

ECONOMIC EFFECTS OF THE U.S. FOOD STAMP PROGRAM: CALENDAR YEAR 1972 AND FISCAL YEAR 1974. By Paul E. Nelson, Jr. and John Perrin, National Economic Analysis Division, Economic Research Service. Agricultural Economic Report No. 331.

ABSTRACT

The U.S. Department of Commerce 1967 input-output model was adjusted and used to determine the economic impact of expenditures of bonus stamps by food stamp households for calendar year 1972 and fiscal year 1974. In addition, the impact under the bonus stamp provision was compared with the alternative of giving participants an equal amount of cash. Economic impact was measured in terms of changes in business receipts, gross national product, and jobs. In each example, the amount required to fund bonus stamps or the cash grant was obtained by increasing the Federal personal income taxes of taxpayers and reducing their expenditures by an equivalent amount prior to the transfer of bonus stamps or cash to participants. For this reason, the results obtained represent net impact.

KEYWORDS: Business receipts; Gross national product; Cash; Food Stamp Program; Bonus stamps; Input-output analysis.

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SUMMARY

The net economic impact of the Food Stamp Program in calendar year 1972 and in fiscal year 1974 is computed on the assumption that Federal personal income taxes were increased by the amount needed to fund bonus stamps. For the analysis, the disposable income and expenditures of nonparticipant households are reduced by the amount of the income transfer, and the income and expenditures of households receiving food stamps are increased by the same amount. For calendar 1972, the amount of this income transfer is \$1,980 million, and for fiscal 1974, it is \$2,718 million.

The economic effects are measured in terms of changes in business receipts among industry sectors, gross national product, and number of jobs. The impact of the Food Stamp Program is compared with what would have occurred had there been no program, where the money to finance the bonus stamps would have stayed with the nonparticipant households and would have been spent by them. Another comparison looks at the impact of the bonus stamp approach versus the possible impact of giving participants cash instead of bonus stamps.

Because of differences in the way food stamp recipients spend money as compared with higher income consumers, the analysis shows that total business receipts increased more with the Food Stamp Program than they would have without it. For 1972, business receipts were almost \$.9 billion more with the Food Stamp Program, and for fiscal 1974, they were \$1.2 billion more. Gross national product was \$311.4 million more under the Food Stamp Program in 1972, and \$426.9 million more in 1974.

For the food manufacturing sectors, business receipts were higher by \$589 million in 1972 and by \$809 million in 1974 under the Food Stamp Program. For the agriculture, forestry, and fisheries sector, they were \$297 million greater in 1972 and \$408 million greater in 1974. For the retail and wholesale trade sectors combined, the increases were \$417 million in 1972 and \$710 million in 1974.

Other sectors did not fare as well. For 1972, for example, business receipts of the nonfood manufacturing sectors were \$205 million lower under the Food Stamp Program than they would have been without it. For 1974, they were \$281 million lower.

When the option of giving participants cash instead of bonus stamps was compared with the alternative of no program, total business receipts would have been larger--by \$204 million in 1972 and by \$280 million in 1974--under the cash-out option. Increases under the bonus stamp system, however, would have been larger than those under the cash-out alternative--by \$668 million in 1972 and by \$916 million in 1974.

The industry sectors that had larger increases in business receipts under the Food Stamp Program than they would have had without it also generated more jobs than they would have otherwise. Of course, the reverse was true for the sectors whose business receipts would have risen more without the Food Stamp Program. Even so, the magnitude of the increases by sectors whose business receipts were greater under the program more than offset the lesser gains by the other sectors. In total, under the Food Stamp Program there were 55,802 new jobs added in 1972 and 76,561 more in 1974. With food stamps there were 35,472 more jobs added than if cash had been used. For 1974, the corresponding figure was 48,670.

ECONOMIC EFFECTS OF THE U.S. FOOD STAMP PROGRAM

Calendar Year 1972 and Fiscal Year 1974

by
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INTRODUCTION

The U.S. Department of Agriculture initiated the original Food Stamp Program during the late spring of 1939 in Rochester, New York. Its purpose was "to raise farm income, and at the same time to improve the dietary standards of low income consumers...." (2, p. 1).^{2/}

The original program ceased its operations during World War II, and for more than a decade thereafter the Department relied upon direct distribution of food to meet these same objectives. In May 1961, the present program was started. It continues the basic purpose of the original program, although more emphasis has been given to the goal of improved diets for the participants.

Table 1 reports the growth of the Food Stamp Program and the slackening of the commodity distribution activity. Much of the expansion of the Food Stamp program has been associated with the transfer of participants from commodity distribution to food stamps.

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^{2/} Underscored numbers in parentheses refer to references listed at the end of this report.

