 percent for coupon households (a difference significant at the .10 level). The mean availability of protein per ENU was 243 percent of the RDA for check households and 265 percent for coupon households. The proportion of households for which the availability of protein fell below the RDA was 2 percent for both check and coupon households.

Along with evaluating the availability of macronutrients, we also evaluated the availability of seven important micronutrients: vitamin A, vitamin C, vitamin B_6, folic acid, calcium, iron, and zinc. These nutrients have established RDAs and have been classified by the Joint Nutrition Monitoring Evaluation Committee as a current or potential public health issue (DHHS/USDA, 1986).

Nutrient availability per ENU (expressed as a percentage of the RDA) for each of the seven micronutrients was lower for check recipients than for coupon recipients. The differences in availability of vitamin A, vitamin B_6, folate, calcium, and zinc were all significant at the .10 level or lower. But here again, even for check households, the average level of availability for the nutrients remained above the RDAs, ranging between 116 percent and 240 percent of the RDA .

Nutrient Density. Nutrient density refers to the amount of a nutrient present per 1000 kilocalories of food. The nutrient density of food used by check households was not substantially different from that of food used by coupon households. The only statistically significant difference between the two types of households was for zinc (Table 5). Zinc, most often found in meats and whole grains, was significantly lower among check households at the .10 level.

Table 5. Nutrient Availability of Food Used at Home

	Check	Coupon	Percent Difference[a]	
Food energy				
% of RDA (per ENU)	132.0	144.0	-8.3	**
Availability of (kcal) per $	770.5	738.4	4.3	**
Protein				
% of RDA (per ENU)	243.2	265.1	-8.3	**
Availability (gms) per $	26.7	25.4	4.9	**
Availability (gms) per 1000 kcal	35.1	35.1	0.0	
Vitamin A				
% of RDA (per ENU)	179.3	193.3	-7.2	*
Availability (μg[b]RE[c]) per $	356.3	340.2	4.7	
Availability (μgRE) per 1000 kcal	482.4	480.8	0.3	
Vitamin C				
% of RDA (per ENU)	239.7	255.6	-6.2	**
Availability (mg) per $	36.0	33.0	8.9	
Availability (mg) per 1000 kcal	49.2	48.1	2.2	
Vitamin B_6				
% of RDA (per ENU)	152.4	163.0	-6.5	*
Availability (mg) per $	0.6	0.6	6.0	*
Availability (mg) per 1000 kcal	0.8	0.8	0.9	
Folate				
% of RDA (per ENU)	227.6	246.9	-7.8	*
Availability (μg) per $	88.4	83.9	5.3	
Availability (μg) per 1000 kcal	118.6	117.9	0.6	
Calcium				
% of RDA (per ENU)	124.4	135.3	-8.1	**
Availability (μg) per $	329.1	322.3	2.1	
Availability (μg) per 1000 kcal	444.9	456.0	-2.4	
Iron				
% of RDA (per ENU)	169.2	177.8	-4.8	**
Availability (μg) per $	6.1	5.6	8.9	
Availability (μg) per 1000 kcal	8.3	8.0	3.9	
Zinc				
% of RDA (per ENU)	116.2	130.2	-10.8	***
Availability (μg) per $	3.8	3.8	1.5	*
Availability (μg) per 1000 kcal	5.1	5.2	-3.3	
Sample size	**399**	**381**		

Source: Washington State Cashout Survey.
[a]Percent difference is (mean check-mean coupon)/mean coupon.
[b]Micrograms.
[c]Retinol equivalents. 1 retinol equivalent = 1 μg retinol or 6 μg β-carotene.

* Statistically significant at .10 level.
** Statistically significant at .05 level.
*** Statistically significant at .01 level.

Nutrient Availability per Dollar. Interestingly, nutrient availability per dollar for some nutrients was higher for check than for coupon households. Of the seven micronutrients evaluated, there was more iron, vitamin B_6, and vitamin C available per dollar in check households, differences significant at the .10 level or better. The availability of food energy and protein per dollar was also higher for check than for coupon households: 4 percent higher for food energy and 5 percent higher for protein (both significant at the .05 level). An increase in nutrient availability per dollar for cashout is consistent with household production models, where households have decreasing nutrient returns as they increase their food expenditures.

Participation in Food Assistance Programs

Recipients may supplement and improve the nutrient availability of the food they purchase for home use with several noncash sources of food. Two are federal food assistance programs—the Special Supplemental Food Program for Women, Infants, and Children (WIC) and USDA commodity distributions. Given the lower income and food expenditure levels of check households, it would not be surprising if their participation in these programs was greater than the participation of coupon households. Survey responses indicate that a higher proportion of check than of coupon households did indeed use noncash sources of food. Of the check households, 20 percent reported participating in the commodities program compared with 8 percent of coupon households. For households with pregnant women or with children younger than five, 50 percent of check households reported using WIC vouchers compared with 37 percent of coupon households. Both differences are statistically significant at the .01 level. However, there were no statistically significant differences in the money value of food obtained with WIC vouchers (Cohen and Young, 1992).

Recipient Attitudes Toward Food Stamp Checks and Coupons

It is probable that recipient attitudes toward the form of the food benefit explain some of the observed behavioral differences between coupon and check households. The three most commonly mentioned advantages of checks over coupons are that checks can be used for other necessities (cited by 51 percent of check recipients and 43 percent of coupon recipients), that checks are less embarrassing (cited by 28 percent of check recipients and 13 percent of coupon recipients), and that checks allow you to feel more dignified[6] (cited by 18 percent of check recipients and 5 percent of coupon recipients) (Table 6). Consistent with findings on food purchasing patterns, 8.5 percent of check respondents and 7.6 percent of coupon respondents noted that checks offered more choice of food stores. However, respondents did not always view checks more favorably than coupons. Indeed, the very restrictiveness of coupons was seen as an advantage by some check and

coupon recipients. The three most commonly mentioned advantages of coupons were that they ensure that benefits are spent on food, that they cannot be used for other necessities, and that they make it easier to budget food expenses.

Table 6. Respondent Comparisons of Food Checks and Food Coupons (in percentages)

	Check	Coupon
Advantages of food checks		
Can be used for other necessities	51.4	43.3
Don't feel embarrassed	27.8	12.6
Allow you to feel more dignified	18.3	4.5
Advantages of food coupons		
Ensure benefits are spent on food	53.4	67.2
Can't be used for other necessities	6.5	6.6
Easier to budget food expenses	5.5	14.4

Source: Washington State Cashout Survey.

Check and coupon recipients were asked questions about household budgeting. Over 73 percent of coupon respondents agreed or strongly agreed that food stamps give more control over the household budget than do checks. Over 80 percent agreed or strongly agreed that food stamp coupons were helpful in budgeting food expenses. For check households, the perceived benefits of coupons were weaker, with 35 percent of the respondents agreeing or strongly agreeing that food stamps give more control and 57 percent agreeing or strongly agreeing that food stamps are helpful in budgeting food expenses (Cohen and Young, 1992). Generally, respondents tended to indicate a relative preference for their current form of food benefit.

Finally, respondents were asked which household members had control over the food benefit. Households in the coupon sample were significantly more likely than check households to indicate that the main food preparer had sole control over how food benefits were spent. (Table 7).[7] Differences between the check and coupon samples were most pronounced among two-parent households, but the number of two-parent households in our sample was too small to establish statistical significance.

CONCLUSIONS

The main purpose of the cashout demonstrations sponsored by FNS is to determine the advantages and disadvantages of cashing out food stamps. The results of the Washington State cashout demonstration support arguments for and against cashout. One of the concerns about

Table 7. Control Over How Food Benefits are Spent (percentage by number of parents in unit)

	Check	Coupon	Percent Difference[a]
Single-parent families			
Food preparer controls food benefits	95.3	97.5	-2.2 *
Sample size	322	323	
Two-parent households			
Food preparer controls food benefits	35.5	46.4	-23.5
Sample size	76	56	
All households			
Food preparer controls food benefits	83.9	89.9	-6.7 **
Sample size	**398**	**379**	

Source: Washington State Cashout Survey.

Percent difference is (mean check-mean coupon)/mean coupon.

* Statistically significant at .10 level.
** Statistically significant at .05 level.
*** Statistically significant at .01 level.

cashout is that recipient households might spend money otherwise earmarked for food on nonfood items, which may decrease the quantity or quality of the food supply. Cashout households in Washington State spent less on food, used less food, and had access to fewer key nutrients than did coupon households. More specifically, the Washington State cashout evaluation provides the following answers to the research questions listed at the beginning of this paper.

1. **Are the food expenditures of households that receive cash benefits different from those that receive coupon benefits?** Yes. Households receiving cash benefits have lower food expenditures—12 percent in dollars, 11 percent in dollars per ENU, and 13 percent in dollars per AME.

2. **Are the relative budget shares devoted to food and nonfood categories different for cashout than for coupon households?** Yes. Cashout households spent less than coupon households on, and devoted a lower budget share to, food purchased for home consumption, had similar patterns for food purchased for use away from home, and spent more on, and devoted a higher budget share to, shelter and transportation.

3. **Is participation in other food assistance programs, such as WIC and commodities distribution programs, different for cashout than**

for coupon households? Yes. Cashout households were more likely to participate in other federal food assistance programs including WIC and commodity distributions.

4. **Is the nutrient availability of the household food supply different for cashout than for coupon households?** Yes. Cashout households had lower mean nutrient availability than did coupon households for a number of important macronutrients as well as micronutrients.

5. **Is recipients' perceived control over food spending, difficulty in budgeting food expenses, and degree of stigmatization different for cashout than for coupon households?** Yes. Both cashout and coupon recipients perceived cashout as reducing control over the household food budget, increasing the difficulty in budgeting food expenditures, and substantially reducing stigma. The restriction of coupon use to food items was seen as having advantages and disadvantages by respondents in both groups.

Viewed as a whole, the results from the Washington State cashout evaluation demonstrate a *possible* process caused by cashout. Food stamp coupons are a restricted form of benefit. They can be spent only on food items intended for home consumption and can be used only at authorized stores. The form of food benefit has an impact on what households can purchase and where these purchases can be made. Therefore, the FIP cashout would be expected to have a direct impact on household expenditure patterns. The results are consistent with this expectation. The check households spent 11 percent less on food eaten at home than did coupon households, and proportionately more on both shelter and transportation.

Differences in food expenditures appear to have resulted in significant differences in the dollar value and quantity of food used within the household, even after we controlled for differences in household size. Overall, the dollar value of purchased food used at home was 12 percent less per ENU for check households than for coupon households. The differences in the dollar value of purchased food used are reflected in differences in the total poundage of food purchased, which was 9 percent less per ENU for check households than for coupon households. There was no notable shift in the use of foods from one food group to another. Rather, quantities and money values of food used were significantly less for the check households over a broad range of food subgroups. Shifting from food expenditures, cashout households spent more on other necessities, especially shelter and transportation.

The smaller quantities of food used by check households appear to have resulted in substantial reductions in nutrient availability. The mean availability of food energy and protein per ENU was 8 percent less for check households, a result that is consistent with the overall difference in the quantity of food purchased. The probability that households failed to have available levels of food energy in excess of their RDA was 6 percent higher for check households than for coupon households. Even so, available protein remained far in excess of the RDA for most households. Differences in the availability of five micronutrients were statistically significant.

These results are consistent with the following chain of events. Increasing households' choices for spending their food benefit led to changes in household budgeting, including reduced expenditures on food (11 percent less per ENU).[8] Reduced expenditures led to reduced amounts of food purchased (9 percent less per ENU), which led to reduced nutrient availability (8 percent less per ENU), which led to an increased proportion of households failing to reach their RDA for food energy (6 percent more). It is noteworthy that the percent difference is reduced with each link in this chain—a pattern that supports the hypothesis that check households partly compensate for reduced food expenditures by increasing efficiency at each link in the chain.

