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FACTORS AFFECTING FOOD STAMP PARTICIPATION RATES AND PER CAPITA BENEFITS

by

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ABSTRACT

Several socioeconomic variables had an impact on Food Stamp Program participation and per capita benefit levels in 1976. Among the significant variables were the unemployment rate, the percentage of the population that was white, the poverty rate, participation in the Aid to Families with Dependent Children Program, cashed-out Food Stamp benefits, region of residence, and metropolitan residence. Metropolitan residence increased participation and per capita benefits. This suggests that successful approaches to administering the program in metropolitan areas may not succeed in nonmetropolitan areas.

KEY WORDS: Food Stamp Program, Participation Rates, Per capita benefits, Poverty, Metropolitan areas, Nonmetropolitan areas, Transfer payments, Welfare.

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SUMMARY

Regional variations in the Food Stamp Program participation rates and per capita benefits can be largely explained in terms of selected socioeconomic variables. The poverty rate, the unemployment rate, the percentage of the population that was white, participation in Aid to Families with Dependent Children, regional and residential variables, and cashed-out Food Stamp benefits were all significant in a regression analysis of Food Stamp participation rates. The per capita benefit regression had similar results, except that percent white was not significant. These results were generally consistent with earlier studies.

There was a significant difference in the participation rates and per capita benefit levels between metropolitan and nonmetropolitan areas beyond that attributable to differences in the other variables. Metropolitan residence increased participation rates and per capita benefits. Changes in the Food Stamp law in 1977 may have mitigated some of the rural-urban differences observed in the report.

FACTORS AFFECTING FOOD STAMP PARTICIPATION RATES AND PER CAPITA BENEFITS

INTRODUCTION

Food Stamp participation rates and per capita benefits vary considerably, despite uniform eligibility rules and benefit schedules throughout the continental United States. For instance, 12.9 percent of the total population participated in the program in nonmetropolitan Alabama in fiscal year 1976 compared to 4 percent in nonmetropolitan Minnesota. Per capita benefits were $38 in nonmetropolitan Alabama and $10 in nonmetropolitan Minnesota. Can these variations be explained adequately by differences in socioeconomic variables such as the poverty rate and employment?

Although earlier studies have examined variation in the program's participation rates and benefit levels, changes in the early 1970's may have invalidated their conclusions. The Food Stamp Program was extended to all counties in 1974, and the number of project areas increased from 1747 in 1970 to 3075 in 1975 (5, pp. 1-20).1/2/ The prevalence of poverty changed at different rates in different parts of the country. The poverty rate for the Nation fell from 13.7 percent in April 1970 to 11.4 percent in the Spring of 1976, but the rate fell from 20.3 percent to 15.3 percent in the South (12).3/ The South still had a higher poverty rate, but the gap between the region and the rest of the country was reduced.

It is difficult to speculate exactly how such massive changes affected the relationships between socioeconomic variables and participation rates or per capita benefits. As the program was extended to include all counties, some characteristics of the added counties may have differed markedly from those of the original counties. Relationships valid for the relatively few original counties may not remain valid when the whole nation is considered. Narrowing the differences in poverty incidence among regions may have reduced the importance of the poverty rate in explaining variations in Food Stamp participation rates. The passing of time might also change some of the relationships. The importance of metropolitan or nonmetropolitan residence as an explanatory variable, for example, may decrease as people throughout the nation become more familiar with the program over time.

This report uses regression models to examine some of the factors that may have affected Food Stamp participation rates and benefit levels in the mid-1970's. Knowing how the socioeconomic variables are related to participation and benefits may suggest ways to make the program more effective. Of particular concern is the effect of metropolitan-nonmetropolitan residence. Were rural people served as effectively by the program as urban people?

1/ Underscored numbers in parentheses refer to references at the end of the report.

2/ Project areas are roughly equivalent to counties.

3/ Both changes were statistically significant at the .05 confidence level. The 1970 estimates are from the 1970 Census, and the 1976 figures are from the 1976 Survey of Income and Education (12).

The data and variables used are described in greater detail below. The data are from 1975 and 1976 and reflect the expansion of the program to all counties and the changes in the incidence of poverty that occurred in the early 1970's.