Table 1--Growth of national food programs, fiscal years 1960-75

Fiscal year	Food Stamp Program		Food distribution program	
	Annual average participation	Value of bonus coupons	Needy persons	Cost
	Number	\$1,000	Number	\$1,000
1960.....	0	0	4,380,910	59,410
1961 <u>1/</u>	49,640	381	6,487,514	139,988
1962.....	142,817	13,153	7,942,536	226,910
1963.....	225,602	18,640	7,075,340	204,391
1964.....	366,816	28,644	6,156,488	197,144
1965.....	424,652	32,505	6,093,164	226,883
1966.....	864,344	64,813	5,168,792	134,060
1967.....	1,447,105	105,505	3,738,873	101,053
1968.....	2,211,474	173,142	4,135,829	124,016
1969.....	2,878,113	228,819	3,919,743	224,939
1970.....	4,340,030	549,664	4,798,393	289,423
1971.....	9,367,980	1,522,749	4,423,294	321,197
1972.....	11,109,074	1,797,286	3,965,477	311,508
1973.....	12,165,682	2,131,405	3,339,319	254,705
1974.....	12,861,526	2,718,296	2,647,767	204,505
1975 <u>2/</u>	17,063,224	4,381,389	939,686	55,713

1/ The first post-World War II Federal Food Stamp Program was initiated May 29, 1961. The Commodity Food Distribution participation reported here includes only needy persons. School lunch; the women's, infant's, and children's program; and institutional distribution are excluded.

2/ Preliminary.

Source: U.S. Department of Agriculture, Food and Nutrition Service, Program Reporting Staff.

Programs of the magnitude reported since 1971 perceptibly affect the resource distribution of our economy. Because of them, the final demand for the products and services of some sectors has increased by an amount greater than would have occurred without the programs. For other sectors, output has been less than it would have been without the program.

In addition, the administrative arrangements of specific programs also affect program impact. For example, the Food Stamp Program's requirement that participants buy stamps which are valid only for the purchase of food means that participant expenditure patterns are different with the use of stamps than they would be if the participants had been given cash.

This report compares the economic effects of the transfer of stipulated amounts of income from taxpayers to Food Stamp Program participants, where stamps are used, with a simulation of what would have taken place if cash had been used in place of stamps. The comparisons are made with results obtained from an input-output analysis. Prior to the application of the input-output model, the Federal taxes of the nonparticipant household sector were increased and this sector's disposable income decreased by an amount equal to the value of the bonus stamps issued in calendar 1972 and in fiscal 1974.

The input-output technique is particularly suited for measuring changes in business receipts and gross national product associated with changes in the final demand for each economic sector's goods and services. Because the input-output technique implicitly assumes perfect flexibility of supply, its measure of change in real additional demand is accurate to the extent that supply flexibility provided the required additional goods and services. To the extent that flexibility of supply failed to fulfill the needs of the increased final demand, the measures of increased business receipts and gross national product incorporate an output illusion, i.e., reported figures would exaggerate reality.

An adjusted version of the U.S. Department of Commerce's input-output model was used for the analysis. Because that model is composed of 1967 technical coefficients, this report most accurately shows what would have happened to the U.S. economy in 1967 if the tax increase to fund the bonus stamps injected into the economy in calendar 1972 and fiscal 1974 had taken place at that time. In 1967, personal income received by farmers from farm sources was lower than that received in either 1966 or 1968 (5, p. 26). Farm prices for food were relatively stable between 1966 and 1967 but were higher in 1968 (5, p. 26). Wholesale prices for farm products and processed foods were lower in 1967 than in 1966 or 1968 (5, p. 27). Corporate profits for all industries were higher in 1966 and 1968 than in 1967 (5, p. 7). The rate of unemployment for all workers was stable at 3.8 percent in 1966 and 1967, but dropped to 3.6 percent in 1968 (7, p. 279). These economic facts support the idea that the U.S. economy in 1967 had the supply flexibility to meet the required additional demand generated by the income transfer.

While results obtained with the 1967 coefficients appear to incorporate little if any price inflation for 1967, what of other years? Most important for interpreting these results are calendar year 1972 and fiscal year 1974.^{3/} Of secondary interest is the extent to which these findings carry forward to 1976.

With respect to 1972 and 1974, tables 2 and 3 show that 10 sectors' business receipts increased more with the Food Stamp program than they would have

^{3/} The initial comparison was conducted on a 1972 calendar year basis because most of the sector data were for that year and conversion problems were minimized. Once the model was consistently structured, the increments used to compare changes related to the size of increment could be either fiscal or calendar year, and fiscal 1974 data were the most recent available.

without it.^{4/} For 14 sectors, business receipts were lower than they would have been without the program. These differences among sectors suggest some labor force flexibility, since the sectors losing business receipts would not have been competing for the resources sought by the sectors stimulated by the program. Countervailing forces seem to be interacting. However, these forces need not balance, and it is worth estimating the maximum thrust toward inflation conceivably contributed by the Food Stamp Program. If the extreme possibility of a perfectly inelastic supply curve is assumed (that is, one perpendicular to the X axis), the injection of bonus stamps would have contributed 0.03 percent to inflation in 1972 and 1974, as measured in terms of a change in the gross national product. At the other extreme, if a perfectly elastic supply curve is assumed, the change in the rate of unemployment would have been 0.06 percent. The former figure was derived by dividing the change in gross national product associated with the Food Stamp Program in 1972 and 1974 by the total gross national product in each year. The latter statistic was computed by taking the difference between the unemployment rate when the number of new jobs generated by the program was included, and then excluded, from the total number employed.

