

Contract No.: 53-3198-7-31  
MPR Reference No.: 7725-400

**RULE OF THUMB COST PROJECTIONS  
USING 1987 DATA**

January 19, 1990

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This work was performed under a competitively awarded contract in the amount of \$2,547,161.

## PREFACE

This report uses data from the Survey of Income and Program Participation 1985 Panel (Preliminary) Wave 8 Core plus Topical Module File, which was released by the Census Bureau for research to improve the understanding and analysis of SIPP data. The data on the file are preliminary and should be analyzed and interpreted with caution. At the time the file was created, the Census Bureau was still exploring certain unresolved technical and methodological issues associated with the creation of this data set. The Census Bureau does not approve or endorse the use of these data for official estimates.

## ACKNOWLEDGMENTS

The author would like to thank Sharon Long, Harold Beebout, and Carole Trippe for comments on this report and Carolyn Dunn and Sheana Thomas for typing the manuscript.

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## A. INTRODUCTION

Under the present system of welfare programs, those in need often qualify for and participate in multiple assistance programs. Multiple program participation leads to complicated interactions among the budgets of the various assistance programs. In calculating the effect on the Food Stamp Program (FSP) budget of changes in interacting programs, the Food and Nutrition Service (FNS) currently uses a formula or "rule of thumb" to obtain rough cost projections. The rule of thumb formula provides an estimate of the proportionate change for use in calculating the impact on the FSP budget of changes in assistance programs that interact with the FSP. As FNS' rule of thumb estimates are based on the observed distribution of program benefits and participation levels, changes in benefits and participation patterns over time result in a need to re-estimate the factors using more recent data. In this report, we update the 1983 rule of thumb factors described in Long (1986) using data for 1987 and compare the cost projections using the 1983-based rule of thumb to those derived from the 1987-based rule of thumb.

This report is organized as follows. Section B presents the methodology for obtaining the rule of thumb estimates of proportionate changes and includes a comparison of results obtained using the 1987-based rule of thumb with those obtained using 1983 data. Section C discusses the data sources which are used in estimating the rule of thumb factors. Section D contains the summary and conclusions.

## B. RULE OF THUMB FORMULA

Changes in another assistance program can impact the FSP cost through the FSP eligibility and benefit provisions. These impacts may be modified by other non-FSP programs which offset the direct impact on the FSP. For example, because the FSP counts cash payments from other programs as income, for households that receive Social Security and participate in the FSP, a reduction in Social Security benefits would result in a direct increase in Food Stamp benefits. However, for households that receive Social Security, participate in the FSP, and also receive SSI, a reduction in Social Security income would lead to an offsetting increase in the SSI income, thus lessening the impact on the FSP issuance of the initial Social Security benefit reduction. Table 1 illustrates direct and offsetting impacts on the FSP through the four major assistance programs studied in this report.

The estimation of the net impact on the FSP budget of a change in a particular assistance program requires the following information:

- (A) The size of the change in benefits issued under the interacting assistance program (e.g., a reduction in benefits issued under AFDC).
- (B) The proportion of benefits from the interacting assistance program which go to FSP households.
- (C) The average effective benefit reduction rate (BRR) for the FSP households which participate in the interacting assistance program, where the BRR is the rate at which the household food stamp issuance is reduced with an increase in income.
- (D) The proportion of benefits from the interacting assistance program which go to FSP households which participate in other programs that have offsetting impacts.
- (E) The average effective BRR under the offsetting program.

TABLE 1

SUMMARY OF DIRECT AND OFFSETTING IMPACTS ON THE FOOD STAMP PROGRAM  
AS A RESULT OF A BENEFIT REDUCTION UNDER AN INTERACTING ASSISTANCE PROGRAM

Program with Change	Direct Impact on the Food Stamp Program	Aid to Families with Dependent Children	Social Security	Supplemental Security Income	Unemployment Insurance
Aid to Families with Dependent Children	Reduction in households's net income	-----	No impact	No impact	No impact
Social Security	Reduction in household's net income	Reduction in Social Security offset by increase in AFDC (tax rate = 100%)	-----	Reduction in Social Security offset by increase in SSI (tax rate = 100%)	No impact
Supplemental Security Income	Reduction in household's net income	No impact	No impact	-----	No impact
Unemployment Insurance (UI)	Reduction in household's net income	Reduction in UI offset by increase in AFDC (tax rate = 100%)	No impact	Reduction in UI offset by increase in SSI (tax rate = 100%)	-----



- (F) The average effective BRR for the FSP households participating in the interacting assistance program and the offsetting assistance program (i.e., the households in (D)).