UNIT OF OBSERVATION

The 1970 Census provides the most recently available detailed county socioeconomic data. Unfortunately, using 1970 county data with more current Food Stamp data requires the assumption that the major changes in poverty distribution during the early 1970's did not occur. The 1976 Survey of Income and Education (SIE) is the most current source of detailed substate economic and demographic data, but it provides information for only the metro and nonmetro portions of each State (14, 15).4/ The SIE's estimates were based on a sample, not a complete census.

Because this report used the SIE as a major source of data, the units of analysis were each State's metro and nometro areas. County data from other sources were aggregated to be consistent with the SIE. There were 90 observations. Forty-one States had both a metro and a nonmetro observation. Alaska and Hawaii were omitted from the analysis because they had higher net income limits and benefits due to their higher costs-of-living (16 pp. 279,283). Wyoming and Vermont were completely nonmetro while the District of Columbia was completely metro. The SIE metropolitan definition was based on counties except in New England where cities and towns were used. This caused a problem in the five New England States with both metro and nonmetro populations, because much of the other data were available only for counties. In addition, some of the income maintenance programs provided no substate data at all for certain small New England States. Because of these problems, each New England State except Vermont was classified as entirely metro or nonmetro depending on the residence of a majority of its citizens. The majority was substantial in each of the five states, ranging from 71 to 86 percent.

THE MODEL

The regression model used in this report is:

$$Y^i = a + \sum_{k=1}^{13} B_k X_k^i + e^i,$$

4/ Metropolitan people live in Standard Metropolitan Statistical Areas (SMSA's). An SMSA is a county or group of counties containing at least one city with 50,000 or more people or "twin cities" with a combined population of 50,000 or more (14). Additional contiguous counties are included in an SMSA if they are economically and socially integrated with the central city. The SIE used SMSA's as defined by the 1970 Census.

where Y^i is the dependent variable for observation i, a is a constant, X^i_k is the independent variable k for observation i, B_k is the regression coefficient associated with variable k, and e^i is the residual for observation i.

Dependent Variables

Two dependent variables were used in the regressions, the average monthly Food Stamp participation in fiscal year 1976 as a percentage of total population (FSPART) and the total Food Stamp bonus for fiscal year 1976 divided by total population (AVFSBEN).5/ Note that both dependent variables are ratios with total population in the denominator. No attempt was made to measure participation as a percentage of the eligible population or to estimate the bonus per eligible person. Estimating the number of people eligible for Food Stamps is difficult, given the deductions from income allowed when determining eligibility.6/ A household with a certain gross income may be ineligible while another family with an identical gross income but higher expenses may be eligible. Simply using the number of poor as a proxy for eligibles is not applicable because people who technically are not poor may still be eligible for Food Stamps if they have sufficient deductions from income.

Expected Association Between Dependent and Independent Variables

Each regression had 13 independent variables, plus a constant term. Table 1 lists and defines the variables used in each regression. Each independent variable and its expected effect on the dependent variables are discussed below.

Aged Population

Areas with a large percentage of elderly people (P65) may have relatively low participation rates and per capita benefits if the elderly feel the stigma of publicly using Food Stamps more acutely than other people. The elderly, on the other hand, may participate more frequently, because many older people have low incomes and may need assistance to buy food.

Labor Force Participation

Food Stamp participation and benefits may decrease as the percentage of the population in the labor force (PLF) increases. Generally speaking, the need for Food Stamps in an area should decrease as more people work

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5/ Food Stamp participants were required to pay cash for their stamps until December, 1978, (9, p.i). They received in return an equal amount of food stamps plus an extra amount of "bonus" stamps.

6/ See (5) for a description of one attempt to estimate the number of eligibles in each state.

Table 1--Variables used in the regressions.

Variables	Regression 1/		Averag value
	Participation:	Benefit	
Dependent variables:			
Average fiscal year 1976 monthly participation as a percent of population (FSPART)	X	--	7.5 p
Food Stamp bonus for fiscal year 1976 divided by population (AVFSBEN)	--	X	$21.7
Independent variables:			
Percent of the population 65 years old or older (P65)	X	X	10.3 p
Percent of the population in the labor force (PLF)	X	X	45.1 "
Unemployment rate (UN)	X	X	7.0 "
Percent of the population that is white (PW)	X	X	88.7 "
Percent of families with children that have more than 4 children (PLGF)	X	X	12.5 "
Percent of the population that is poor (PCTPOOR)	X	X	11.9 "
Percent of the population receiving SSI for the aged (SSIPART)	X	X	1.1 "
Percent of the population receiving AFDC (AFDCPART)	X	X	4.5 "
Dummy variables:			
R1=1 if observation is in the Northeast	X	X	NA
R3=1 if observation is in the South	X	X	NA
R4=1 if observation is in the West	X	X	NA
M1=1 if observation is metropolitan	X	X	NA
CASHOUT=1 if observation is in an SSI cashout state	X	X	NA

NA=Not applicable.