Additional evidence that the use of the 1967 Commerce model and its 1967 technical coefficients provides a reasonable proxy of what the findings would have been if updated models for calendar 1972 and fiscal 1974 had been available is presented in a technical appendix to this report.^{5/} In essence, the evidence shows that the basic technological and organizational structures of the U.S. economy did not change fundamentally between 1967 and 1974. Comparisons of coefficients of direct and indirect effects were correlated for the relevant time periods, and the correlations showed changes to have been less than 5 percent.

But are these results relevant for 1976? Here, the situation is less determinant. With respect to providing absolute estimates of changes in business receipts, new jobs, and growth in gross national product, the results are

^{4/} Program impacts typically are measured in terms of current dollars. This report is no exception. Of course, if deflated dollars had been adopted, results would have been different. For example, if the current bonus stamp dollars had been deflated by the Consumer Price Index (1972 = 125.3) prior to their injection, and the resulting increments in output by sector had then been reflatd by appropriate sector indices--for instance, the Wholesale Price Index for the farm products section of sector 1 was 122.4 in 1972 (7, p. 305) --the magnitude of the increments by sector, and in aggregate, would have been altered.

^{5/} Single copies of the technical appendix will be sent upon written request to the National Economic Analysis Division, Economic Research Service, U.S. Department of Agriculture, Room 260, 500 12th Street, S.W., Washington, D.C. 20250. The appendix details the adjustments made to the U.S. Department of Commerce model--for example, the development of two households sector--and the data series and references used. The evidence that there were no fundamental technological or organizational changes in the economic structure between 1967 and 1972-74 is also discussed.

not as accurate. The "energy crunch" must have affected technology, and thus the technical coefficients. Prices have risen, even though there is no evidence of extensive, across-the-board shortages in labor and supplies. For example, the Federal Reserve Board's capacity utilization rate for 1975 and 1976 was 68.7 and 70.8, respectively (1, p. A50). This indicates some flexibility of supply to meet increased final demand. The same relationship was reflected in 1975 and 1976 (February) by the ratio of manufacturers' inventory to shipments. This ratio of weighted average inventories to average monthly shipments will be higher if there is availability of capacity for expansion, for this would show low shipments and high inventories. The rate for 1975 was 1.80, and for February 1976, it was 1.62 (7, p. 21). The unemployment rate in 1975 remained about 2 percent higher than during 1974. Thus, for 1976 the economy appears to have some supply flexibility to tap.

However, these figures represent the entire economy, and the greatest impact of the Food Stamp Program was on the agriculture, food processing, and food trade sectors. The release of the U.S. farmer to produce all he desires and can produce implies there is a potential for increased output. For 1976, total U.S. crop production is projected to increase about 2 percent above last year's record, given normal weather. Livestock production is anticipated to rise approximately 4 percent above that of 1975. Taken together, these conditions suggest that prices at the farm level may drop slightly (4).

At the food processing, wholesale and retail food trade levels, increased costs of transportation and labor likewise continue to exert an upward pressure on these sectors' costs, and hence, upon food prices charged consumers. The increased output, and slightly lowered prices at the farm level, will help mitigate the rise at the retail level, but even so, food prices are expected to rise by about 3 to 4 percent during 1976 (4).

Because of these conditions, application of the 1967 technical coefficients to 1976 data for the Food Stamp Program would not provide as precise a set of business receipts and gross national product impact figures as they did for 1967, 1972, and 1974. Nevertheless, the results of the earlier years maintain some relevance for 1976.

In terms of the comparison of program options, the relevance for 1972 and 1974 is as great as for 1967. When program options are compared, both options are treated with the identical technical coefficients. In addition, the relative difference between the results with stamps and with cash are as germane for 1976 as they are for the other years.

One capability of the input-output technique is that it can quantify the economic impact of a particular fiscal action for a specified model. Of course, once the action has taken place the structure of the model is changed. A new specification should then be made, premised on the results of the first action, to determine the results of any additional action. In this report, the primary focus is on the total economic impact of a stipulated dollar amount of bonus stamps injected into the U.S. economy. This dollar amount is

considered to represent additional demand.^{6/} The injection of bonus stamps occurs as participant households buy food from retail stores, and hence the services of the stores. The retail services include activities such as storage and procurement, but not the preparation or the value of the food itself. When purchases of its services increase, the retail sector buys additional services from the wholesale sector, whose services are analogous to those of the retail sector. The food manufacturing sectors are the last-stage processors for most food. In essence, the participant households purchase services from the retail and wholesale sectors, but buy their food from the food manufacturing sectors, which in turn buy raw materials, containers, labor, and so forth from other sectors. In the case of a fresh food, where farm-level wholesalers buy directly from the field, this analysis treats the farm-level wholesalers as it does other wholesalers. The agriculture, forestry, and fisheries sector, however, serves as the last-stage processor in this instance.

The increase in total output of the economy resulting from the initial added expenditures of participant households includes the "ripple effects" as well as the direct purchase impact. However, there is also an "induced effect." The "induced effect" consists of the expenditure of new income created as a result of the direct and indirect effects. That is, because output to meet added demand results in new jobs, people who were unemployed prior to the initial injection of bonus stamp expenditures may now be employed. These people could come from households that may: (1) be newly formed; that is, they may be entering the labor market for the first time; (2) have re-entered from the pool of unemployed households; or (3) be some combination of these.^{7/} It is assumed that the new income of such households is spent in the same proportions to their total net income as was determined for households with the same income levels.