The FSP is intended primarily to assure needy households in the U.S. of the availability of a nutritious diet. The evaluation results suggest that this objective is met for most households regardless of the form of benefit. Average household nutrient availability from the household food supply was in excess of the RDAs for each nutrient evaluated for check and coupon households, although it is important to note that this measure refers to availability, not intake. Otherwise, the evaluation results strongly suggest that food coupons are significantly more effective at encouraging households to (1) increase food expenditures, (2) increase the quantity of food used, and (3) increase the average availability of some nutrients. In comparing the effects of coupon and check food benefits for welfare families, the question for policymakers is not so much whether differences between food coupons and food checks exist, but how to weigh the benefits and costs of these differences.

NOTES

1. The authors gratefully acknowledge the work, the review and the suggestions of many persons at The Urban Institute, the Food and Nutrition Service, the Washington State Legislative Budget Committee, and Mathematica Policy Research, Inc.. Funding for the research was provided by the Food and Nutrition Service. Felicity Skidmore, director of The Urban Institute Press, deserves special thanks for her contributions to form and substance. Carolyn O'Brien, also of The Urban Institute, helped a great deal. Despite all this

valuable assistance, opinions expressed in this paper are the sole responsibility of the authors, Cohen and Young.

2. The terms check benefits and cash benefits are used interchangeably to refer to food benefits under the FIP cashout program.

3. Fixed effects models were estimated, with a fixed effect for each local welfare office, for each of three major outcomes. Fixed effects for check sites were significantly different from the fixed effects for coupon sites, and in the same direction as the simple comparison of means.

4. While the household characteristics in the two samples are different (Table 1), these differences do not appear to affect the validity of the basic comparison of means. We examined six major food use outcomes: the money value of food per ENU, the money value of purchased food per ENU, the money value of nonpurchased food per ENU, available food energy per household RDA, available protein per household RDA, and available calcium per household RDA. The 17 control variables in the regression adjustment equations included food benefit income per AME, nonfood benefit income per AME; AFDC income per AME; race, education, age, and marital status of the main food preparer; and household size measured in AME. These variables were chosen to address known sample differences as well as some of the possible differences induced by other aspects of FIP. Estimated impacts of cashout were significant in the regression-adjusted and nonregression-adjusted comparisons for all outcomes but the money value of nonpurchased food per ENU. For the five remaining outcome variables, controlled and uncontrolled coefficients were (-5.0,-5.0), (-5.3,-5.1), (-.12,-.12), (-.22,-.21), and (-.12,-.11). The proportion of total variance explained in the regression adjustment equations (R-squared) ranged from a minimum of .08 for the ratio of household food energy to RDA to .16 for the money value of food used, and in all cases represented a significant increase over the variance explained by cashout alone. Assuming that these results would hold for other outcome variables as well, it is unlikely that the significant differences between check and coupon household food use found in the Washington State cashout evaluation were a result of known differences in check and coupon sample household characteristics. Our evaluation design makes it unlikely that they are a result of unknown differences either.

5. The coefficient of variation for household expenditures is lower than the coefficient of variation for household budget shares, since the former is more strongly influenced by occasional and unusually high expenditures in any given expenditure category. For this reason statistical power tends to be higher for comparisons between average budget shares than for comparisons between average expenditures.

6. Questions were asked in a open-ended sequence and then coded into different response categories. Thus, it is possible that phrases with similar denotations (i.e., "more dignified" or "less embarrassed") but different connotations would be coded differently. Not all these codes are collapsed.

7. How households interpreted this question is unknown. The question was based on the idea that in some families the main food preparer may control the use of food stamp coupons but not cash resources.

8. More dispersed control over budgeting decisions and greater freedom in where (and when in the month) food items are purchased could also contribute to this result.

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Electronic Benefit Transfer in the Food Stamp Program: The First Decade

Carol Olander

INTRODUCTION AND BACKGROUND

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 service to Food Stamp Program (FSP) recipients and to facilitate the coordination of benefit delivery across multiple programs.

Since 1981, FNS has carried out a wide-ranging and systematic research program to assess the feasibility of different technical approaches to EBT, to measure their effects on each major stakeholder (e.g., recipients, retailers, and banks), and to identify circumstances that promote cost-effective operation. This paper summarizes research results and identifies outstanding questions.

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 an electronic funds transfer network and point-of-sale (POS) technology. In most FSP applications, a recipient's monthly benefits are electronically posted to a computer file, which functions like a ledger account containing data on benefits, and the recipient is issued an EBT access card. To buy groceries, the recipient uses the card with a personal identification number (PIN) at POS terminals located in a store's check-out lane. If the EBT computer system authorizes the purchase, the amount is subtracted from the recipient's benefit balance and credited to the appropriate retailer. At the end of each business day, retailers' authorized EBT sales are totaled, and through a series of electronic funds transfer messages, deposits are made to store bank accounts and the USDA food stamp benefit account with the Department of Treasury is debited. EBT eliminates paper stamps and cash change. (Up to $0.99 may be given for each coupon purchase.)

There are two kinds of EBT systems: on-line and off-line. Most commercial POS systems and all but two FNS-sponsored EBT demonstrations are considered on-line operations. That is, when a

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"The first milestone was a small FSP test that began in Reading, Pennsylvania, in 1984 and is still operating."

The first milestone was a small FSP test that began in Reading, Pennsylvania, in 1984 and is still operating. In 1987, FNS called for a new set of demonstrations that are expected to reduce system costs by integrating electronic benefit delivery in the FSP with other assistance programs, such as Aid to Families with Dependent Children (AFDC). Two of these demonstrations—Ramsey County, Minnesota, and Albuquerque, New Mexico—became operational in 1991.

During the mid-1980s, FNS completed a feasibility study looking at off-line EBT technology (Coenen et al., 1990). Three different card types were examined in an off-line context: magnetic strip, integrated circuit chip, and optical memory or laser card. A contract to test the chip card in Dayton, Ohio, was awarded in 1990, and operations began in March 1992.

In addition to this series of agency-sponsored tests, FNS published guidelines for state welfare agencies interested in starting their own EBT demonstration projects. Maryland, New Jersey, Iowa, Oklahoma, and South Carolina have received approval from FNS for their EBT test plans. Maryland has the only operational EBT system. This project is noteworthy for two reasons. First, statewide implementation of EBT is underway. When expansion is complete, the nationwide total of FSP households receiving their benefits electronically will increase from about 60,000 to 200,000. Second, the Maryland project combines food stamps, AFDC, a part of Child Support Enforcement (CSE), and General Assistance (GA) into a single benefit delivery system. Wyoming is operating an EBT pilot in the Special Supplemental Food Program for Women, Infants, and Children (WIC), and FNS is currently analyzing the requirements and relative advantages of creating an integrated system to deliver FSP and WIC benefits. Collectively, these projects represent a thorough and systematic EBT research agenda. The full set of results will provide a comprehensive picture of EBT and its impacts in various settings.

DATA AND METHODS

EBT evaluations have focused on two sets of questions: (1) the feasibility of delivering benefits electronically and (2) the costs to stakeholders in an EBT system. At one level, the question of feasibility is a simple one. That is, it is readily apparent whether an EBT system works—recipient and retailer accounts are debited and credited appropriately or they are not. At another level, the question is more complex—feasibility also means determining whether and how the system can be replicated. To replicate a successful system, EBT implementation activities and operational performance must be described completely and systematically. Each EBT evaluation includes

an extensive report on start-up efforts and resources, as well as reactions to initial system operations. These reports indicate not only what is done and how the system is doing but also why. Input from numerous sources, such as vendor progress reports, public agency staff interviews, system-generated activity and performance indicators, and stakeholder surveys, is examined to develop a comprehensive understanding of each system. The focus on feasibility has shifted across demonstrations as new application features, such as multiprogram systems and third party processors, are introduced.

The major outcome issue, the costs of EBT to stakeholders, has been addressed through pretest-posttest comparisons. Costs associated with the coupon system are compared to costs associated with stable EBT systems. This design has been imposed by a demonstration context in which a small number of individual project areas mandate EBT for all food stamp households in their jurisdiction. Resource requirements precluded random assignment of a large number of project areas to EBT and non-EBT status. Random assignment of households or stores to electronic versus coupon issuance systems *within* a project area would contaminate an assessment of system impacts. For example, administrative efficiency and retailer opinions are likely to be affected by the impact of a design that involves both coupon and EBT systems in the same project area.

The most serious threats to internal validity in a pretest-posttest approach have been reduced by the selective addition of comparison data. Since administrative costs as well as impacts on food retailers and recipients are susceptible to unrelated historical changes (e.g., changes in caseload characteristics caused by demographic shifts or non-EBT program changes), comparison data on stakeholder impacts have been collected to enhance the project analyses and strengthen conclusions.

Generalizing results from a handful of unique and relatively small demonstration projects to large-scale implementation has been the more serious methodological challenge. This is particularly true with respect to assessing EBT administrative costs. The approach to handling this limitation has been to sponsor demonstrations that sequentially add features expected to reduce overall costs—that, for example, add other public assistance programs to the electronic system, integrate EBT systems with commercial POS operations, and substantially increase the number of FSP households using EBT. In addition, FNS has built into its evaluations sensitivity analyses that use alternative assumptions about variables known to affect costs. These variables include the number of POS terminals deployed, the average number of transactions per

household, and the ratio of households to store terminals.

"Each evaluation has used multiple information sources to measure stakeholder outcomes."

Each evaluation has used multiple information sources to measure stakeholder outcomes. For example, productivity at retailer check-out counters is assessed by observing random samples of purchases, looking at EBT system-generated data on components of transaction time, as well as interviewing store managers and food stamp households. This approach has allowed FNS to distinguish between conjecture and fact, and to explain the occurrence of certain outcomes.

Some impacts have been particularly difficult to measure. Data on benefit diversion, such as trafficking and inappropriate use of cash change in a coupon system, are largely derived from expert judgment and indirect indicators. With respect to the former, the goal of the evaluations is to minimize measurement error by using clear and systematic procedures to solicit estimates.

Determining administrative costs presents a different challenge. Private sector system developers in particular have been reluctant to report the full resource costs of EBT systems. This information is viewed as proprietary, and vendors argue that FNS and the states should care only about the costs they are being charged. From the agency's perspective, however, today's vendor subsidy may disappear tomorrow, and system cost projections and negotiations are more realistically based on the full resource costs of EBT systems. To this end, vendor contracts build in requirements to report such costs. However, it has been necessary to collapse reporting categories and settle for less than full detail in an effort to capture total resource costs.

RESEARCH FINDINGS

While FNS is conducting evaluations for each of the food stamp EBT demonstrations, only the Pennsylvania study is complete. The schedule for collecting data in the other projects is contingent on reaching a steady, or mature, state in EBT system operations—that is, full system implementation and relatively problem-free operations. Although much of the agency's evaluation efforts are still underway, the demonstration experience thus far offers some important information. (Forthcoming EBT evaluation reports and their projected completion dates are listed at the end of this paper.)

EBT Is Technically Feasible

Program Requirements Are Met. It is clear that on-line EBT systems are operationally feasible. In each of the sites operating EBT, benefits are posted to recipients' accounts, recipients can buy food, and their benefit balance is adjusted to reflect purchases. Grocers and banks are credited, and the USDA food stamp benefit account is debited. 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 poses a variety of policy issues and operational demands FNS has not previously faced. Many of these have been successfully addressed. For example, initial concerns about recipients' ability to keep track of their benefit balance and remember their PINs did not materialize because all EBT projects have built-in training for recipients and numerous means through which recipients can obtain balance information.

One of the most challenging application issues involves benefit access when some part of the EBT system is not working. For instance, the system is designed to check a recipient's benefit balance before authorizing a food purchase. On those relatively rare occasions (fewer 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 telecommunications system is not working), FNS authorizes the use of 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 a manually authorized purchase, retailers may again present the transaction for payment according to designated rules and under some circumstances. FNS does not accept liability for any manual transactions that are not recovered from the household's benefits. In these cases, state agencies may assume or pass on liabilities to their EBT system operators and/or to food retailers as negotiated when the system is being developed. These procedures demonstrate how new policies are required to balance the needs of recipients with the goal of sound program administration.