1/ An "X" indicates that the variable was used in the regression. A dash indicates that the variable was not used.

and earn money. An increase in PLF, however, may not necessarily decrease the need for Food Stamps. For example, a large in-migration of young adults with large families working at the minimum wage could increase FSPART and AVFSBEN.

Unemployment Rate

The unemployment rate (UN) should be positively related to the Food Stamp participation rate and average benefit level. Unemployment interrupts income, and income is an important determinant of Food Stamp eligibility and benefits.

Race

Whites as a percent of population (PW) should have a negative relationship with the dependent variables because whites are generally less needy than Blacks and Other Races

Large Families

With a given income, Food Stamp eligibility limits and benefit levels increase with family size. Thus, PLGF, the percentage of families with children having four or more children, would be expected to have a positive sign.

Poor Population

Because the Food Stamp Program was designed to help people in need, the percentage of the people below the poverty level (PCTPOOR) should be positively related to participation and per capita benefits.

As mentioned earlier, it is possible to have a gross income substantially above the poverty level and still qualify for the program because of deductions allowed when determining eligibility. Deductions allowed in 1975 included payroll taxes, shelter expenses, childcare expenses, and medical expenses (16, pp. 279-280). PNPOOR, or the portion of the population below 150 percent of the poverty level, was used as an independent variable as well as PCTPOOR in recognition that the Food Stamp Program target population was broader than just the poor.7/ Results from the PNPOOR regressions were similar to the PCTPOOR regressions and are not presented in the main body of this report. (See the Appendix).

7/ Median family income could have been used to indicate need, since median family income was highly correlated with the poverty population. The simple correlation between median family income and PNPOOR was -.901, and the correlation between median family income and PCTPOOR was -.838. PCTPOOR and PNPOOR were used rather than median family income because they are more accurate measures of the Food Stamp target group. Depending on their income distribution, two areas could have the same median family income but different poverty incidences. One would expect the area with the higher poverty incidence to have a higher Food Stamp participation rate.

Income Assistance Programs

Participants in the Aid to Families with Dependent Children (AFDC) or Supplemental Security Income (SSI) Programs were automatically eligible for Food Stamps in 1975 regardless of income (16, pp. 122, 153; 9, p. 3). Areas with large percentages of their populations receiving AFDC (AFDCPART) or SSI for the Aged (SSIPART) should have higher Food Stamp participation rates and benefit levels.

Location

Past investigations have found that metropolitan or urban areas tend to have higher participation rates and per capita bonuses that cannot be explained by variations in other variables (3, 6). If this were still true in fiscal year 1976, the dummy variable M1 should have a positive sign. Similarly, the regional dummy variables, R1, R3, and R4, will show if there are regional variations that cannot be explained by the other variables.8/

Cashout

Some States did not require an SSI recipient to fill out a separate application for Food Stamps (16, p. 122). SSI benefits in these "cashout" States were automatically increased by the value of the bonus stamps. The cashout provision would decrease both Food Stamp participation and per capita benefits; the dummy variable CASHOUT should have a negative sign. Only 9 observations had a value for CASHOUT.

THE DATA

Total population, the number of aged, white population, poor population, the number of people below 150 percent of the poverty level, the number of families with children, and the number of families with four or more children all came from the SIE (14, 15). The SIE estimates were based on a nationwide, 191,500-household sample. The main purposes of the survey were to estimate the number of poor children and the number of children with limited English-speaking abilties. The SIE reported the number of families and people as of the spring of 1976, but poverty population estimates were based on 1975 income.

The SIE provided information about the metro and nonmetro population in each State. The Food Stamp, SSI, AFDC, labor force, and unemployment data were available on a county basis. The county data for each State were aggregated to the metro-nonmetro level to be consistent with the SIE.

8/ The dummy variables R2 for the North Central Region and M2 for the nonmetro areas were omitted from the regressions. One variable from each set of dummy variables must be left out if the regression equations are to be solved.