Tables 2 and 3 present the increased business receipts (output) and gross national product generated during calendar 1972 and fiscal 1974 by the injection of \$1,980 million and \$2,718 million, respectively, of bonus stamp expenditures.

^{6/} When an economy has "slack," this represents real additional demand. When the economy is experiencing a vigorous inflation characterized by "tight resources," this additional demand incorporates price increases which do not represent "real additional demand." Hence, the "additional demand" concept is not identical under slack and tight resource conditions. Any input-output analysis implicitly assumes all additional demand is real. See the discussion of "flexibility of supply" given above for additional comment relevant to this point.

^{7/} As new jobs are created, they will be shared by both participant and nonparticipant household sectors. The input-output technique did not identify the share of jobs going to each of the household sectors because employment numbers by household sector are unavailable. In addition, even those with new jobs could remain in the program provided they continued to meet the program's eligibility requirements. Thus, without additional data it is impossible to ascertain what numbers of participating households will leave the program because they have obtained one of the newly created jobs.

The first column of the tables indicates the net economic impact of the Food Stamp Program on specified sectors of the economy. In interpreting these figures, the reader should note that bonus stamp expenditures were treated as 55 percent being spent for food, and 45 percent being spent for nonfood items.^{8/} This assumption provides the basis for identifying the extent to which business receipts and household income increments are associated with a change in the expenditure pattern (structure), rather than with a change in new demand. It also helps explain differences found between the use of stamps and the use of cash for the same size of income transfer.

THE FOOD STAMP PROGRAM'S ECONOMIC EFFECT

Business Receipts and Gross National Product

For the total economy, tables 2 and 3 indicate the net changes in business receipts and gross national product generated by the Food Stamp Program in calendar year 1972 and fiscal year 1974.

Total business receipts and gross national product both increased by larger amounts than would have occurred without the Food Stamp Program. Business receipts for the 2 years rose about \$.9 billion and \$1.2 billion more than if there had been no program. Gross national product grew by \$311 million and \$427 million more, respectively, because of the program. The difference between gains in business activity and growth in gross national product show how much economic activity is required to generate associated gains in gross national product.

Tables 2 and 3 also show that while some sectors particularly benefited, others were less fortunate. Food and food related sectors were expected to benefit. In both years, the income distribution of nonparticipant households was skewed heavily to the right--above \$10,000. The income distribution for the participant households was skewed to the left--below \$5,000. This meant that the marginal propensity to consume was higher for the participant household sector than for the nonparticipant household sector. In addition, the regulations requiring participants to buy stamps valid only for food purchases encouraged purchases of food and the services related to food marketing.

^{8/} The food-nonfood distribution is based upon: Robert B. Reese, J.G. Feaster, and Gary B. Perkins, Bonus Stamps and Cash Income Supplements, Marketing Res. Rpt. 1034, Econ. Res. Serv., U.S. Dept. of Agr., Oct. 1974, and on discussions of the basic data on which the report is based. Technically even though each food stamp issued is spent for food, there is the possibility of substitution of nonfood for food purchases, if prior to participation, the household spent a higher proportion of its net income for food than the rules for participation required. For example, if a household spent 35 percent of its net income on food prior to participation, and a purchase of stamps equivalent to 25 percent of its net income was required to participate, that household could substitute up to 10 percent of its net income for nonfood purchases.

Table 2--Changes in U.S. business receipts and gross national product associated with an income transfer from taxpayers to food stamp households in the form of bonus stamps, calendar year 1972 ^{1/}

Changes in business receipts by industry sector ^{2/}	Change in gross national product
\$1,000	\$1,000
Agriculture, forestry, and fisheries.....	Participant household sector:
Mining.....	Bonus stamps received.....
Construction.....	Plus income from new jobs.....
Manufacturing:	Minus increase in savings and taxes.....
Food manufacturing--	Equals change in consumption expenditures....
Meat and poultry products.....	
Dairy products.....	Nonparticipant household sector:
Grain mill products.....	Income from new jobs.....
Bakery products.....	Plus decrease in savings and taxes.....
Canned and preserved foods.....	Minus tax to fund stamps.....
Other foods and beverages.....	Equals change in consumption expenditures....
Total.....	
Nonfood manufacturing--	
Clothing.....	
Other nonfood manufacturing.....	
Total.....	
Total manufacturing.....	
Local and suburban transportation.....	
All other transportation.....	
Communications.....	
Gas, electric, water, and sanitary utilities.....	
Wholesale trade.....	
Retail trade.....	
Finance, insurance, and real estate.....	
Personal services.....	
Physicians and dentists.....	
Hospitals and laboratory services.....	
Education (private).....	
Other sectors ^{3/}	
Total change in business receipts.....	

^{1/} The nonparticipant household sector was taxed \$1.980 billion to fund bonus stamps. The expenditure of the bonus stamps was treated as an increase in final demand of this amount. Meeting this increase in final demand required additional economic activity. This increase in economic activity resulted in a contribution to gross national product of \$311,393,000.