FNS Is Exploring Different EBT Technologies. As mentioned, most of the agency's EBT demonstrations are on-line operations. The distinguishing feature of such systems—a link between the POS terminal and central computer at the time of purchase—requires a reliable telecommunications system, adds 10 to 15 seconds to the transaction process, and costs money. Because of these conditions, FNS is exploring the feasibility of an off-line approach to food stamp benefit delivery.

Both the food stamp project in Dayton, Ohio, and the WIC pilot in Casper, Wyoming, rely on the chip, or "smart," card. 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, this approach does raise some important questions. The smart card demonstrations will provide basic information on how well the technology performs in terms of its ability to meet program requirements. The policy community is also looking to the demonstration for information on (1) the compatibility of the technology with commercial electronic funds transfer systems, which are currently directed toward the on-line use of magnetic strip cards, and (2) the relative cost of alternative approaches.

Recipients, Retailers, and Banks Prefer EBT

EBT is widely accepted by system participants. Results from the Reading, Pennsylvania, project (reported in the next section) show that a majority of recipients, food stores, and financial institutions prefer EBT to the coupon system. 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 (Hamilton et al., 1987, and Kirlin, Logan et al., 1990). Furthermore, even recipient subgroups who might be expected to have difficulty with the technology preferred EBT. These subgroups include non-English-speaking clients, the elderly, and individuals with disabilities.

"Recipients reported that the EBT system is more convenient, more secure, and easier to use than coupons."

When asked to explain their preference, recipients reported that the EBT system is more convenient, more secure, and easier to use than coupons. The reasons given by those who preferred the coupon system included greater ease in keeping track of benefits and speedier check-out. 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 associated with the use of food stamps. Recipient survey data from the Pennsylvania evaluation suggest a small reduction in stigma. Baseline interviews with FSP households that received coupons before EBT startup in New Mexico and Minnesota show that a majority of recipients believed that

store employees treated them the same as cash or check customers.

EBT system benefits translate into time and money savings for recipients (Table 1). This occurs largely because coupon recipients in Reading, Pennsylvania, have to make a special trip each month to exchange an authorization document for coupons, while EBT recipients need only an initial visit to get their benefit access card. Most

Table 1. Recipient FSP Participation Costs: Coupon vs. 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.

recipients in the FSP make a monthly trip to pick up coupons. The exceptions are those recipients 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.

"EBT also introduces new security features that reduce the chance for benefit loss or theft."

EBT also introduces new security features that reduce the chance for benefit loss or theft. In contrast to a paper system in which coupons are easily used by any holder, access to electronic benefits depends on a valid card and PIN. If recipients believe their card is missing and/or the PIN is 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 rate the system highly. However, given that over 213,000 food stores are authorized to redeem food stamp benefits, it is not surprising that many questions about EBT have been raised. Retailers have asked about opportunities to participate in EBT projects and to use equipment and service vendors other than a state's EBT system developer. They have also expressed concern about system reliability and efficiency, the number of check-out lanes to be equipped with EBT terminals, and about a variety of operating features.[1]

Many of these issues have been addressed and resolved through

demonstration experience, EBT legislation, and the new food stamp regulations for EBT. For example, the Mickey Leland Memorial Domestic Hunger Relief Act of 1990 (P.L. 101-624) identifies operating standards for EBT systems, such as providing all authorized retailers in a recipient service area with the opportunity to participate in any EBT system developed there.

Furthermore, a statutory limit regulates the costs that may be imposed on retailers for any EBT system required by the Secretary of Agriculture (see section 7(g) of the Food Stamp Act of 1977, as amended). Although this legislative limitation is not directly applicable to the voluntary (i.e., state-initiated) systems addressed in the food stamp EBT regulations, FNS has acted on its judgment of congressional intent. Thus, the rule (see *Federal Register,* V. 57, No. 63, April 1, 1992) prohibits states from requiring retailers to bear EBT costs essential to and directly attributable to a system used solely for the FSP. However, for EBT systems that serve multiple assistance programs and/or are used for commercial purposes, neither law nor regulation precludes retailers from assuming a share of system costs.

"The most recent survey of retailers in the Pennsylvania project shows 75 percent prefer an electronic benefit system to food stamp coupons."

Retailer response to EBT is very positive in all operational EBT projects. While available information from New Mexico and Minnesota is still anecdotal, the most recent survey of retailers in the Pennsylvania project shows 75 percent prefer an electronic benefit system to food stamp coupons. Supermarkets, convenience stores, and small grocers equally support EBT. These retailers report that EBT is faster, easier, and more efficient and note that EBT eliminates burdensome post-sale paper handling (that is, counting, stamping, and bundling coupons). They also maintain that the EBT system is more accurate and reduces program fraud and abuse.

A small proportion (14 percent) of retailers prefer the coupon system. This group is more likely to regard as serious such system problems as damaged cards, computer downtime, or printer failures. They consider coupon purchases 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 (Table 2). Reduced benefit handling costs are the largest source of EBT savings; these more than offset modest increases in other costs. In a coupon

system, clerks generally count and cancel coupons, which are often recounted before they're taken to the bank for deposit with a special redemption certificate. The EBT system limits retailer handling procedures to reconciling store sales with EBT bank deposits.

Table 2. Retailer FSP Participation Costs: Coupon vs. EBT System

	Coupon System	EBT System
Costs per $1,000 benefits redeemed	$23.88	$17.28

Source: Kirlin, Logan et al., 1990.

"Most retailers reported that the EBT system had no effect on overall operating costs."

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

Retailer enthusiasm for EBT may be better explained by other factors. Interviews suggest that retailers consider the paperwork necessitated by the use of food stamps irritating, given the relatively low proportion of total sales they represent for most stores. In addition, most retailers believe that by eliminating cash change for food stamp purchases and making it more difficult to sell or trade benefits, EBT causes recipients to spend more of their benefits on food.

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 eliminates the need for separate delivery agents, and redemption through the banking system can be completely electronic. The computerized redemption procedures, known as the automated clearing house (ACH) process, are a routine part of a bank's daily business.

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 long lines at the bank and the paper handling associated with coupon issuance are viewed as undesirable. Second, EBT permits benefit redemption to be folded into routine procedures for accepting and posting electronic

funds transfers; the consequent 90 percent cost savings accrues directly to the banks. (See Table 3 for a cost comparison).

Neither the EBT system bank nor the Federal Reserve bank incur a net cost for participation in the FSP. Processing fees charged by the system bank exceed costs, and the Federal Reserve bank prices its service to cover costs of redemption and settlement.

Table 3. Bank FSP Participation Costs: Coupon System vs. EBT System

	Coupon System	EBT System
Net issuance costs per $1,000 of benefits	($0.79)	NA
Net redemption costs per $1,000 of benefits	$7.78	$0.67
Net costs per $1,000 of benefits	$6.99	$0.67

Source: Kirlin, Logan et al., 1990.

While it is clear that stakeholders in the FSP 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 benefit loss and diversion.

The legislation and regulations require EBT systems for the FSP to be cost-neutral to the federal government. Specifically, EBT cannot cost FNS more than the coupon delivery system being replaced. The expectation is that an EBT system that processes a large volume of food stamp transactions, combines benefit delivery across numerous programs, and maximizes the use of the existing commercial debit card networks will be cost-competitive. An EBT system that serves a single program and a small number of households is unlikely to meet the cost neutrality requirement.

There Are Still Some Questions About EBT Costs

"Administrative costs for EBT appear to decline dramatically as a system grows."

The agency's EBT research supports this conclusion. Administrative costs for EBT appear to decline dramatically as a system grows. Data on the benefit-related outcomes of EBT are currently 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 absence of this information, we believe that a theoretical discussion of EBT impacts on fraud costs is useful.

Benefit Loss and Diversion Change with EBT. FNS currently incurs both tangible and intangible costs for issuance loss. Losses that involve the replacement of benefits add directly to program costs. Diversions (selling benefits for cash, or trafficking) shift the use of benefits away from their intended purpose. Although diversions do not add directly to government costs, they compromise program objectives and reduce program integrity.

"EBT has the potential to reduce certain types of loss and diversion."

EBT has the potential to reduce certain types of loss and diversion. Projections based on the Pennsylvania project suggest that the incidence of diversions is substantially less, and the costs substantially lower under the EBT system than under the coupon system (Table 4). Benefit diversion estimated for an EBT system is almost 80 percent less.[2] Most of this reduction is due to the elimination of cash change (which may be spent on ineligible goods).

Table 4. FSP Benefit Loss and Diversion: Coupon vs. EBT Systems

	Coupon System	EBT System
Net losses per case month	$0.09	$0.16
Net diversions per case month	3.11	0.66

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.

The respondents' views of EBT impacts on trafficking are particularly interesting. More than half the respondents felt that EBT would reduce trafficking to some degree because EBT makes it more difficult for a recipient to sell or trade benefits on the street. Without a POS terminal, access card, and PIN, it is not possible for the "buyer" to know with certainty the amount of available benefits. Other respondents believed that EBT would not change or that it would increase trafficking. Collectively, estimates from experts indicated a small reduction in trafficking under EBT.

In contrast to benefit diversions, EBT losses are estimated to be much smaller overall but still more than losses in the coupon system. Expectations for larger EBT losses are based on the feeling that there could be a "big hit" on the system through insider fraud. Some relatively simple control strategies, such as more limited access to the system, would reduce EBT vulnerability to unauthorized redemptions by an insider. These controls have been added to EBT systems.

Small, Single-Program EBT Systems are Unlikely to Be Cost-Neutral. The desire to streamline government services and reduce administrative costs prompted interest in EBT. The coupon issuance system depends on producing, distributing, and controlling large quantities of paper, including more than 2.5 billion coupons 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 indicate a dramatic reduction in the cost of that EBT system after the state assumed operating responsibility from the contractor. Administrative costs for issuance dropped from $27 to $9 per case-month. Significant economies resulted from integrating EBT computer processor functions and files with the agency's computer system, shifting responsibilities from highly paid vendor staff to junior state staff, and buying out store terminal leases. Despite these savings, EBT system costs still exceeded those of the coupon system by more than 3 to 1 (see

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 (Kirlin, King et al., 1990). The study compares approaches that vary by degree of centralization: independent state operations, statewide systems that 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 (design, development and implementation) are estimated at $230 to $290 million. Most of the variation is caused by 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 includes the price of electrical wiring, new phone lines, and POS equipment setup. This represents about 60 percent of total start-up costs, so even small changes in the number of devices or unit costs have a significant impact.

Under the most likely near-term scenario, combined state and federal operating costs range from about $4.50 to $5.60 per food stamp household each month (see Table 6). An encouraging result of the analysis is that EBT costs are sensitive to a number of variables that may further reduce actual costs.

Especially significant variables are:

- Variations in the number of government-deployed terminals resulting from less-than-full lane coverage and/or an increase in the number of commercially deployed terminals

- Reduced fees for the use of commercial terminals to process EBT transactions

- Cost-containing policies, such as assignment of PINs rather than recipient selection of PINs

When EBT costs are estimated using a combination of most favorable realistic assumptions, the projected operating costs (for states and FNS together) are about $3.40 per case month—which is almost competitive with the national average coupon cost of $3.00 per case month.

The single most important variable that promises to reduce costs is 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. It also assumes a somewhat larger base of commercially deployed POS devices.

Table 6. Project Operating Costs for a National EBT System: Allocation of Costs by Program and Agency

	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		
ACF share	$1.75	$1.46
State share	1.75	1.46
AFDC total	3.50	2.89

Figures are dollars per case month. Totals may not sum due to rounding.
Source: Kirlin, King et al., 1990.

CONCLUSIONS

Overall, FNS experience with EBT has been positive. All stakeholders express a strong preference for electronic benefit delivery, reflecting the improved quality of service that EBT brings. The high level of initial administrative costs is not unusual for any system still in an experimental stage. Furthermore, the high-volume, integrated systems under development promise to substantially reduce costs.