Food Stamp Program data for fiscal year 1976 were tabulated from a tape provided by the Food and Nutrition Service (11). A Bureau of Labor Statistics tape provided information about average unemployment and labor force in U.S. counties in 1976 (20). Unemployment and labor force estimates for the metro and nonmetro areas of each state were calculated by aggregating county data. The metro-nonmetro unemployment rates for each state were derived by dividing the appropriate aggregate unemployment estimate by the appropriate aggregate labor force estimate.

SSI-Aged data were used to calculate SSIPART because complete information for both Federally and State administered programs existed only for the aged portion of the program. Supplemental Security Income State and County Data gave the number of recipients of the federally administered SSI programs for the aged, blind, and disabled in December 1975 (18). Supplemental Security Income contained no information about the State administered SSI programs, but the author had collected information about the State SSI-Aged programs earlier. Thus, total participants in SSI-Aged were estimated by adding the Federal and State data together. AFDC Program data for February 1975 came from Recipients of Public Assistance Money Payments and Amount of Such Payments (17).

There were some problems with the reliability of data used. Despite a relatively large sample size, the SIE estimates of small populations, such as the metropolitan poor in South Dakota, had relatively high standard errors. Participation and benefit data about the Food Stamp Program, SSI, and AFDC were based on administrative records. It was not possible to verify each item. The local unemployment and labor force data were developed by State Employment Security Agencies and the Bureau of Labor Statistics using Unemployment Insurance data. 9/ The labor force and unemployment estimates were thus subject to considerable statistical error because of limitations inherent in the raw data collected by the State Employment Security Agencies (19).

RESULTS

Results from the regressions are discussed in detail below. 10/ Comparisons with earlier studies are made when appropriate.

Simple Correlations Matrix

There was little problem with intercorrelation among independent variables (table 2). SSIPART had a fairly high correlation with PCTPOOR

9/ For more information about how the local estimates are made, see Goldstein (2), pages 411-465. Making the estimates involves 70 steps (2, p.424).

10/ Plots of standardized residuals against standardized predicted values were examined for evidence of heteroscedasticity and violations of assumptions about the error terms. No serious problems were discovered.

Table 2--Simple correlation coefficients (r's) between independent variables.1/

Variable:	Variable												:Variable
:	PLF	UN	PW	PLGF	R1	R3	R4	M1	CASHOUT	SSIPART	AFDCPART	PCTPOOR	:
P65 :	-0.00128	-0.02052	0.23831	-0.00372	0.10919	-0.00613	-0.28091	-0.55514	-0.00379	0.33653	-0.14551	0.24608	:P65
PLF :		-0.19909	0.20162	-0.33750	0.09740	-0.34139	0.05127	0.02686	0.14488	-0.27740	-0.13348	-0.42049	:PLF
UN :			-0.14014	0.05710	0.39032	-0.04427	0.18836	-0.02875	0.29831	0.00947	0.42727	0.03005	:UN
PW :				0.04629	0.19070	-0.64212	0.26923	-0.23603	0.12745	-0.34868	-0.67216	-0.45985	:PW
PLGF :					0.04326	-0.15411	0.09746	-0.31660	-0.03527	0.05044	0.00911	0.25489	:PLGF
R1 :						-0.29844	-0.21639	0.00000	0.19612	-0.14350	0.16269	-0.23078	:R1
R3 :							-0.41976	0.02306	-0.25363	0.52528	0.22926	0.56916	:R3
R4 :								-0.02627	0.16638	-0.20021	-0.19867	-0.12704	:R4
M1 :									0.03704	-0.40667	0.24300	-0.41378	:M1
CASHOUT :										0.00460	0.00631	-0.19786	:CASHOUT
SSIPART :											0.23059	0.83738	:SSIPART
AFDCPART:												0.25236	:AFDCPART

1/ See table 1 for definitions of independent variables.

(.837). In other words, about 70 percent, or $(.837)^2$, of the variation in SSIPART could be explained by variation in PCTPOOR. SSIPART, however, was always insignificant. Coefficients in regressions excluding SSIPART and other insignificant variables were similar to coefficients in regressions containing all variables. 11/ The next highest correlations were in the .500's and .600's.