^{2/} As a result of the injection of bonus stamps, the final demand for the products and services of some sectors rose more than it would have without the program. Agriculture, forestry, and fisheries, for instance, received \$297.1 million more in business receipts (output) than it would have without the program. For other sectors, output was less than it would have been without the program. For example, mining, as a result would have received \$6.1 million more in business receipts without the program.

^{3/} Other sectors is an aggregate composed of direct and transferred imports; business travel & gifts; office supplies; Federal, State, and local government enterprises; and other services.

Table 3--Changes in U.S. business receipts and gross national product associated with an income transfer from taxpayers to food stamp households in the form of bonus stamps, fiscal year 1974 ^{1/}

Changes in business receipts by industry sector ^{2/}		Change in gross national product	
	\$1,000		\$1,000
Agriculture, forestry, and fisheries.....	+ 407,715	Participant household sector:	
Mining.....	- 8,435	Bonus stamps received.....	2,718,000
Construction.....	- 5,317	Plus income from new jobs.....	10,750
Manufacturing:		Minus increase in savings and taxes.....	<u>72,447</u>
Food manufacturing--		Equals change in consumption expenditures..	+ 2,656,303
Meat and poultry products.....	+ 287,555		
Dairy products.....	+ 102,655	Nonparticipant household sector:	
Grain mill products.....	+ 89,529	Income from new jobs.....	281,683
Bakery products.....	+ 59,181	Plus decrease in savings and taxes.....	208,780
Canned and preserved foods.....	+ 171,873	Minus tax to fund stamps.....	<u>2,718,000</u>
Other foods and beverages.....	+ 98,127	Equals change in consumption expenditures..	- 2,227,537
Total.....	+ 808,920		
Nonfood manufacturing--		Net change in combined sector	
Clothing.....	- 43,803	consumption expenditures.....	+ 428,766
Other nonfood manufacturing.....	- 237,523	Plus change in school lunch expenditures....	- <u>1,905</u>
Total.....	- 281,326	Equals change in gross national product.....	+ 426,861
Total manufacturing.....	+ 527,594		
Local and suburban transportation.....	- 3,566		
All other transportation.....	- 5,449		
Communications.....	- 15,327		
Gas, electric, water, and sanitary utilities....	- 707		
Wholesale trade.....	+ 249,145		
Retail trade.....	+ 461,343		
Finance, insurance, and real estate.....	- 211,480		
Personal services.....	- 45,728		
Physicians and dentists.....	- 36,498		
Hospitals and laboratory services.....	- 15,037		
Education (private).....	- 23,856		
Other sectors ^{3/}	- <u>77,850</u>		
Total change in business receipts.....	+ 1,196,547		

^{1/} The nonparticipant household sector was taxed \$2.718 billion to fund bonus stamps. The expenditure of the bonus stamps was treated as an increase in final demand of this amount. Meeting this increase in final demand required additional economic activity. This increase in economic activity resulted in a contribution to gross national product of \$426,861,000.

^{2/} As a result of the injection of bonus stamps, the final demand for the products and services of some sectors rose more than it would have without the program. Agriculture, forestry, and fisheries, for instance, received \$407.7 million more in business receipts (output) than it would have without the program. For other sectors, output was less than it would have been without the program. For example, mining, as a result would have received \$8.4 million more in business receipts without the program.

^{3/} Other sectors is an aggregate composed of direct and transferred imports; business travel & gifts; office supplies; Federal, State, and local government enterprises; and other services.

Business receipts of the agriculture, forestry, and fisheries sector increased \$297 million more than they would have without the Food Stamp Program in calendar 1972, and \$408 million more in fiscal 1974. For the food manufacturing sector, the increases were \$589 million and \$809 million more, respectively. Corresponding business receipt increases for the wholesale trade sector were \$181 million more in 1972 and \$249 million more in 1974; and for the retail trade sector, the increases were \$336 million and \$461 million more. Much of the increased gain for the wholesale and retail trade sectors was probably contributed by the wholesale and retail food trade components, but the amount cannot be precisely determined because the Commerce model does not disaggregate its sectors to that level.^{9/}

Of the food manufacturing sectors, the meat and poultry, canned and preserved foods, and dairy products sectors gained more than did the grain mill and bakery products sectors. When the dairy products sector is added to the meat and poultry products sector, these "protein" sectors together accounted for 48 percent of the total increase in food manufacturing business receipts in both years.

Sectors whose business receipts were less than they would have been without the Food Stamp Program, and the associated income transfer by means of increased taxes, were primarily service sectors. Since the elasticities of demand for services are greater than corresponding elasticities for food, for both participant and nonparticipant households, the results are consistent with theoretical expectations. An analogous difference in demand elasticities for food versus nonfood manufacturing products also explains why clothing and other nonfood manufacturing sectors had total output which was less than it would have been without the program.

More specifically, the nonfood manufacturing sectors' business receipts (output) were \$205 million smaller in 1972 and \$281 million smaller in 1974 than they would have been without the program. Services other than the wholesale and retail trades had business receipts which were \$260 million and \$358 million lower than they would have been without the program. Among the service sectors, finance, insurance, and real estate had the greatest drop in size of output.