The agency's commitment to EBT is demonstrated by a systematic research agenda designed to identify the best conditions for EBT expansion. Work in Minnesota and New Mexico will provide the first data on actual costs in a multiprogram EBT system. The statewide Maryland project will provide information on costs in a high-volume, multiprogram, commercially integrated EBT operation. Results from the Ohio study will document both the technical feasibility of smart cards in benefit delivery and the costs compared 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.

To date, EBT studies have not addressed the broader policy issue of whether electronic benefits change the basic policy trade-offs between cash and coupons. For example, does EBT in comparison to coupon or cash systems better ensure that benefits will be spent on food through

cash and coupons. For example, does EBT in comparison to coupon or cash systems better ensure that benefits will be spent on food through reduced loss and diversion? Will large-scale EBT implementation cause different kinds of retailers to participate in the FSP, consequently affecting the ease with which recipients purchase food? How do the different administrative costs of EBT, coupon, and cash benefit delivery compare to the differences (if any) in how they meet FSP objectives?

The Maryland EBT evaluation will offer preliminary answers to some of these questions, since some data on food expenditures and food adequacy are being collected from recipients who receive coupons and from those who receive electronic benefits. However, in the near term, the EBT research will focus on issues of administrative cost efficiency.

FORTHCOMING EBT REPORTS

- *The Feasibility of a Combined Electronic Benefit Transfer System for the WIC and Food Stamp Programs.* Phoenix Technologies, Inc. Expected publication, summer 1993.
- *The Impacts of State-Initiated EBT Demonstrations.* Abt Associates, Inc. Expected publication, summer 1993.
- *The Impacts of the Off-Line Electronic Benefit Transfer Demonstration Project in Dayton, Ohio.* Phoenix Technologies, Inc. Expected publication, fall 1993.
- *Final Report on the Evaluation of Maryland's Expanded EBT Demonstration.* Abt Associates, Inc. Expected publication, spring 1994.

NOTES

1. For a more detailed discussion of these issues, see Food Marketing Institute (1991).

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

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Geosocial Thinking for the Food Stamp Program

James B. Welsh

INTRODUCTION: THE GEOSOCIAL VIEW

The second half of the 1980s marked a renewal of interest in the spatial component of social problems, policies, and programs, a view that was popularized a century ago. One of the most recognizable influences on this renewal was the work of William Julius Wilson (1987) concerning the effects of geographically concentrated poverty. His work addressed fundamental questions about the relative contribution of a social environment to the "life chances" of inner-city residents. Many of these questions invoke spatial relationships: relationships of proximity, access, diversity, and the like. Because these questions have immediate policy and program implications, it is not surprising that this period also saw an increased interest in geographically focused social services programs.

The fiscal environment for human services also promoted thinking about social issues in terms of spatial relationships. As a practical matter, considering the geographical distribution of the caseload allows administrators to concentrate increasingly limited resources in neighborhoods where cases are concentrated. Beyond the sheer numbers of cases, though, these neighborhoods often have a greater proportion of "multiple-problem" families that require more intensive services. As a result, program administrators must face questions about integrating and coordinating services in these neighborhoods—questions that are also related to geography. The evolving recognition of the relationship between geography and social issues can be termed a "geosocial" view.

Antecedents of a Geosocial View

Although the term "geosocial" is new, the thinking itself has an interesting history. In the mid-nineteenth century, social reformers in Great Britain developed a new view of their society that was based on combining social statistics and maps, a view that influenced both social research and practice. For instance, as cited by James Burke (1985), the report *The Sanitary Conditions of the Labouring Class* (Chadwick, 1842) used descriptions, statistics, and maps to document at a neighborhood level the disease and social disintegration in areas of concentrated poverty. About a decade later, the value of a geosocial view was practically demonstrated. During the cholera epidemic of 1854, a London physician mapped the location of both cholera cases and public

wells in one neighborhood. Noting the concentration of cases around the Broad Street well, he ordered its handle removed, making the well unusable and thereby ending an epidemic that had caused some 500 deaths (Tufte, 1983).

These roots of geosocial thinking underscore its value for both research and practice. Over the past three years, we have developed some contemporary examples suggesting that geosocial thinking is similarly valuable in the Food Stamp Program (FSP). These examples illustrate ways in which a geosocial view can open new directions for research, better inform policy development, and improve service delivery. This paper and its corresponding audio-visual presentation review some of that work.

NEW METHODS AND RESOURCES

The current geosocial view of human services differs in one important respect from its historical antecedents. Today's information technology offers vastly greater opportunities for developing and applying this thinking. In the past decade, federal financial support has helped create large data sets of client and provider information across different programs. These data sets often include geographical information like addresses.

While these information resources were being developed, the technology for analyzing and displaying spatial information was fundamentally transformed. That technology, known as Geographic Information Systems (GIS), is no longer confined to expensive and demanding mainframe computing platforms. Today's GIS tools are accessible to analysts and administrators working in the comfortable environment of personal computers.

Overview of GIS

What is this technology, and how does it work? Structurally, a GIS can be regarded as a collection of computing hardware and software, a database of geographically referenced information, and a user interface. Functionally, a GIS links two components: one that keeps track of the geometry of the points, lines, and polygons that comprise a map, and another that handles the database of information about those features. For example, one component knows how to draw Census tracts for a city, and the other knows which tracts to show as high poverty areas.

A well-conceived GIS allows us to select features from the database and represent them as symbols on the map. For example, we might want to show the location of all elderly food stamp households and the location of all supermarkets authorized to accept food stamps as colored dots on the map. We might add transportation routes (as lines) or tract-level

poverty rates (colored polygons), as we try to understand the distribution of households.

"In addition to...displaying information, a GIS helps us to analyze spatial relationships."

In addition to these tools for *displaying* information, a GIS helps us to *analyze* spatial relationships. We can calculate the distance from one type of point (a household) to another (a store). Or, we can aggregate individual charts to tract-level totals. For example, a GIS can determine how many elderly clients live in each Census tract. Then, we can use tract-level population data to calculate the percentage of elderly that participates in the FSP and map the varying rates by coloring the tracts.

By combining these capabilities of a GIS, we can create powerful tools for specific applications such as research, auditing, policy analysis, caseload modeling, and direct case management. However, we need to carefully consider how these tools will be used by human service practitioners. This consideration guides the creation of the third component of any GIS: the user interface.

One of the barriers to the adoption of GIS by human service practitioners is the "technical" appearance of even the desktop versions of GIS software. Most of these systems were designed for geographers, not for social workers. If GIS is to realize its potential in the human services, we will need to modify the way professionals interact with the software. Fortunately, this is rather easily accomplished by creating customized interfaces for specific human services applications. Our work demonstrates that these interfaces can be readily created from today's desktop-based GIS systems.

Some Technical Considerations

The demonstrations we conducted under the FNS grant used the personal computer-based ARC/INFO, a GIS package produced by the Environmental Systems Research Institute, Inc. Contemporary personal computers (PCs) provide powerful platforms for the types of GIS applications of interest to human services. In the course of the demonstrations, we showed how DOS-based statistical and graphics programs can extend the power of PC-based GIS.

The base data for developing our maps was derived from the TIGER files released by the U.S. Bureau of the Census.[1] The TIGER files are the raw data necessary to draw street-level maps for any part of the country. With these files, a GIS package can perform address-matching and draw tract-level and other area-based maps. Despite some inaccuracies that limit the use of TIGER files in other areas, the files do provide an adequate and inexpensive base for GIS applications in the human services.

Finally, the geographically referenced data needed to conduct these demonstrations came from a variety of sources. Data on individual families were extracted from a longitudinal file developed by the New York State Department of Social Services. A cross-sectional client file for Detroit was provided by the Michigan Department of Public Welfare. FNS provided data on retail food establishments in Detroit and county-level aggregate data for the entire country. Additional county-level data were developed from the Census Bureau's public data sets.

DEMONSTRATION ACTIVITIES SUPPORTING A GEOSOCIAL VIEW

Three sets of activities demonstrate the relevance of a geosocial view for the FSP: research, analysis, and operations. This section highlights our approach to these activities in the demonstrations we conducted under the FNS grant.

Initial Research Activities

We began the project by mapping food stamp caseloads in four New York cities: Buffalo, Rochester, Syracuse, and Yonkers. Although the initial research purpose was to examine the geographic concentration of various component groups, this effort served primarily to identify and resolve the practical problems associated with wholesale mapping of large client databases.

Using the TIGER files, we developed base maps for each city in 1989. With considerable support from the New York State Department of Social Services, we extracted a 50-percent sample of all food stamp households as of December 1987—the earliest date for which street addresses were available.

Creating this extract required mainframe runs against some 1.4 million case records averaging 1500 bytes each. Adding case addresses to the file involved processing 2.4 million records three times. After merging data on the persons within these cases, spell lengths were calculated by sorting and merging another 5 million records. Finally, for the Buffalo component, we determined openings and closings monthly for two years by processing 9 million transactions.

Geocoding and Mapping. These databases were "geocoded" using PC ARC/INFO. (Geocoding refers to the process by which addresses are converted into real-world coordinates, like latitude and longitude, so they can be mapped). Although the process is rather straightforward with a good GIS package, problems can arise when the incoming data have inaccurate or incomplete addresses. Such is often the case with data from administrative systems. In many cases, a substantial proportion of the client data must be processed interactively; that is, someone must determine why the address failed to match the TIGER files and whether

a suitable match can be found. For example, the client address might be 103 Main Street, while the TIGER file addresses go from 10 to 99 and from 115 to 199 on Main Street. The software will identify possible matches, but the researcher must intervene after that point to accept one of these candidates. Our experience showed that matching rates of 90 percent can be achieved with these administrative data and the TIGER files.

"We produced an extensive collection of paper maps for subgroups of the food stamp caseloads in the four cities."

In this initial mapping, we produced an extensive collection of paper maps for subgroups of the food stamp caseloads in the four cities. Figures 1 through 4 illustrate these maps for two subpopulations of the food stamp caseload in Buffalo.

Privacy Protection. Constructing the maps showing the location of food stamp households raised the important issue of confidentiality. To protect the identity of clients, we added or subtracted small, even numbers from the actual street addresses. The numbers were randomly generated in a PC-based statistical package, using a distribution with a mean of zero and a standard deviation of 20. The resulting modified address was used in the geocoding. The technique introduces a relatively small (and definable) amount of error in the resulting distribution. Overall, however, the patterns of client locations are consistent with those formed by the actual street addresses. Households on the map are on the same side of the street as they are in reality. This arrangement minimizes any change in the associated census tract or other area-based aggregation. Nevertheless, under this approach, no one can infer that the welfare family shown living at the corner of Fourth and Main Streets corresponds to the actual family living in the residence at that intersection.

Other Features. During this initial effort, we also developed an easy-to-learn user interface through which students could readily map various subsets of the caseload in each city by selecting from simple menus and pointing to areas with a mouse. The ease with which this interface was developed in PC ARC/INFO changed our thinking about the likely users of such research systems. Clearly, with these tools, any program analyst could learn to map the caseloads in an hour.