Participation Rates (table 3)

The independent variables explained 86.5 percent of the variation in FSPART (R^2=.865). UN was significant and, as expected, positive. For each percentage point increase in unemployment, another .3 percent of the population participated in the Food Stamp Program.

PW was positive, rather than negative as anticipated. The positive PW may indicate that there were factors inhibiting Blacks and Other Races from participating in the program. For instance, if Blacks and Other Races lacked information about Food Stamps, they would have been more likely not to enroll in the program.

Both the South (R3) and the Northeast (R1) had participation rates significantly higher than the North Central reference region.12/ Southern or Northeastern location added, respectively, 1.6 and 1.8 percent of the population to the Food Stamp participation rate. Attitudes toward welfare participation may have been more favorable in the South and Northeast than in the North Central region. The characteristics of the Southern poor may also help explain why R3 was significant. The Southern poor were slightly more likely to live in families headed by working males than the poor in other regions. Approximately 37 percent of the Southern poor families were headed by a working male in 1976, compared to 21 percent in the Northeast, 34 in the North Central Region, and 32 in the West (15). Since the only income maintenance program in which these Southern families with working males could participate was Food Stamps, the South should have had a disproportionately large participation rate.

Metropolitan residence (M1) added 1 percent to the portion of population participating in the Food Stamp Program. The positive and significant M1 indicated that the Food Stamp program in 1976 was more effective in metropolitan areas than in nonmetropolitan areas even after considering differences due to other variables. There are a number of possible explanations for the significant M1. For instance, metropolitan people may have had fewer compunctions about using welfare programs and better access to the Food Stamp Program. Lack of public transportation may have hindered rural people from participating in the program.

11/ See the appendix for regressions with insignificant variables omitted.

12/ The regional variables as a group were jointly significant at the .05 level. See Murphy's Introductory Econometrics (7 pp. 222-227) for an explanation of the joint F-test made.

Table 3--Regression model explaining Food Stamp participation rates, 1976.

Item	Simple correlation coefficient	Regression coefficient	F value
Independent variable 1/			
P65	0.068	-0.006	0.01
PLF	-0.344	0.074	2.15
UN	0.370	0.305	7.94**
PW	-0.600	0.051	4.00**
PLGF	0.120	0.037	0.31
R1	0.089	1.590	7.24**
R3	0.546	1.789	8.98**
R4	-0.215	0.213	0.16
M1	-0.079	1.004	4.65**
CASHOUT	-0.148	-1.023	3.00*
SSIPART	0.633	0.142	0.14
AFDCPART	0.666	0.773	33.65**
PCTPOOR	0.737	0.465	35.64**
R^2	---	.865	---
Constant	---	-13.319	---

*Significant at .10 level.
**Significant at the .05 level.
1/ See table 1 for definitions of independent variables.

More recent Food Stamp data, however, suggests that metropolitan residence may have ceased being a significant variable after the Food Stamp Act of 1977 eliminated the purchase requirement in 1978 and 1979.13/ Removing the purchase requirement had a large impact on the program in rural areas (9, p.i). Participation in the most rural project areas increased by 42 percent between November 1978 and May 1979, compared to only 8 percent in the most urban areas. 14,15/ Almost half of the new participants entering the program came from the most rural projects. When it becomes available, data from the 1980 Census should be used to examine the Food Stamp Program. Besides supplying more reliable data and more observations, the 1980 Census and more current program data will also reflect the changes made by the Food Stamp Act of 1977.

PCTPOOR's and AFDCPART's regression coefficients were large, positive, and highly significant. For each 1-percent increment to the poverty incidence, another .5 percent of the population participated in the Food Stamp Program. For each additional percentage of the population enrolled in AFDC, another .8 percent of the population participated in the Food Stamp Program. These results are hardly surprising, because the Food Stamp Program was designed to help those having difficulties purchasing food, and AFDC families were categorically eligible for Food Stamps in 1975.

P65, PLF, PLGF, and SSIPART were all insignificant. SSIPART's low significance is somewhat puzzling. One would expect SSIPART to be significant if AFDCPART is significant because both programs gave participants automatic Food Stamp eligibility. SSI-Aged, however, serves a different population than AFDC, and most eligible SSI participants do not apply for Food Stamps (1, p. 8). About 71 percent of households receiving AFDC or General Assistance also purchased Food Stamps in July 1975, compared to only 34 percent of SSI-Aged household (13, pp. 26-27). SSI recipients' tendency not to participate in the Food Stamp Program reduces the effectiveness of SSIPART as a predictor of FSPART.