The net impact on the FSP budget of a change in an interactive assistance program is then calculated as:

$$\text{Interacting Program Change} \times \left[ \left( \begin{array}{l} \text{Benefits} \\ \text{to FSP} \\ \text{Households} \end{array} \times \text{FSP BRR} \right) - \left( \begin{array}{l} \text{Benefits to} \\ \text{FSP/Offsetting} \\ \text{Program} \\ \text{Households} \end{array} \times \text{Offsetting Program BRR} \right) \right]$$

where the term in brackets is the adjustment factor which reflects the proportionate change in FSP benefits for each dollar change in the benefits issued under the interacting program.

The estimation of the net impact on the FSP budget of a change in a particular assistance program requires information on multiple program participation to calculate benefit distributions and administrative information to calculate the effective BRRs. The BRR under the FSP will vary across households because of the structure of the excess shelter expense deduction, the treatment of households with zero net income, and the minimum benefit limits for households with only one or two members. Appendix A presents a summary of the method used to calculate the effective BRRs.

Table 2 provides the information needed to calculate the rule of thumb. As illustrated in the table, the information needed to estimate the impact on the FSP budget of a change in the Social Security program includes the share of Social Security benefits going to households that also participate in the FSP (3.6 percent), and the average effective BRR for Social Security households participating in the FSP (26.5 percent). Also, as shown in the table, there are two offsetting programs to be considered for the Social Security program—AFDC and SSI. Inserting

TABLE 2  
SUMMARY OF INFORMATION NEEDED IN CALCULATING THE RULE OF THUMB

	(B)	(C)		(D)	(E)	(F)	
Program With Change	Proportion of Program Benefits to FSP Households <sup>a</sup>	Average Effective BRR for FSP Households <sup>b</sup>	Offsetting Program(s) to be Considered	Proportion of Benefits to FSP/ Offsetting Program Households <sup>a</sup>	Average Effective BRR Under Offsetting Program	Average Effective BRR for FSP Households <sup>b</sup>	Net Impact <sup>c</sup> Proportionate Change
Aid to Families with Dependent Children	.866	.333					
Social Security	.036	.265	(a) AFDC (b) SSI	.003 <sup>c</sup> .013	1.00 1.00	.343 .276	28.8 0.5
Supplemental Security Income	.382	.294					
Unemployment Insurance	.079	.301	(a) AFDC (b) SSI	.010 <sup>c</sup> .003 <sup>c</sup>	1.00 1.00	.330 .301	11.2 2.0

SOURCE: April 1987 Extract from Wave 8 1985 SIPP file and Summer 1987 Food Stamp Quality Control sample.

These figures are taken from Appendix Table B.1.

<sup>a</sup>See Appendix Table A.1 for the derivation of the effective BRRs.

<sup>b</sup>This figure is based upon fewer than 20 (unweighted) sample households.

<sup>c</sup>The net impact is calculated as [(B) x (C)] - [(D) x (E) x (F)].

this information into the adjustment factor formula as outlined above results in a net impact proportionate change of 0.5, shown in the last column of Table 2.

Table 3 translates the proportionate change to dollar amounts of net impact, and compares the 1983-based rule of thumb with the 1987-based rule of thumb. Table 3 demonstrates that for the 1987 rule of thumb, each dollar reduction in AFDC benefits causes an increase of 29 cents in the FSP budget. Similarly, for each dollar reduction in Social Security benefits, the FSP budget increases by less than 1 cent, and for a dollar reduction in SSI, the FSP budget increases by 11 cents. These results are essentially the same as the 1983-based rule of thumb results, as shown in the first column of Table 3. Dollar reduction rates for AFDC, Social Security, and Unemployment Insurance for both the 1983-based rule of thumb and the 1987-based rule of thumb are identical, and while SSI is the only assistance program that has registered a change in the adjustment factor, that change is very small. Using the 1983 rule of thumb, a dollar reduction in SSI would result in a 13 cent increase in Food Stamp issuance, while using the 1987 rule of thumb, a dollar reduction in SSI would cause an 11 cent increase in Food Stamp issuance.

### C. DATA SOURCES

As there is no data source which contains both the information on multiple program participation needed for calculating benefit distributions and the administrative information needed to calculate effective BRRs, two different data files are used. The administrative data needed for estimating impacts of changes in the interacting assistance programs on different household types is obtained from the Summer 1987 Food Stamp Quality Control (QC) sample. This file is comprised of program data for 10,474 Food Stamp households for the months of July and August 1987.

TABLE 3

DOLLAR IMPACT ON THE FSP BUDGET OF A ONE-DOLLAR REDUCTION IN THE BENEFITS ISSUED UNDER THE INTERACTING ASSISTANCE PROGRAMS

Program with Dollar Reduction In Benefits	Budgetary Impact with 1983-based Rule of Thumb <sup>a</sup>	Budgetary Impact with 1987-based Rule of Thumb <sup>b</sup>
Aid to Families with Dependent Children	\$ 0.29	\$ 0.29
Social Security	\$ 0.01	\$ 0.01
Supplemental Security Income	\$ 0.13	\$ 0.10
Unemployment Insurance	\$ 0.02	\$ 0.02

SOURCE: April 1987 Extract from Wave 8 1985 SIPP file and Summer 1987 Food Stamp Quality Control sample.