At the same time, we pioneered techniques to help such analysts in presenting the visual products to policymakers. For example, we created a "real-time" model of caseload dynamics in which case openings and case closings appear as red and blue dots on the map. A red dot appears for each closing, and a blue dot for each opening. Each lasts a few seconds and then disappears. In about two minutes, the resulting

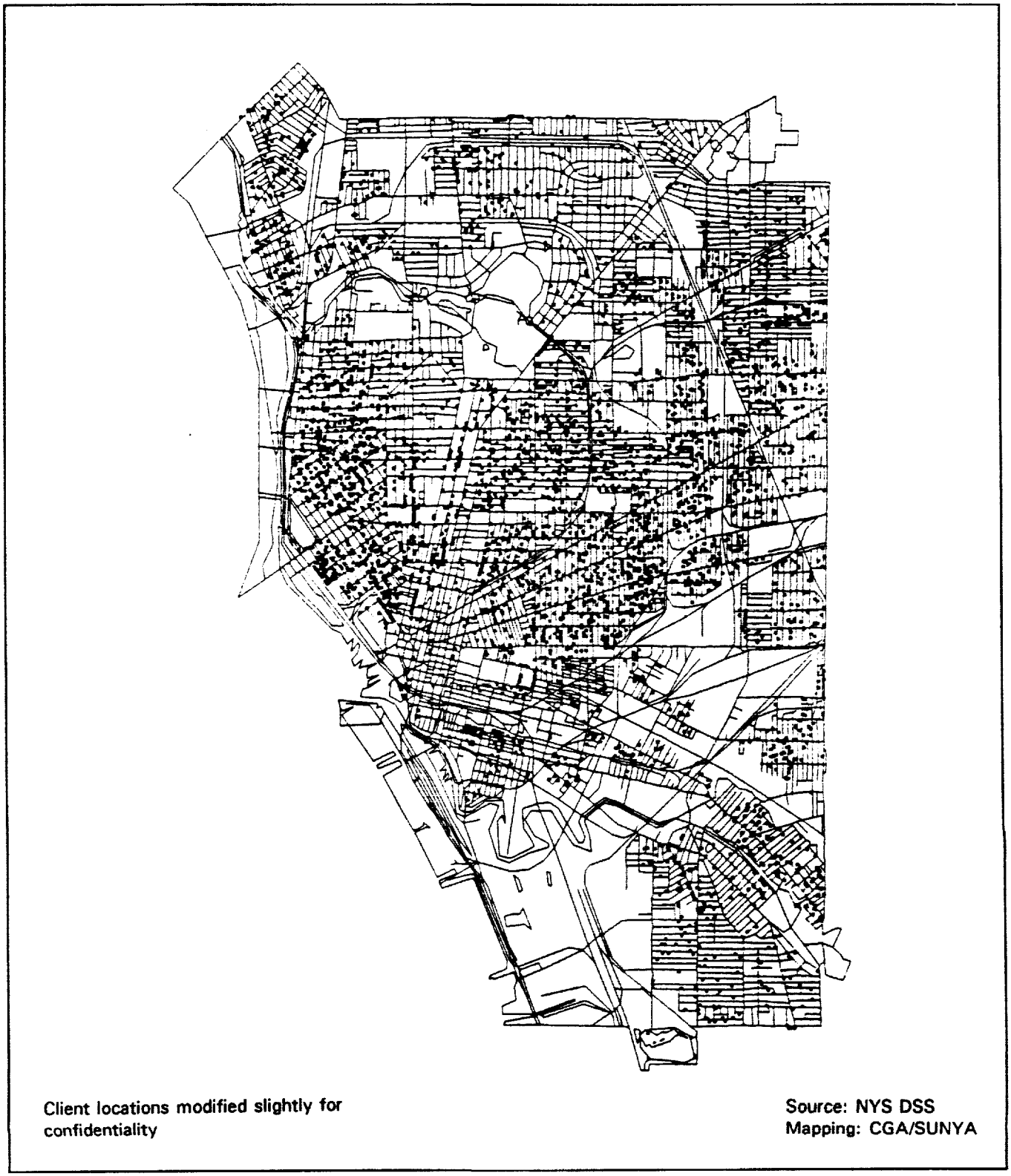


Figure 1. Citywide view of nonpublic assistance food stamp cases in Buffalo, New York, 1987

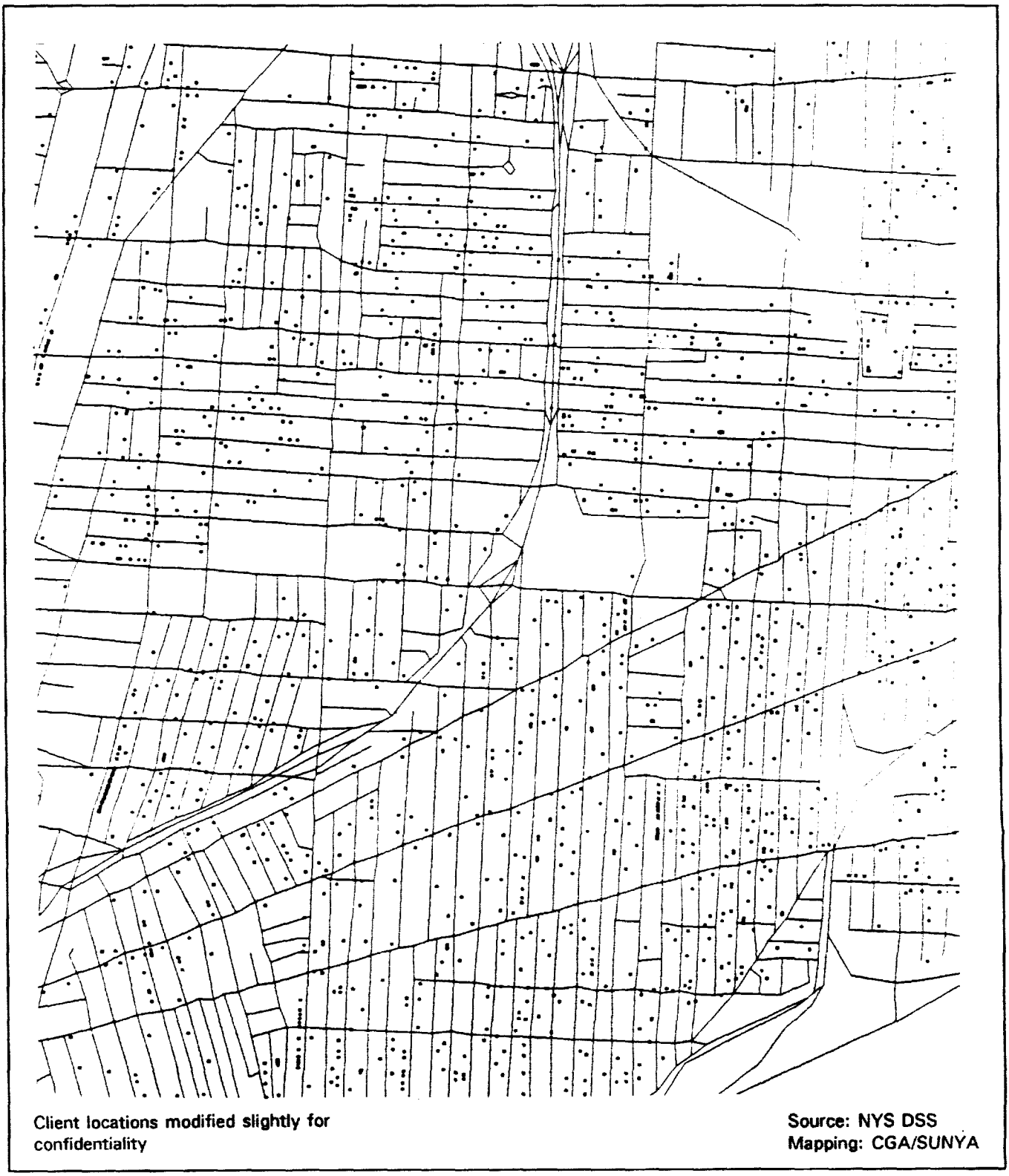
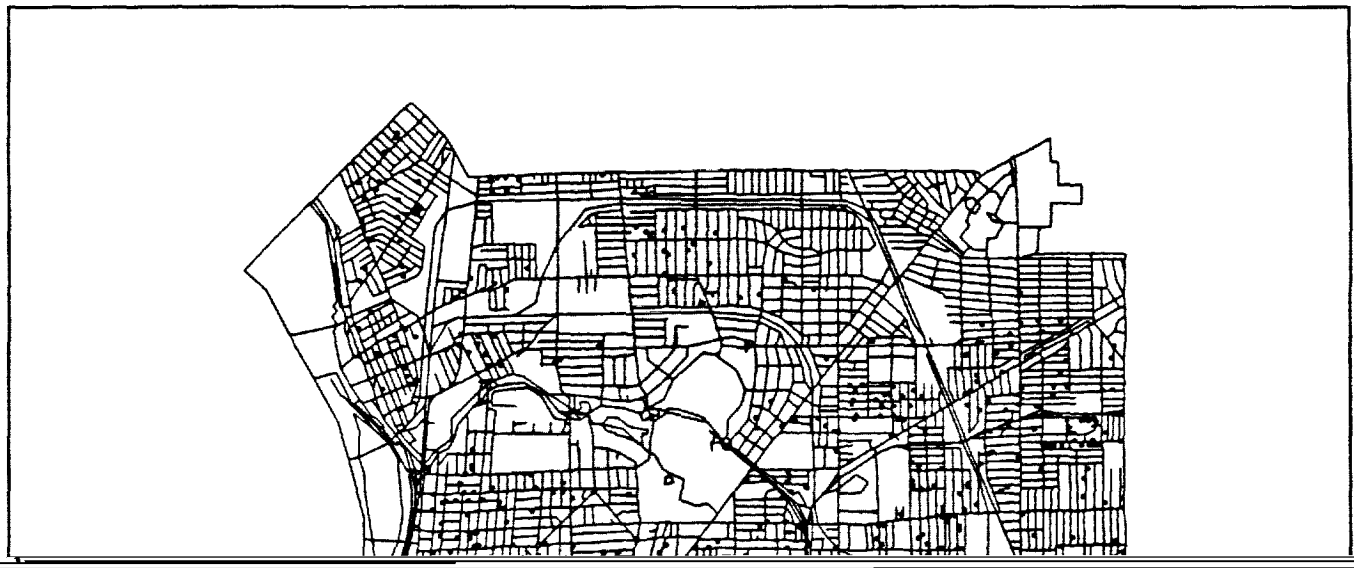


Figure 2. Neighborhood view of nonpublic assistance food stamp cases in Buffalo, New York, 1987



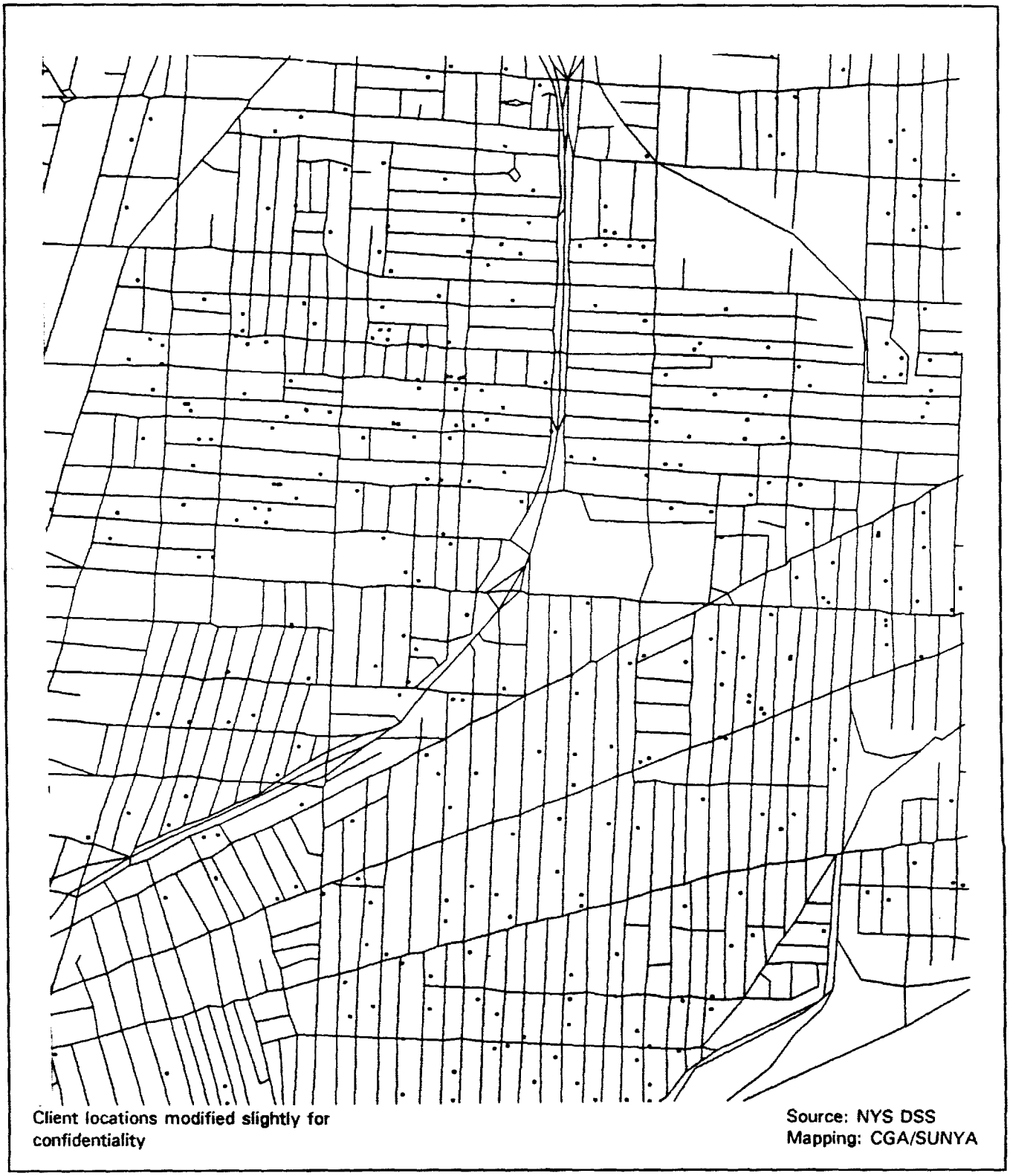


Figure 4. Neighborhood view of selected public assistance food stamp cases in Buffalo, New York, 1987