Number of Jobs Generated

Increased business receipts (output) are associated with an increase in the number of jobs needed to meet the increase in final demand. This means that sectors which have increases in business receipts have more jobs, and the

^{9/} Prior to making the analysis of the impact on the U.S. economy, a corresponding analysis was made for the economy of Texas, using a model developed by that State. The Texas model was disaggregated to include a wholesale grocery and related products sector and a retail food store sector. In the Texas results, these sectors gained more business receipts with the program than they would have without it.

greater the increase in receipts the greater the number of jobs. The business receipts data presented above report the amount by which a sector's business receipts either were greater or less because of the Food Stamp Program. Thus, the jobs reported here are the number of jobs by which the sector's job total would be greater or less because of the program. The number of job changes reported for the entire economy represents the algebraic sum of the amounts by which the sector changes in job numbers were greater or less because of the program.^{10/} For these years, the algebraic sum was positive. In 1972, the increase in the total number of jobs was 55,802 more with the program than without it, and in 1974, the increase was 76,561 more (table 4).

The agriculture, forestry, and fisheries; food manufacturing; and retail and wholesale trade sectors together added 78,516 new jobs in 1972, and 107,788 in 1974, more than they would have added without the program. The service sectors and nonfood manufacturing sectors, in contrast, together had fewer jobs--22,464 and 30,888 in the 2 respective years--than they would have had without the program.

CASH-OUT OPTION

The present Food Stamp Program requires participant households to buy bonus stamps and to use all stamps to purchase food (see footnote 8). Under the cash-out option, the equivalent dollar amount of bonus stamps would be given directly to participant households. These households would not be required to supply any of their own funds or guarantee that they would spend the funds they receive upon food.

Thus, the primary difference between the cash-out and bonus stamp alternatives is that the amount of expenditures forced through the food sectors would differ. Of course, the total allocation of resources among sectors likewise would be affected. That is, under the cash-out alternative the consumption function of the participant households would be the determinant of how much of the grant was channeled through nonfood sectors and which sectors would receive the greatest amount of the nonfood purchases. This relaxation of the restraint that food must be purchased with the transfer amounts to what we call a structural change. In the appendix, we have shown that without any change in final demand, the change in structure affects the total business receipts and household income received.

^{10/} The coefficient representing business receipts (output) per employee was derived sector by sector by dividing the number of employees within a sector into that sector's base period (1967) output. This yielded output per employee in terms of 1967 technology. Thus, when the increments in output resulting from specified fund injections were estimated for each sector, the number of jobs could likewise be derived by dividing the increment in the sector's output by that sector's coefficient of output per employee.

Table 4--Net changes in job numbers resulting from the increase in business receipts associated with bonus stamp expenditures, calendar 1972 and fiscal 1974

Sector	Net job changes	
	1972	1974
	<u>Number of jobs</u>	
Agriculture, forestry, and fisheries.....	+ 23,648	+ 32,453
Mining.....	- 132	- 182
Construction.....	- 114	- 157
Manufacturing:		
Food manufacturing--		
Meat and poultry products.....	+ 2,955	+ 4,057
Dairy products.....	+ 1,368	+ 1,877
Grain mill products.....	+ 755	+ 1,036
Bakery products.....	+ 1,652	+ 2,267
Canned and preserved foods.....	+ 3,044	+ 4,178
Other foods and beverages.....	+ 1,077	+ 1,477
Total.....	+ 10,851	+ 14,892
Nonfood manufacturing--		
Clothing.....	- 3,236	- 4,448
Other nonfood manufacturing.....	- 5,576	- 7,666
Total.....	- 8,812	- 12,114
Total manufacturing.....	+ 2,039	+ 2,778
Local and suburban transportation.....	- 207	- 285
All other transportation.....	- 128	- 177
Communications.....	- 481	- 662
Gas, electric, water, and sanitary utilities..	0	0
Wholesale trade.....	+ 8,346	+ 11,463
Retail trade.....	+ 35,671	+ 48,980
Finance, insurance, and real estate.....	- 3,090	- 4,248
Personal services.....	- 4,974	- 6,832
Physicians and dentists.....	- 900	- 1,237
Hospitals and laboratory services.....	- 1,387	- 1,910
Education (private).....	- 499	- 685
School lunch.....	- 15	- 21
Other sectors <u>1/</u>	- <u>1,975</u>	- <u>2,717</u>
Total number of new jobs.....	+ 55,802	+ 76,561

1/ Other sectors is an aggregate composed of direct and transferred imports; business travel and gifts; office supplies; Federal, State, and local government enterprises; and other services.

Business Receipts and Gross National Product

Tables 5 and 6 report changes in business receipts and gross national product generated by the cash-out option as opposed to no Food Stamp Program. For calendar 1972, the cash transfer of \$1,980 million results in an increase in business receipts that is \$204 million more than without a program. For fiscal 1974, with a cash transfer of \$2,718 million, the increase is \$280 million more. Gross national product for the 2 years likewise rises by \$120 million and \$165 million.