13/ The Act took effect on December 1, 1978 in 9 States and January 1, 1979 in the remainder of the Nation (9, p. i).
14/ The most rural project areas have between 0 and 5,000 participants. The most urban project areas have 50,000 or more participants (9, pp. 5-7).
15/ The purchase requirement was apparently a greater hindrance to Food Stamp participation in rural areas than in metropolitan areas. Differences in the metropolitan and nonmetropolitan poor's sources of income may be one reason why. A higher portion of the nonmetro poor received at least some of their income from jobs and social insurance, such as Social Security, contingent upon past jobs (4, p.12; 8, pp. 11-13). The nonmetro poor's gross income may have resulted in purchase requirements high enough to discourage participation in the program. AFDC income that the metro poor were more likely to receive also was considered when determining Food Stamp benefits. However, AFDC recipients were automatically eligible for Food Stamps until recently and often could apply for them at the same office where they applied for AFDC. AFDC income may not have discouraged Food Stamp applications as much as earned or Social Security income. In addition, eliminating the purchase requirement facilitates mailing Food Stamps to recipients (10). This could make Food Stamps more convenient to rural people with transportation problems.

CASHOUT, although it was not significant at the .05 level, was significant at the .10 level. Excluding SSI recipients from the Food Stamp Program reduced Food Stamp participation by 1 percent.

The results presented above were generally consistent with an earlier U.S.D.A. study by Fred Hines (3). The Hines study examined 1970 county participation rates across the United States. The comparable Hines regressions agreed that poverty incidence, regional and residential variables, and the unemployment rate were significant. Hines had a single welfare participation rate that was significant. The earlier study didn't have percent white as a variable, but minority population variables were significant and negative. This was consistent with the positive PW. Unlike the regression in Table 3, the Hines study found that both the percent of the population at least 65 years old and the labor force participation rate were significant.

Differences in significant variables between the two studies may be due to changes in either the Food Stamp Program or society since 1970. An alternative explanation is that some of the relationships discernable when counties are the unit of observation may be obscured when only 90 metro-nonmetro observations are used.

Per Capita Benefits (table 4)

The independent variables explained about 82 percent of the variation in per capita Food Stamp benefits (R^2=.819). As in the participation regression, the unemployment rate, the metro and Southern dummy variables, the AFDC participation rate, and the poverty rate were all significant at the .05 level. Metropolitan residence increased the per capita benefits by almost $3.70. As discussed earlier, nonmetro people may be less willing or able to participate in the Food Stamp Program. This would tend to reduce benefits accruing to nonmetro areas relative to metro areas.

R3 was the only significant regional dummy variable.16/ Southern location increased per capita benefits by nearly $5. State administration of AFDC programs may explain why R3's coefficient was so large. The South traditionally has been less generous with AFDC benefits than other regions. For instance, the maximum AFDC benefit in 1979 for a family of four was $1,440 per year in Misissippi and $5,712 in New York (1, p. 2). This discrepancy, however, resulted in much higher Food Stamp benefits in the South, because the Food Stamp program has a single benefit schedule nationwide and includes AFDC benefits in calculating income. The Mississippi family of four could receive $2,100 of bonus stamps, but the New York family could receive only $816.

AFDCPART and PCTPOOR, with F values of 11.46 and 34.40 respectively, had greater significance than any other variables. This is to be expected, because the program was designed to help those in need.

16/ The regional dummy variables as a group were significant at the .10 level.

Table 4--Regression model explaining Food Stamp per capita benefit level 1976.

Item	Simple correlation coefficient	Regression coefficient	F value
Independent variable 1/			
P65	0.015	-0.123	0.15
PLF	-0.380	0.106	0.33
UN	0.315	1.023	6.69**
PW	-0.623	0.079	0.71
PLGF	0.077	-0.146	0.36
R1	-0.031	2.954	1.87
R3	0.592	4.963	5.16**
R4	-0.161	1.333	0.48
M1	-0.044	3.695	4.71**
CASHOUT	-0.200	-4.032	3.48*
SSIPART	0.612	-.480	0.12
AFDCPART	0.587	1.650	11.46**
PCTPOOR	.753	1.670	34.40**
R2	---	0.819	---
Constant	---	-24.850	---

*Significant at .10 level.
**Significant at the .05 level.
1/ See table 1 for definitions of independent variables.