"The resulting computerized animation shows the pattern of caseload changes over a two-year period."

computerized animation shows the pattern of caseload changes over a two-year period in a city like Buffalo.

Regression Techniques and GIS. Perhaps the most important demonstrations in the initial research involved combining the GIS with traditional statistical techniques. With PC-based tools, the two can be joined fairly seamlessly, offering an impressive potential for informing basic research. We demonstrated this conjunction of PC-based technologies in a pilot study for research on a central question of the "underclass" debate: Does residence in a particular neighborhood (especially one of concentrated poverty) increase a family's economic dependence?

In our pilot study, we sought to develop techniques that might later be used in a rigorous examination of this question. For each of the four cities, we extracted food stamp cases whose spells began in December 1987. This "entry cohort" comprised several hundred cases in each city. We used three types of cases in the pilot study: Aid to Families with Dependent Children (AFDC), Home Relief (general assistance), and nonpublic assistance food stamp cases. For each type of case in each city, we determined the median spell length over the two years for which we were able to track the cases. We plotted cases above and below the median spell length for their case type in their city, as illustrated in Figure 5. We then aggregated the cases to the Census tract and plotted the tract values to show areas where long-term and short-term cases predominated. The resulting plots are illustrated in Figure 6.

The results do not appear to have a strong geographic pattern. The Buffalo results in Figure 6 show that tracts with predominantly long-term cases are found in proximity to tracts with predominantly short-term cases. However, this plot only addresses the issue of whether certain neighborhoods are more likely to have concentrations of long-term cases. It does not address the more important aspect of the research question, that is, whether certain neighborhoods contribute to residents' dependence on public assistance, independent of the personal characteristics of the residents themselves. To address this question, we needed to model the spells of food stamp households, taking into account household characteristics.

For each type of case in each city, we calculated the survival probability of the case when it left the rolls. Survival probability is an estimate of the probability that the case will continue on food stamps for another month given its characteristics. If the survival probability at exit is high, it means that the model predicted the case was likely to remain on the

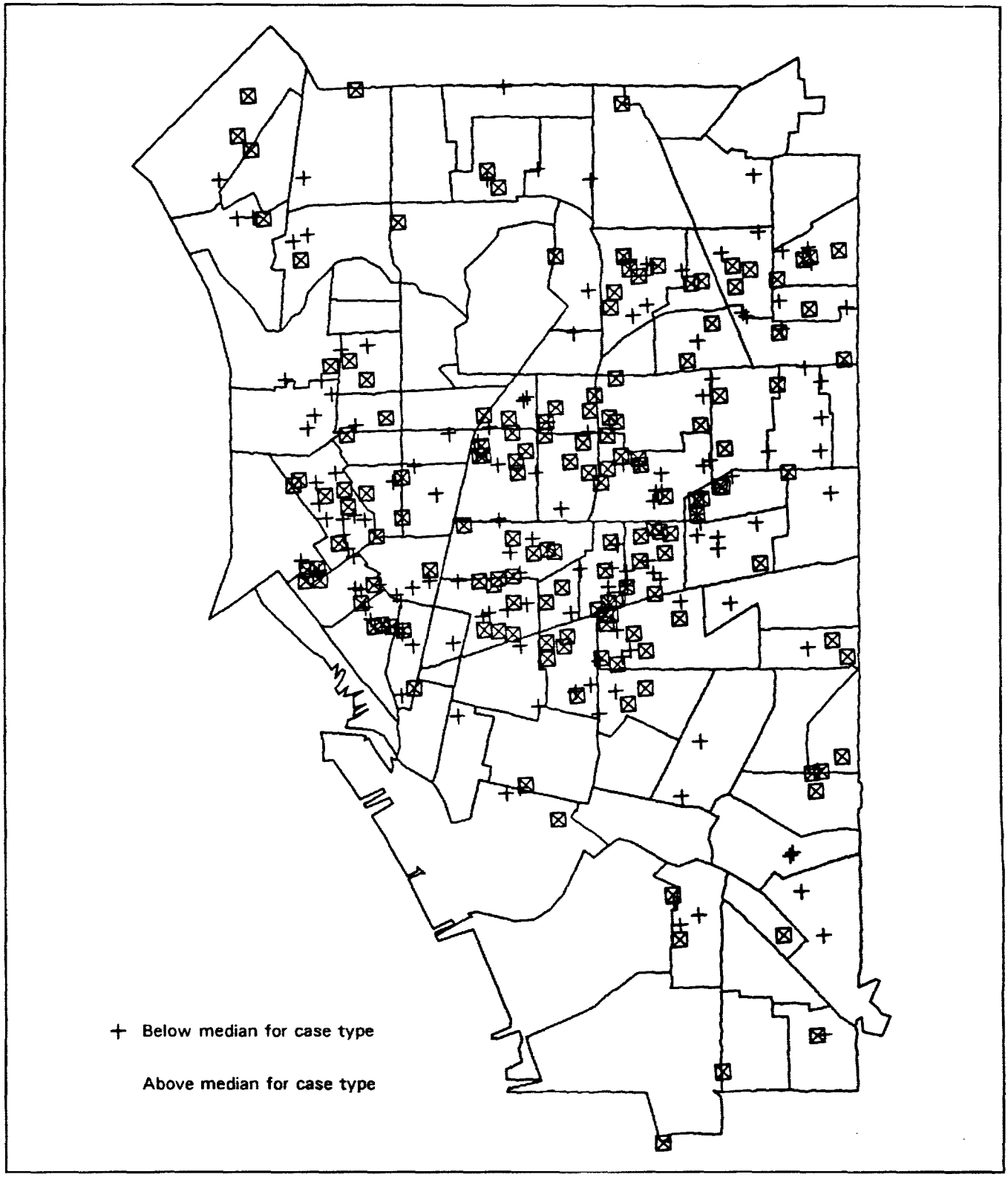


Figure 5. Spell lengths for entry cohort in Buffalo, New York

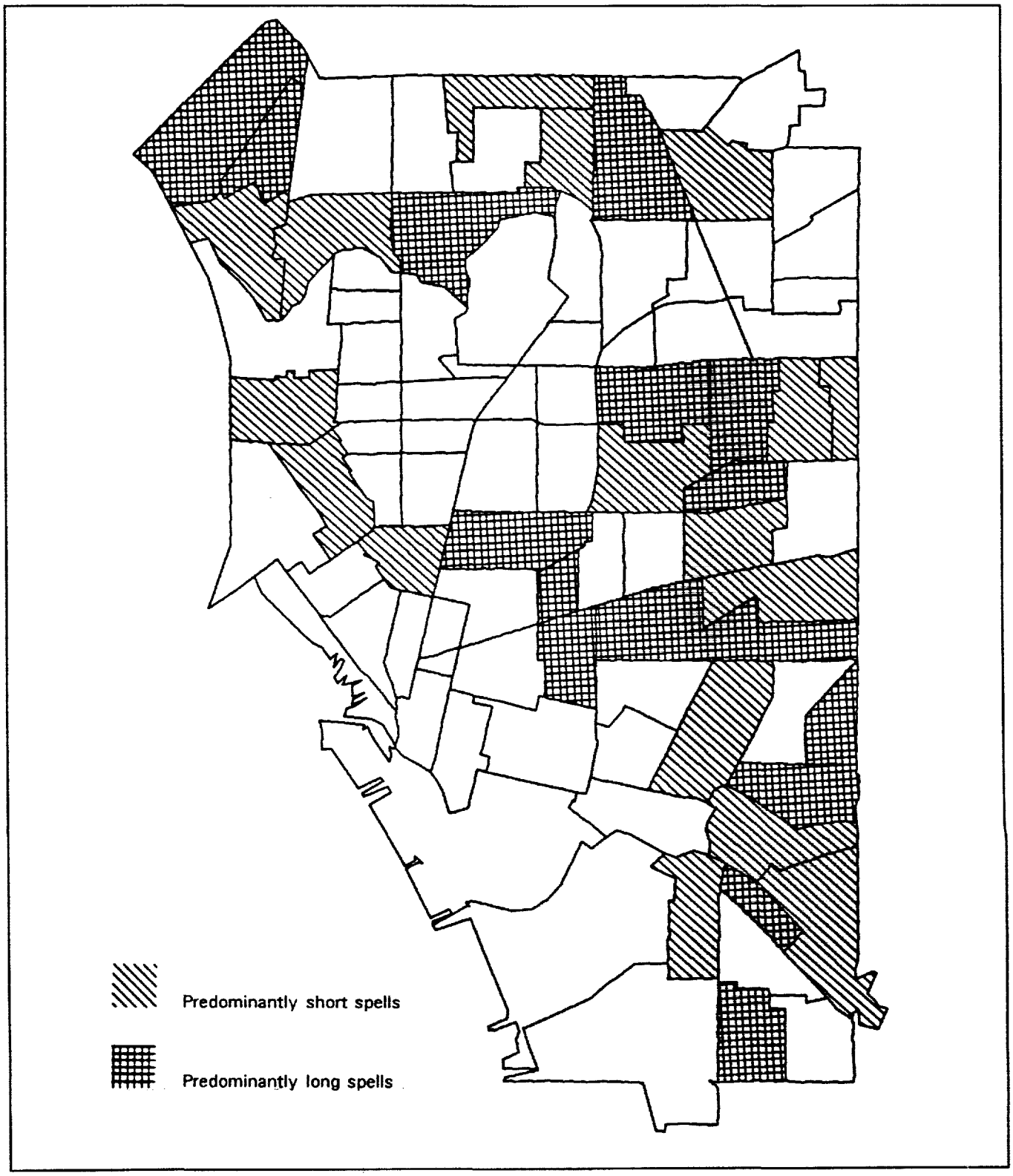


Figure 6. Aggregated spell lengths by tract in Buffalo, New York

program at the time it actually left the program. If, on the other hand, the survival probability at exit is low, it means the model predicted the case was unlikely to remain on the program at the time that it left.

Thus, the survival probability at exit is a measure of the extent to which the case was an "early leaver" or a "late stayer" relative to the predictions of the model: that is, relative to its own characteristics. Our models incorporated information on such characteristics as income, benefit levels, the age of the household head in the case, number of young children in the case, enrollment in the Work Incentive (WIN) program, and enrollment in training.