<sup>a</sup>These figures are from Long (1986).

<sup>b</sup>Calculated as (B) x (C) - (D) x (E) x (F) from Table 2.

The program participation information is obtained from an extract for April 1987 from Wave 8 of the 1985 Survey of Income and Program Participation (SIPP). Sample size constraints prevented our using SIPP data for the same month in 1987 as the QC data. Interviews in SIPP are completed on a staggered schedule for the four rotation groups. Each interview collects information for the preceding four months. Consequently, within any single wave of SIPP, there is only a single month that is common to all four rotation groups. For Wave 8 of the 1985 SIPP file, April is the month common to all four rotation groups. Failing to use the common month results in a significant reduction in the size of the sample available to this analysis. Using data from SIPP for April 1987 and from QC for July and August 1987 should not significantly affect the results of this analysis because participation rates for households do not appear to fluctuate greatly by month.

#### D. CONCLUSION

As the comparison of the 1983-based rule of thumb and 1987-based rule of thumb indicates, the calculations are essentially the same for the two time periods. There are two factors that contribute to this finding. First, multiple program participation patterns did not change between 1983 and 1987, and, second, the FSP rules that affect the effective BRRs have changed only slightly since 1983. As FNS' rule of thumb formula is based on the observed distribution of program benefits and participation levels, as well as the effective BRRs, the rule of thumb factors will only change when the relative distributions change.

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APPENDIX A

CALCULATION OF EFFECTIVE BENEFIT REDUCTION  
RATES UNDER THE FOOD STAMP PROGRAM

Benefit reduction rates reflect both the legislatively specified rate of .30 on net income and the structure of deductions from gross income under the FSP. Therefore, changes in household gross income impact differently on household Food Stamp benefits depending on the deductions from gross income available to a household. Under the FSP in Summer 1987, net income was calculated as:

$$NI = GI - NSD - XSD$$

where NI is net income, GI is gross income, NSD is all non-shelter deductions (i.e., the standard deduction, earned income deduction, medical expenses deduction, and dependent care expenses deduction), and XSD is the excess shelter expenses deduction. The BRR will vary across different household types as a result of the excess shelter expenses deduction, which is calculated as:

$$XSD = \text{Reported Shelter Expenses} - .5 \times (GI - NSD).$$

Substituting this formula into the net income calculation, we get

$$NI = 1.5 \times (GI - NSD) - \text{Reported Shelter Expenses}.$$

With the defined BRR of 0.30 on net income, the effective BRR on unearned income (and gross income) for nonelderly households with excess shelter expenses less than the maximum (or cap) and for elderly households with positive excess shelter expenses is  $.30 \times 1.50 = .45$ . For those households with an excess shelter deduction equal to zero, or at the cap, the effective BRR will be  $0.30 \times 1.00 = 0.30$ , as



$$NI = GI - NSD - \begin{cases} \text{Maximum for the combined deduction} \\ \text{for households at the cap} \\ \$0 \text{ for households at zero} \end{cases}$$

Households that receive zero net income or that receive the minimum benefit issuance of \$10 because they are one- or two-person households will have a benefit reduction rate of zero.

Thus, there are six groups of households to consider when calculating effective BRRs. The first four groups are households with excess shelter expense deductions that are:

1. equal to zero;
2. less than the maximum (cap) on the deduction;
3. equal to the cap on the deduction; or
4. greater than the cap on the deduction.

The other two groups are:

5. households with zero net income; and
6. one- or two-person households receiving the minimum benefit of \$10.

TABLE A.1

## EFFECTIVE BENEFIT REDUCTION RATES FOR SELECTED CATEGORIES OF FSP HOUSEHOLDS

Household Characteristic	Tax Rate	All FSP Households			FSP Households with AFDC			FSP Households with SSI		
		Number of Households	Percent of Households	Weighted Tax Rate	Number of Households	Percent of Households	Weighted Tax Rate	Number of Households	Percent of Households	Weighted Tax Rate
Minimum Benefit	0.000	613,835	0.089	0.000	17,628	0.006	0.000	371,549	0.260	0.000
Zero Net Income	0.000	1,221,144	0.177	0.000	188,518	0.067	0.000	42,881	0.030	0.000
Value of Excess Shelter Deduction:										
None	0.300	1,333,195	0.194	0.058	762,992	0.272	0.082	243,557	0.170	0.051
Less Than Cap	0.450	2,179,956	0.317	0.143	1,000,182	0.356	0.160	538,086	0.376	0.169
Equal to Cap	0.300	1,221,894	0.178	0.053	799,878	0.285	0.086	2,048	0.001	0.000
Greater Than Cap	0.450	310,644	0.045	0.020	36,370	0.013	0.006	232,851	0.163	0.073
TOTAL		6,880,668	1.000	0.274	2,805,568	1.000	0.333	1,430,972	1.000	0.294
Unweighted Total		10,474			4,175			2,146		