CASHOUT was significant at the .10 level but not at the .05 level. Paying Food Stamp benefits directly through the SSI Program reduced per capita benefits by slightly more than $4.

The remaining variables, P65, PLF, PW, PLGF, R1, R4, and SSIPART, were not significant. Although PW was not significant in the benefit regression, it was significant in the participation regression. This may indicate that although there were factors hindering Blacks and Other Races from participating, there was no discrimination in benefits paid to participants.

The benefit regression was generally in agreement with an earlier study by Martin and Lane that used 1975 Food Stamp data, 1970 Census data, and other information to examine factors affecting variation in per capita Food Stamp benefits (6). Counties were their unit of observation 17/. Martin and Lane also found positive and significant coefficients for the percentage poor, the percentage on public assistance, and the unemployment rate. The male labor force participation rate was insignificant in their study, which is consistent with the insignificant PLF in table 4. Nonmetropolitan residence reduced benefits in the Martin-Lane study. They also found significant regional differences; the North Central Region had significantly lower benefits than the Northeastern reference region.

Martin and Lane had significant negative coefficients for the percent Black and the percent Indian. This contradicts the nonsignificant PW in table 4. Martin and Lane had no variable comparable to PLGF or CASHOUT. Their percent of the population that is poor and over 65 years old was not significant, which is consistent with the insignificant P65 mentioned above.

CONCLUSIONS AND IMPLICATIONS

Findings in this report are generally consistent with the results of earlier studies. Changes in the distribution of poverty during the early 1970's and extension of the program to all counties in 1974 apparently had little effect on the relationships between various socioeconomic factors and per capita benefits or participation rates.

Metropolitan residence increased participation rates and per capita benefits in 1976 as it did in earlier studies. Part of the reason for the program's greater metropolitan success may have been differences between urban and rural people's attitudes towards welfare. The logistics of obtaining and spending Food Stamps in sparsely populated areas with no public transportation may also have discouraged potential nonmetropolitan recipients.

17/ Martin and Lane made the assumption that there were no important changes in the distribution of poverty or other county characteristics between 1970 and 1975.

More recent Food Stamp data, however, suggests that metropolitan residence may have become less important after the Food Stamp Act of 1977 eliminated the purchase requirement in 1978 and 1979. Data from the 1980 Census, when it becomes available, should be used to examine the Food Stamp Program. In addition to supplying more reliable data and more observations, the 1980 Census and more current program data will also reflect the changes made by the Food Stamp Act of 1977.

Earlier studies grouped all income support programs under the broad heading of "welfare" or "public assistance," despite the fact that the programs may serve different types of people (3,6). Collapsing programs into one variable may obscure the separate effects of individual programs. This study found that participation in AFDC was significant, but participation in SSI-Aged was not. Combining the two variables into one welfare participation rate may result in a misleading generalization.

This report indicates that many SSI-Aged recipients fail to participate in the Food Stamp Program. The simplest way to insure that SSI recipients receive all the income to which they are entitled may be to cashout Food Stamp benefits for SSI recipients nationally. Cashing out the program nationally would allow all SSI participants to automatically receive their Food Stamp benefits without filling out a separate application.

Among the significant independent variables found in this study were the unemployment rate, the percentage of the population that was white, the poverty rate, the AFDC participation rate, cashed-out Food Stamp benefits, region of residence, and metropolitan residence. Knowing whether or nor a variable was significant can suggest problems which need special consideration when administering the program. As an example, the significant metropolitan residence variable indicates that there were differences between rural and urban areas beyond those attributable to differences in the other independent variables in 1976. An approach that succeeds in a metropolitan area may not necessarily succeed in a nonmetropolitan area.

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APPENDIX

Tables 1A and 2A substituted PNPOOR for PCTPOOR in the participation and per capita benefit equations presented in the main body of the report. The results from the PNPOOR regressions were similar to those from the PCTPOOR regressions. The R^2's for the PNPOOR regressions were slightly smaller than those from the corresponding PCTPOOR regressions. The regression coefficients for PNPOOR were less than those for PCTPOOR because a smaller portion of the people below 150 percent of the poverty level were eligible for Food Stamps. A one-percent change in the size of PNPOOR had a smaller impact on Food Stamp participation or benefits than a one-percent change in the needy population represented by PCTPOOR.
Some variables significant at the .05 level in the PCTPOOR regressions were significant only at the .10 level in the PNPOOR equations.