We then mapped households that were above and below the median survival probability for their case type in their city. (As illustrated in Figure 7, the maps were similar to those prepared for spell lengths.) We then aggregated these data to tracts and plotted tracts that were dominated by "early leavers" and tracts dominated by "late stayers." As shown in Figure 8, the results of the pilot test were not clear. In fact, the example shown in Figure 8 is the most "geographically clustered" of the four cities. It is noteworthy, however, that this was only a test of the techniques, not a full-scale test of this question. With the data we developed, such a test would include more entry cohorts and, perhaps, such additional client data as educational attainment and workforce attachment. In addition, we might want to remove from the sample newly reopened cases that were off the rolls only a short time to better distinguish an entry cohort from administrative turnover.

"[We mapped] the percentage of the population participating in the FSP in each county nationwide."

Finally, we conducted another demonstration linking GIS and conventional regression techniques: mapping the percentage of the population participating in the FSP in each county nationwide. Although such a map shows strong differences in participation from region to region, we observed a different effect when we modeled participation controlling for some obvious determinants of food stamp participation. A few factors—AFDC enrollment, Supplemental Security Income (SSI) enrollment, and unemployment—easily account for two-thirds of the variance in the percentage of the population participating in the FSP. We then calculated the residuals, or the departure of each county's actual participation from the percentage predicted by the model. This allowed us to identify regions of special interest: county clusters where food stamp participation is abnormally high or low, given the obvious influences on participation rates. This demonstration afforded another opportunity to develop an easy user interface to move data seamlessly between the two PC-based packages ARC/INFO and STATA.

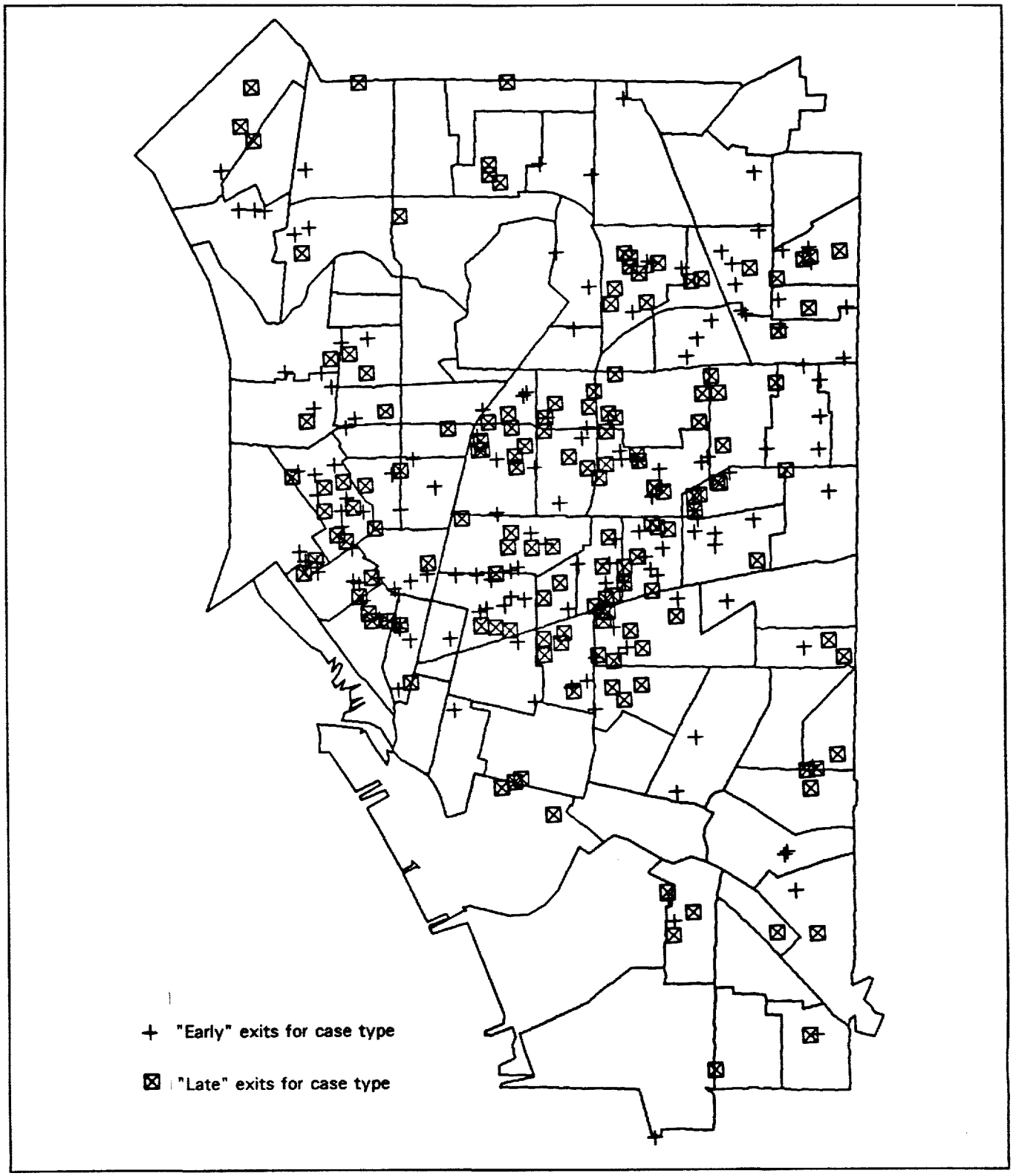


Figure 7. Survival rates for the study group in Buffalo, New York

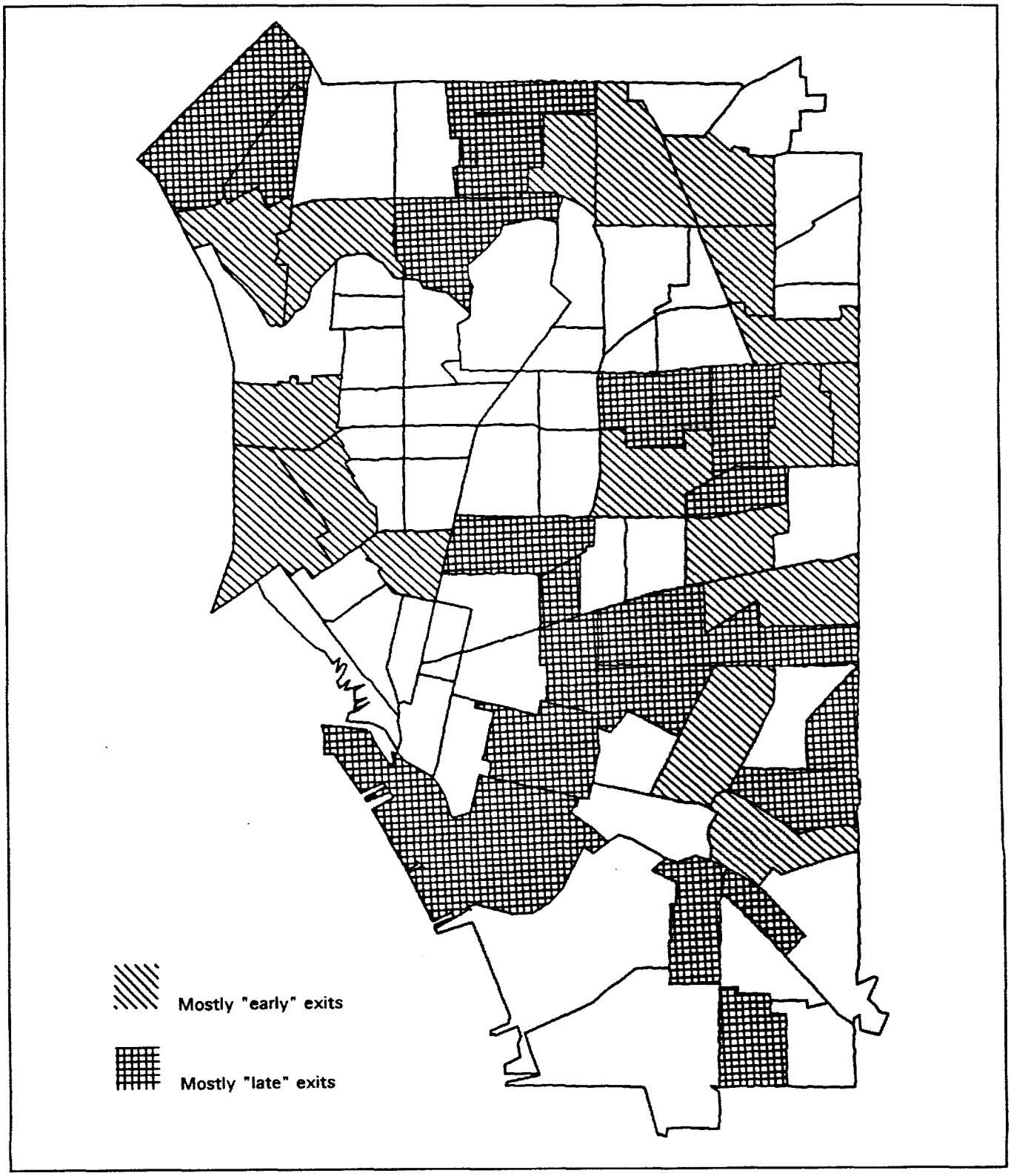


Figure 8. Aggregated survival rates for the study group in Buffalo, New York, 1987

Analysis: Answering a Practical Question

As we were conducting the preceding research activities, FNS posed an important question: How accessible are food stores to clients in the FSP? This question arose during a visit to Detroit, and FNS research staff suggested that we study the question using data on clients and food stores in that city.

We created a base map from the TIGER files for Detroit and used it to geocode a one-sixth sample of food stamp households drawn from Detroit (about 25,000 households). We also geocoded information on some 1,550 authorized retailers in Detroit. We categorized the retailers according to the volume of their food stamp redemptions, volume of total food sales, and type of store (for example, convenience stores and supermarkets).

For an initial picture of the geographic distribution of various types of stores, we "buffered" areas of one-fourth and one-half mile around each store and drew maps showing those areas. Figure 9 shows the map for one of our "middle" designations: stores with total retail sales of over $2 million annually (excluding convenience and specialty stores). Using the GIS, we superimposed the half-mile buffer on the distribution of geocoded clients, producing Figure 10. As shown there, some neighborhoods with sizable client populations are beyond one-half mile of such stores. We used several distance buffers in this work. The half-mile buffer was arbitrarily chosen for some displays.

"Using the GIS, we calculated the distance from each of the 25,000 households to the nearest store."

We created maps in this manner for each of five types of retail food outlets in Detroit, and we mapped Detroit poverty rates using tract-level data from the 1980 Census. Then, we combined the poverty data, client data, and store data to create spatially based tables to analyze participants' access to stores. Using the GIS, we calculated the distance from each of the 25,000 households to the nearest store for each type of store. That information, tabulated by the poverty rate of the household's Census tract, was used to generate Table 1.

As shown in Table 1, the average distance to a store was about three-fifths of a mile. Data for those stores designated as "high food sales" stores are disaggregated in Table 2. There we see that one-fourth of the food stamp households in extremely poor neighborhoods were within a quarter-mile of such a store. Across all neighborhoods, one-sixth of the households were within one-quarter mile of such a store. Similarly, we see that the average distance to such a store was almost one-half mile in tracts of extreme poverty and almost three-fourths of a mile in the least poor areas of Detroit.