Under the cash-out option, as under the stamps, some sectors--the food and related products sectors, for instance--gain more than without the program. The reverse is true for other sectors, such as the nonfood manufacturing and the service sectors.

The gains by the food and related products sectors reflect the higher price and income elasticities of these sectors with respect to the participant household sector, as discussed earlier. The structural data presented in the technical appendix also show that the constraint imposed by the purchase and use of food stamps accounts for the difference between the business receipt increases under stamps and the corresponding increases under the cash-out option. For example, the increase in business receipts for the meat and poultry products sector in 1972 with the use of stamps is \$209,505,000. With the use of cash, it is \$30,674,000. Thus, with the use of stamps, the increase in business receipts is \$178,831,000 more than under the cash-out option.

When only the structural constraint (see footnote 8) is imposed (with no change made in final demand or in the amount of the income transfer), the increase in business receipts for this sector in 1972 also is \$178,831,000 more than without the constraint.^{11/} This shows how the expenditures constraint implicit in the use of stamps affects participant expenditure patterns.

Hence, with income transfers of identical amounts, the transfer using stamps stimulates the food and related sectors more than the transfer using the cash-out option. As a result under the stamps alternative, total business receipts for these sectors in calendar 1972 increase by \$668 million more than under the cash-out option. The corresponding figure for fiscal 1974 is \$916 million more. Gross national product in the 2 years increases by \$192 million and \$262 million more under the stamps.

Number of Jobs Generated

Once again, job numbers are linked directly to the size of increments in a particular sector's business receipts. The sectors gaining the most under the cash-out option, as compared with the alternative of no Food Stamp Program, are agriculture, forestry, and fisheries (7,268 more jobs in 1972 and 9,976

^{11/} Of course, such a structural constraint can be maintained only if there is a mechanism for enforcement, such as the requirement that participants buy stamps to get bonus stamps.

Table 5--Changes in U.S. business receipts and gross national product associated with an income transfer from taxpayers to food stamp households in the form of cash, calendar year 1972 1/

Changes in business receipts by industry sector <u>2/</u>		Change in gross national product	
	\$1,000		\$1,000
Agriculture, forestry, and fisheries.....	+ 91,314	Participant household sector:	
Mining.....	+ 5,146	Cash transfer received.....	1,980,000
Construction.....	+ 6,107	Plus income from new jobs.....	11,776
Manufacturing:		Minus increase in savings and taxes.....	148,414
Food manufacturing--		Equals change in consumption expenditures..	+ 1,843,362
Meat and poultry products.....	+ 30,674		
Dairy products.....	+ 1,855	Nonparticipant household sector:	
Grain mill products.....	+ 11,356	Income from new jobs.....	71,218
Bakery products.....	+ 194	Plus decrease in savings and taxes.....	182,277
Canned and preserved foods.....	+ 27,245	Minus tax increase to fund transfer.....	1,980,000
Other foods and beverages.....	- 44,196	Equals change in consumption expenditures..	- 1,726,505
Total.....	+ 27,128		
Nonfood manufacturing--		Net change in combined sector	
Clothing.....	+ 23,334	consumption expenditures.....	116,857
Other nonfood manufacturing.....	- 95,656	Plus change in school lunch expenditures.....	2,907
Total.....	- 72,322	Equals change in gross national product.....	+ 119,764
Total manufacturing.....	- 45,194		
Local and suburban transportation.....	+ 6,605		
All other transportation.....	- 20,654		
Communications.....	+ 5,199		
Gas, electric, water, and sanitary utilities.....	+ 73,720		
Wholesale trade.....	- 37,569		
Retail trade.....	+ 117,796		
Finance, insurance, and real estate.....	+ 55,261		
Personal services.....	- 23,249		
Physicians and dentists.....	+ 349		
Hospitals and laboratory services.....	+ 41,755		
Education (private).....	- 11,390		
Other sectors <u>3/</u>	- 60,706		
Total change in business receipts.....	+ 204,490		

1/ The nonparticipant household sector was taxed \$1.980 billion to fund the cash transfer. The expenditure of the cash transfer was treated as an increase in final demand of this amount. Meeting this increase in final demand required additional economic activity. This increase in economic activity resulted in a contribution to gross national product of \$119,764,000.

2/ As a result of the injection of bonus stamps, the final demand for the products and services of some sectors rose more than it would have without the program. Agriculture, forestry, and fisheries, for instance, received \$91.3 million more in business receipts (output) than it would have without the program. For other sectors, output was less than it would have been without the program. For example, wholesale trade, as a result would have received \$37.6 more in business receipts without the program.

3/ Other sectors is an aggregate composed of direct and transferred imports; business travel & gifts; office supplies; Federal, State, and local government enterprises; and other services.