The four regressions from tables 1, 2, 1A, and 2A may be easier to use for presentations or discussions if variables that are insignificant at the .05 level are omitted (table 3A). After the omissions, M1 in the participation regression using PCTPOOR and UN in the participation regression using PNPOOR lost their significance at the .05 level. M1, however, was close to being significant at the .05 level, and UN was close to being significant at the .10 level.

Table 1A--Regression model explaining Food Stamp participation rates with PNPOOR as an independent variable, 1976.

Item	Simple correlation coefficient	Regression coefficient	F value
Independent variable 1/			
P65	0.068	-0.033	0.13
PLF	-0.344	0.063	1.43
UN	0.370	0.264	5.31**
PW	-0.600	0.045	2.81*
PLGF	0.120	0.023	0.10
R1	0.089	1.434	5.28**
R3	0.546	1.490	5.34**
R4	-0.215	0.244	0.19
M1	-0.079	1.380	7.17**
CASHOUT	-0.148	-1.192	3.67*
SSIPART	0.633	0.225	0.29
AFDCPART	0.666	0.797	31.97**
PNPOOR 2/	0.706	0.303	24.11**
R_2	---	0.850	---
Constant	---	-13.220	---

*Significant at .10 level.
**Significant at the .05 level.
1/ See table 1 for definitions of independent variables.
2/ Percent of the population below 150 percent of the poverty line.

Table 2A--Regression model explaining Food Stamp per capita benefit level with PNPOOR as an independent variable, 1976.

Item	Simple correlation coefficient	Regression coefficient	F value
Independent variable 1/			
P65	0.015	-0.202	0.34
PLF	-0.380	0.060	0.09
UN	0.315	0.884	4.32**
PW	-0.623	0.050	0.25
PLGF	0.077	-0.168	0.38
R1	-0.031	2.412	1.08
R3	0.592	4.052	2.86*
R4	-0.161	1.574	0.58
M1	-0.044	4.865	6.47**
CASHOUT	-0.200	-4.818	4.35**
SSIPART	0.612	0.132	0.01
AFDCPART	0.587	1.728	10.89**
PNPOOR 2/	0.706	1.025	20.07**
R_2	---	0.792	---
Constant	---	-22.877	---

*Significant at .10 level.
**Significant at the .05 level.
1/ See table 1 for definitions of independent variables.
2/ Percent of the population below 150 percent of the poverty line.

Table 3A--Regression model explaining Food Stamp participation rates and benefit levels in 1976 with variables insignificant at the .05 level omitted. (F-Value in parentheses).

Table 3A--Regression model explaining Food Stamp participation rates and benefit levels in 1976 with variables insignificant at the .05 level omitted. (F-Value in parentheses).

Item	Participation regression		Benefit regression	
	with PCTPOOR	with PNPOOR	with PCTPOOR	with PNPOOR
Independent variable 1/				
P65	---	---	---	---
PLF	---	---	---	---
UN	0.210 (4.6)**	0.171 (2.72)	0.78 (4.77)**	1.074 (10.52)**
PW	0.048 (4.04)**	---	---	---
PLGF	---	---	---	---
R1	1.666 (8.13)**	1.682 (7.44)**	3.213 (2.30)	---
R3	1.779 (10.92)**	1.156 (4.77)**	4.942 (7.93)**	---
R4	0.215 (0.28)	.318 (0.390)	1.676 (0.92)	---
M1	0.785 (3.93)*	1.075 (5.50)**	3.615 (6.48)**	6.400 (18.38)**
CASHOUT	---	---	---	-5.177 (6.42)**
SSIPART	---	---	---	---
AFDCPART	0.812 (40.04)**	0.702 (43.60)**	1.489 (16.25)**	1.525 (17.04)**
PCTPOOR	0.466 (91.45)**	---	1.509 (72.84)**	---
PNPOOR 2/	---	0.301 (69.24)**	---	1.126 (127.95)**
R^2	0.857	0.834	0.804	.775
Constant	-8.700	- 4.912	-12.803	-21.040

*Significant at .10 level.
**Significant at the .05 level.
1/ See table 1 for definitions of independent variables.
2/ Percent of the population below 150 percent of the poverty line.