Table A.1 (continued)

Household Characteristic	Tax Rate	FSP Households with Social Security			FSP Households with UI			FSP Households with AFDC and SSI		
		Number of Households	Percent of Households	Weighted Tax Rate	Number of Households	Percent of Households	Weighted Tax Rate	Number of Households	Percent of Households	Weighted Tax Rate
Minimum Benefit	0.000	431,076	0.306	0.000	5,505	0.046	0.000	5,450	0.024	0.000
Zero Net Income	0.000	59,496	0.042	0.000	14,729	0.123	0.000	464	0.002	0.000
Value of Excess Shelter Deduction:										
None	0.300	210,400	0.149	0.045	27,912	0.233	0.070	130,119	0.565	0.169
Less Than Cap	0.450	483,409	0.343	0.154	41,237	0.344	0.155	64,937	0.282	0.127
Equal to Cap	0.300	56,518	0.040	0.012	30,637	0.255	0.077	0	0.000	0.000
Greater Than Cap	0.450	168,479	0.120	0.054	0	0.000	0.000	29,336	0.127	0.057
TOTAL		1,409,378	1.000	0.265	120,020	1.000	0.301	230,306	1.000	0.354
Unweighted Total		2,284			222			338		

Table A.1 (continued)

Household Characteristic	Tax Rate	FSP Households with AFDC and Social Security			FSP Households with AFDC and UI			FSP Households with SSI and Social Security		
		Number of Households	Percent of Households	Weighted Tax Rate	Number of Households	Percent of Households	Weighted Tax Rate	Number of Households	Percent of Households	Weighted Tax Rate
Minimum Benefit	0.000	1,691	0.012	0.000	0	0.000	0.000	225,138	0.315	0.000
Zero Net Income	0.000	2,897	0.021	0.000	1,535	0.061	0.000	18,266	0.026	0.000
Value of Excess Shelter Deduction:										
None	0.300	65,491	0.483	0.145	9,924	0.395	0.119	96,165	0.135	0.040
Less Than Cap	0.450	45,580	0.336	0.151	8,025	0.320	0.144	270,713	0.379	0.170
Equal to Cap	0.300	17,672	0.130	0.039	5,616	0.224	0.067	1,495	0.002	0.001
Greater Than Cap	0.450	2,394	0.018	0.008	0	0.000	0.000	102,901	0.144	0.065
TOTAL		135,725	1.000	0.343	25,100	1.000	0.330	714,678	1.000	0.276
Unweighted Total		211			36			1,111		

SOURCE: Summer 1987 Food Stamp Quality Control sample.

**APPENDIX B**

**SUPPLEMENTAL TABLES**

APPENDIX TABLE B.1

DISTRIBUTION OF PROGRAM BENEFITS ACROSS HOUSEHOLD GROUPS FOR VARIOUS ASSISTANCE PROGRAMS  
(Weighted Proportions)

Households which Participate	Aid to Families with Dependent Children	Social Security	Supplemental Security Income	Unemployment Insurance	Food Stamp Program
All Households	1.000	1.000	1.000	1.000	1.000
Food Stamp Households	.866	.036	.382	.079	--
Households which Participate in Food Stamps and:					
Aid to Families with Dependent Children	--	.003	.047	.010	.480
Social Security	.042	--	.134	.018	.130
Supplemental Security Income	.040	.013	--	.003	.107
Unemployment Insurance	.012	.001	.003	--	.035

SOURCE: April 1987 Extract from Wave 8 1985 SIPP file.

NOTE: See Table B.2 for the unweighted program participation numbers.

APPENDIX TABLE B.2

NUMBER OF HOUSEHOLDS PARTICIPATING IN  
VARIOUS ASSISTANCE PROGRAMS  
(Unweighted)

Household Group	Aid to Families with Dependent Children	Social Security	Supplemental Security Income	Unemployment Insurance	Food Stamp Program
All Households	280	3,044	392	263	661
Food Stamp Households	234	184	146	21	---
Households which Participate in Food Stamps and:					
Aid to Families with Dependent Children	--	18	15	4	234
Social Security	18	--	82	5	184
Supplemental Security Income	15	82	--	1	146
Unemployment Insurance	4	5	1	--	21

SOURCE: April 1987 Extract from Wave 8 1985 SIPP file.