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# GOVERNMENT POLICY IN SUPPORT OF DOMESTIC AGRICULTURE: COSTS AND BENEFITS

## The United States

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Federal budget outlays for agricultural programs in the United States encompass not only traditional direct allocations to producers, but also include a number of programs which have a more indirect effect on producers. Economists and others have devoted considerable attention toward measuring the impact of direct budget outlays, such as commodity support programs, on farm income stabilization. Yet few studies incorporate the full range of program expenditures, such as school lunch and food stamps, which indirectly increase demand for food stuffs, thereby raising total farm income.

As Cochrane and Ryan have observed:

Although it is widely agreed, and has long been held, that the fundamental goal of farm policy is to maintain a prosperous, productive farm sector with a family-farm type of organization, differences arise--important differences--with regard to the means for achieving that broad policy goal. Should equitable farm incomes and family-farm structure be obtained solely through the marketplace or through direct government assistance, or by some combination of the two? [1, p. 21]

The policy response has varied considerably over the years in response to the economic situation in agriculture as well as prevailing political and social attitudes.

It is our purpose to trace the development of Federal agricultural programs and their associated budget outlays in the post-World War II period (1950-82). We begin with a brief chronological discussion of the economic and policy setting within which these outlays have been made. The following is an analysis of U.S. agricultural program outlay data along with perspectives on the meaning and limitations of those data.

### Economic and Policy Setting

Although examples of Government intervention in agriculture can be traced to the colonial period, programs implemented as a result of the Great Depression and the advent of World War II characterize much of agricultural policy as it exists today.

Federal budget outlays for agricultural programs mirror the economic situation faced by farmers, particularly for those programs providing direct benefits. Policy has occasionally anticipated farmers' needs and more often responded once those needs have been expressed. On this basis, it is useful to view the post-World War II era in three component periods: from 1950 to 1964 when high price supports and tremendous technological innovation prevailed, from passage of the Food and Agriculture Act of 1965 to 1972, and from passage of the Agriculture and Consumer Protection Act of 1973 to 1982. Each of these periods is reasonably well characterized by a unique set of economic circumstances and a definable policy response.

**The 1950-64 Period:** With guaranteed, high price supports, U.S. agriculture emerged from World War II operating at full capacity as a result of increased war demand. These high price supports enacted during and immediately following the war years continued well into the fifties.

The fifties were characterized by rapid advances in technological innovation that encouraged agricultural production. Productivity increased from an index value of 100 in 1950 to 128 in 1960. At the same time, exports suffered, due at least in part to high domestic price supports that tended to make U.S. farm products less competitive in world markets.

An early policy response to our agricultural export imbalance was the enactment of the Agricultural Trade Development and Assistance Act (PL-480) in 1954 in an effort to stimulate world demand for surplus U.S. farm products. As these crop surpluses grew after World War II, the United States responded to worldwide food needs and aided foreign economic development, while also reducing burdensome domestic stocks. PL-480 grew to include approximately a quarter of all agricultural program outlays through the late sixties (see table 1 and fig. 1). Expenditures for PL-480 were sometimes half or more as large as outlays for farm income stabilization and price support through 1967. Crediting the entire PL-480 outlay as a transfer to U.S. farmers, of course, depends upon the international welfare benefits of the program. However, Cochrane and Ryan [1, p. 301] suggest that not more than half of the PL-480 outlay should be considered a benefit to U.S. farmers.

There was an attempt during the fifties to reduce or make more flexible prevailing price supports. Market prices for grains held at a relatively high level by Federal loan rates, caused exports to be less than competitive. Although efforts to reduce loan rates were modestly successful, rapid gains in productivity outweighed reduced incentives to produce under the programs. Government stocks escalated as did their associated carrying costs (table 1).

In an effort to reduce crop acreage in production and conserve fragile soil, a Soil Bank Program was begun in 1956. It provided for both an annual land rental and a long-term land retirement arrangement. Outlays for this program quickly rose to the \$700-\$800 million level in 1958 and 1959, then declined slowly through the sixties as the program received less emphasis (table 1).

A brief unsuccessful attempt was made to impose mandatory production controls in 1961. This was followed by a movement toward more voluntary programs with the possibility of payments for idled acreage. Of greater significance, however, was the lowering of price supports to world market levels with the difference between the old support level and the new being made up to farmers through a direct payment. As a result markets were given a chance to clear, thereby reducing the likelihood of the Government accumulating stocks.