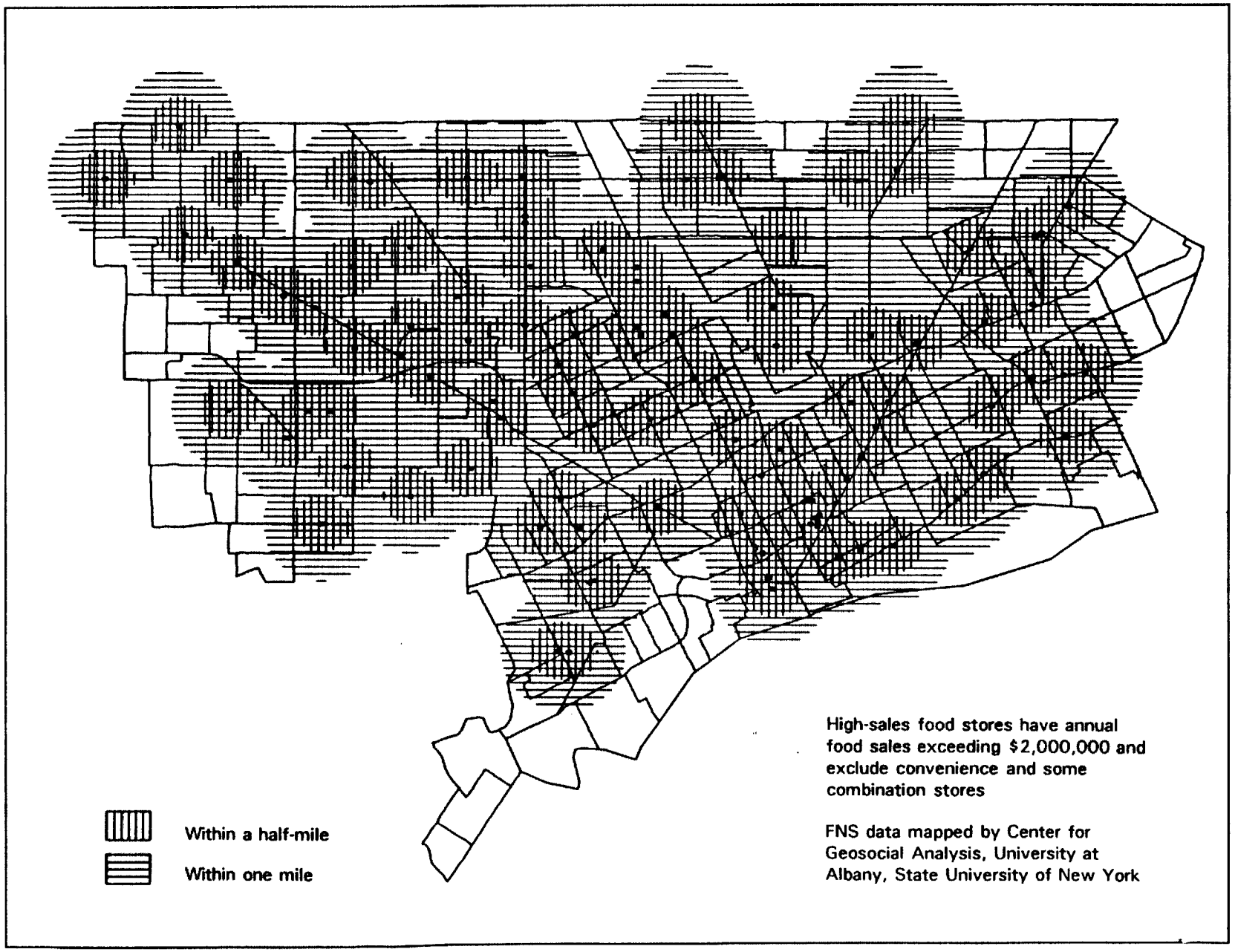


Figure 9. Coverage of high-sales food stores in Detroit, Michigan

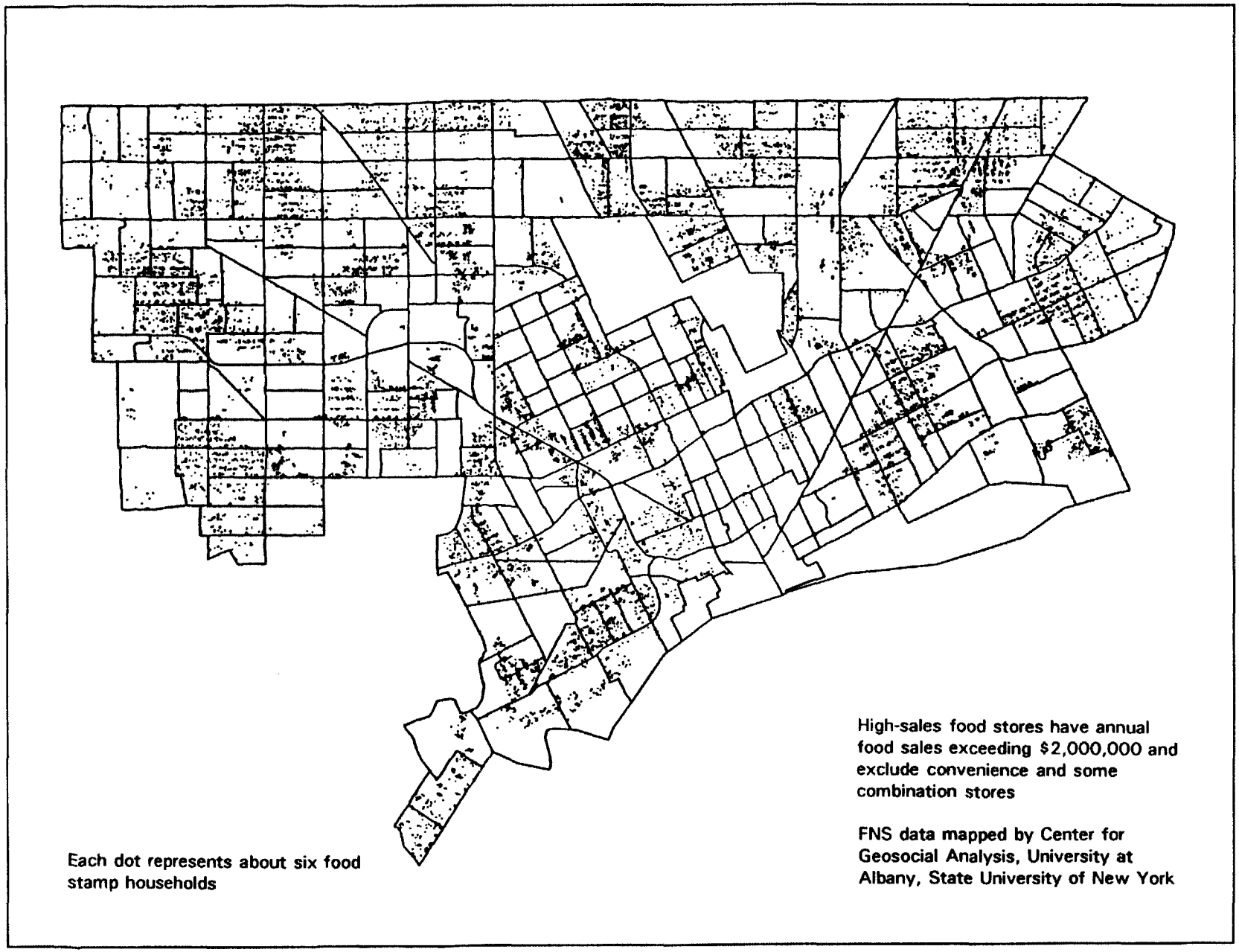


Figure 10. Cases located beyond one-half mile of high-sales food stores in Detroit, Michigan

Table 1. Mean Distance of Detroit Food Stamp Households from Nearest Authorized Food Store, in Miles, by Store Type and Recipient's Census Tract Poverty Rate

Store Type	>40%	>20%	10-20%	<10%	Total
Very high food stamp volume supermarkets (>$200,000/mo.)[b]	1.93	1.57	1.62	1.64	1.61
High food stamp volume supermarkets (>$100,000/mo.)[b]	0.57	0.67	0.78	1.00	0.75
High food sales volume stores (>$2,000,000/yr.)[c]	0.47	0.53	0.60	0.73	0.58
Medium food sales volume stores (>$500,000/yr.)[c]	0.50	0.47	0.53	0.64	0.52
All of the above	0.34	0.36	0.37	0.44	0.37
Small stores[d]	0.15	0.15	0.19	0.24	0.18
All authorized retail outlets	0.13	0.14	0.18	0.22	0.16

[a]Based on 1980 Census poverty rate of 1990 Census tracts.

[b]Based on monthly food stamp redemption value; restricted to supermarkets.

[c]Based on annual food sales volume; excludes convenience stores and certain combination stores.

[d]Includes all those excluded stores and other stores with annual food sales volume under $500,000.

Table 2. Distribution of Food Stamp Households in Detroit by Distance from High Sales Volume Stores[a]

Percent of Households Located Farther from Store than:	Neighborhood Poverty Rate[b]				
	>40%	>20%	10-20%	<10%	Total
0.25 miles	74.9	83.5	85.6	90.9	85.2
0.50 miles	42.3	48.7	51.0	70.4	52.2
0.75 miles	15.5	19.0	23.5	45.9	23.5
1.00 miles	3.5	7.5	9.6	21.7	9.7
1.25 miles	1.7	3.4	4.6	9.5	4.4
1.50 miles	0	1.0	2.4	3.3	1.6
1.75 miles	0	0.4	2.1	1.1	0.9
2.00 miles	0	0.2	2.1	0.4	0.7
Mean distance to nearest high food stamp volume store (miles)	0.47	0.53	0.60	0.73	0.57
Percent of households	12.0	56.7	27.8	13.1	100.0

This demonstration illustrated the practical application of traditional GIS display techniques, such as buffering, and the value of spatially derived data in tabular analysis. The approach could be extended with data on transportation routes by substituting travel times for the simple distance measures used here. The problem addressed by the analysis—how to define and describe access to service providers, such as food stores—is central to the issue of human services delivery.

Operations: Case Management with GIS

Experience in pioneering these uses of GIS leads to considerations about how GIS tools might be used by caseworkers in human services. Based on the user interfaces created in the first two years of the FNS-funded study, it seems possible that these tools might be used by caseworkers in human services. And in fact, a prototype system was developed to help employable food stamp and welfare clients find necessary services such as child care, counseling, and training. The system was named PLACES: Promoting Local Access to Comprehensive Employment Services.

For the past year, with support from the New York State Department of Social Services, the Ford Foundation, and the Robert Sterling Clark Foundation, this prototype has been refined and field-tested. PLACES was set up by geocoding a wide range of services in the test sites (Buffalo, Syracuse, and New York City), the transportation routes, and (at one site) job openings and job placements. The system presents a citywide map to the caseworker or employment counselor, who types in the client's address. PLACES then finds the client's address on the map and "zooms in" to that neighborhood. Selecting from a pull-down menu, the counselor can bring to the map such service sites as day care centers, substance-abuse counseling sites, adult basic education and GED centers, teen parenting programs, and transportation providers. By clicking the mouse on any of these symbols on the map, the counselor opens a window that displays the information about that provider. By bringing up bus routes and identifying the route numbers interactively, he or she can find which sites are accessible to the client. Information on selected sites can be printed for the client, as can the maps themselves.

"The counselor can bring to the map such service sites as day care centers, substance-abuse counseling sites...and transportation providers."

This system addresses several related concerns of human service providers, including the long-standing goal of service integration and neighborhood-based service coordination. Proposed extensions to the system include in-home referrals using cellular technology and notebook PCs, and case management using card-swipe and fax technologies integrated with this PC-based system.

IMPLICATIONS FOR POLICY AND PRACTICE

The work conducted under this FNS grant demonstrates that GIS systems that use national or local data can be developed quickly and at

modest cost. We have demonstrated that GIS products can be created through customized user interfaces by staff with little or no training in GIS. It is significant that we have shown that this technology can provide otherwise unobtainable information to better inform research and policy development. Equally important, we believe that GIS can radically change the way human services are delivered to clients, replacing today's fragmented approach with a community-oriented one that focuses on the client.

To integrate the geosocial view within the total perspective at FNS, we recommend:

- Greater attention to regional and local variation in food stamp research
- Inclusion of geographic factors in models of food stamp participation
- Joint efforts to develop geographically based referral systems for the FSP, WIC, and other nutrition-related programs

NOTES

1. TIGER is the acronym for the Census Bureau's Topographically Integrated Geographic Encoding and Referencing System.

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