Table 6--Changes in U.S. business receipts and gross national product associated with an income transfer from taxpayers to food stamp households in the form of cash, fiscal year 1974 ^{1/}

Changes in business receipts by industry sector ^{2/}		Change in gross national product	
	\$1,000		\$1,000
Agriculture, forestry, and fisheries.....	+ 125,325	Participant household sector:	
Mining.....	+ 7,058	Cash transfer received.....	2,718,000
Construction.....	+ 8,377	Plus income from new jobs.....	16,164
Manufacturing:		Minus increase in savings and taxes.....	<u>202,744</u>
Food manufacturing--		Equals change in consumption expenditures..	+ 2,531,420
Meat and poultry products.....	+ 42,097		
Dairy products.....	+ 2,540	Nonparticipant household sector:	
Grain mill products.....	+ 15,585	Income from new jobs.....	97,601
Bakery products.....	+ 263	Plus decrease in savings and taxes.....	250,144
Canned and preserved foods.....	+ 37,396	Minus tax increase to fund transfer.....	<u>2,718,000</u>
Other foods and beverages.....	- 60,685	Equals change in consumption expenditures..	- 2,370,255
Total.....	+ 37,196		
Nonfood manufacturing--		Net change in combined sector	
Clothing.....	+ 32,022	consumption expenditures.....	+ 161,165
Other nonfood manufacturing.....	- 131,408	Plus change in school lunch expenditures.....	<u>3,989</u>
Total.....	- 99,386	Equals change in gross national product.....	+ 165,154
Local and suburban transportation.....	+ 9,066		
All other transportation.....	- 28,365		
Communications.....	+ 7,129		
Gas, electric, water, and sanitary utilities....	+ 101,184		
Wholesale trade.....	- 51,592		
Retail trade.....	+ 161,662		
Finance, insurance, and real estate.....	+ 75,794		
Personal services.....	- 31,921		
Physicians and dentists.....	+ 473		
Hospitals and laboratory services.....	+ 57,312		
Education (private).....	- 15,638		
Other sectors ^{3/}	- 83,386		
Total change in business receipts.....	+ 280,288		

^{1/} The nonparticipant household sector was taxed \$2.718 billion to fund the cash transfer. The expenditure of the cash transfer was treated as an increase in final demand of this amount. Meeting this increase in final demand required additional economic activity. This increase in economic activity resulted in a contribution to gross national product of \$165,154,000.

^{2/} As a result of the injection of bonus stamps, the final demand for the products and services of some sectors rose more than it would have without the program. Agriculture, forestry, and fisheries, for instance, received \$125.3 million more in business receipts (output) than it would have without the program. For other sectors, output was less than it would have been without the program. For example, wholesale trade, as a result would have received \$51.6 million more in business receipts without the program.

^{3/} Other sectors is an aggregate composed of direct and transferred imports; business travel & gifts; office supplies; Federal, State, and local government enterprises; and other services.

more than in 1974); retail trade (12,506 and 17,168 more, respectively); and hospitals and laboratory services (5,303 and 7,278 more).

When these sectors' gains under the cash-out option are compared with gains generated under the bonus stamps alternative (tables 4 and 7), the increase for the agriculture, forestry, and fisheries sectors was 16,380 more jobs under the stamps alternative for 1972. For 1974, there are 31,817 more jobs with the stamps than with the cash-out option. For the retail trade sector, there are 23,165 and 31,817 more jobs, respectively, than with the cash-out option. For the hospital and laboratory services sector, in contrast, the job numbers are greater under the cash-out option--by 6,690 more in 1972 and by 9,188 more in 1974. Even so, with respect to total new jobs, with the use of stamps there are 35,472 more in 1972 and 48,670 more in 1974 than under the cash-out option.

Table 7--Net changes in job numbers resulting from the increase in business receipts associated with cash transfers, calendar 1972 and fiscal 1974

Sector	Net job changes	
	1972	1974
	Number of jobs	
Agriculture, forestry, and fisheries.....	+ 7,268	+ 9,976
Mining.....	+ 111	+ 152
Construction.....	+ 180	+ 247
Manufacturing:		
Food manufacturing--		
Meat and poultry products.....	+ 433	+ 594
Dairy products.....	+ 34	+ 46
Grain mill products.....	+ 131	+ 180
Bakery products.....	+ 7	+ 10
Canned and preserved foods.....	+ 662	+ 909
Other foods and beverages.....	- 665	- 914
Total.....	+ 602	+ 825
Nonfood manufacturing--		
Clothing.....	+ 2,369	+ 3,252
Other nonfood manufacturing.....	- 3,087	- 4,241
Total.....	- 718	- 989
Total manufacturing.....	- 116	- 164
Local and suburban transportation.....	+ 528	+ 725
All other transportation.....	- 672	- 923
Communications.....	+ 225	+ 308
Gas, electric, water, and sanitary utilities..	+ 1,208	+ 1,659
Wholesale trade.....	- 1,729	- 2,374
Retail trade.....	+ 12,506	+ 17,163
Finance, insurance, and real estate.....	+ 1,110	+ 1,523
Personal services.....	- 3,474	- 4,769
Physicians and dentists.....	+ 12	+ 16
Hospitals and laboratory services.....	+ 5,303	+ 7,278
Education (private).....	- 327	- 449
School lunch.....	+ 32	+ 44
Other sectors <u>1/</u>	- <u>1,835</u>	- <u>2,521</u>
Total number of new jobs.....	+ 20,330	+ 27,891

1/ Other sectors is an aggregate composed of direct and transferred imports; business travel and gifts; office supplies; Federal, State, and local government enterprises; and other services.

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