Income pressures were felt most acutely by many inefficient small and medium-sized farms. Farm numbers in this period declined by well over half. Resources, however, tended to stay in agriculture, as the larger, more efficient producers acquired the assets, particularly land, of outgoing farmers.

Table 1--Net Federal budget outlays for agricultural related functions, fiscal years, 1950 to 1982

Function	Fiscal Year											
	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	
Million dollars												
Agriculture and agricultural resources												
Farm income and price supports												
Price support and related programs	1,606	-781	-70	1,831	1,333	3,327	3,554	2,684	987	2,775	1,480	
Federal crop insurance	7	4	7	5	11	12	10					
International wheat agreement	76	180	5/	131	59	5/	92	5/	6/	48	66	
Sugar act	60	69	60	63	66	70	65	5/	70	67	74	
Wool act	--	--	--	--	--	--	2	5/	57	20	93	
Transfer of commodities to stockpile	--	--	--	--	--	--	--	--	--	--	192	
Removal of surplus agricultural commodities	96	46	38	82	178	59	179	171	125	141	90	
Agricultural adjustment programs	--	21	10	13	41	40	39	121	--	--	--	
Agriculture and emergency credit	--	--	--	--	--	--	--	--	--	--	--	
Other	--	--	--	--	--	--	--	--	219	381	50	
Subtotal	1,845	-461	45	2,125	1,688	3,508	3,941	2,976	1,458	3,432	2,045	
Research and marketing services												
Research and extension	163	149	143	145	150	177	215	227	255	291	293	
Consumer protection, marketing, regulation	3/	3/	3/	3/	3/	3/	3/	3/	3/	3/	3/	
Other	--	--	--	--	--	--	--	--	--	--	--	
Agricultural credit												
Financing farm ownership 1/	4/	185	92	-83	-74	56	43	-28	-3	5	-3	
Financing farm operation	146	156	167	177	191	169	185	245	242	246	249	
Rural electric and telephone 2/	294	276	244	239	217	204	217	267	297	315	330	
Other	--	-1	13	16	139	10	3	10	--	--	--	
Agricultural land and water conservation												
Conservation and use	275	284	274	251	183	212	222	249	233	246	237	
SCS and watersheds	61	62	67	66	61	74	83	89	102	125	131	
Conservation reserve	--	--	--	--	--	--	4	548	733	848	324	
Other	--	--	--	--	--	--	--	--	--	--	--	
Offsetting receipts	--	--	--	--	--	--	--	--	--	--	--	

Footnotes located at end of table.

Continued

Table 1--Net Federal budget outlays for agricultural related functions, fiscal years, 1950 to 1982--Continued

Function	Fiscal Year										
	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960
	Million dollars										
Total agriculture and resources	2,784	650	1,045	2,936	2,555	4,410	4,913	4,583	3,317	5,508	3,606
Other programs											
Natural resources management											
Land management	10	7	10	14	15	16	20	24	29	33	35
Forest resources	75	79	95	107	117	118	138	162	174	201	220
Water resources	298	295	249	231	199	163	163	171	226	246	209
Rural development											
Farm/rural housing	12	26	22	19	--	--	1	--	--	43	-25
Rural development Other	--	--	--	--	--	--	--	--	--	--	--
Nutrition programs											
School lunch and other child nutrition programs	83	83	84	83	84	83	83	99	167	218	234
Food stamps	--	--	--	--	--	--	--	--	--	--	--
International commodity assistance											
Total other programs	478	490	460	454	489	471	499	643	1,815	1,876	2,012
Total all agricultural programs	3,262	1,140	1,505	3,390	3,044	4,881	5,412	5,226	5,132	7,384	5,618
Total Federal budget	40,156	44,633	66,145	73,982	67,772	64,570	66,540	69,433	71,936	80,697	76,539

Footnotes located at end of table.

Continued

Table 1--Net Federal budget outlays for agricultural related functions, fiscal years, 1950 to 1982--continued

Function	Fiscal Year											
	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	
	Million dollars											
Agriculture and agricultural resources												
Farm income and price supports												
Price support and related programs	1,331	2,051	2,857	3,175	2,646	1,345	1,652	3,167	4,114	3,777	2,822	
Federal crop insurance												
International wheat agreement	76	90	74	126	35							
Sugar act	72	80	77	87	92	88	82	84	87	93	86	
Wool act	61	65	63	73	23	38	35	72	68	56	75	
Transfer of commodities to stockpile	201	1983	100	38	41	26						
Removal of surplus agricultural commodities												
Agricultural adjustment programs	203	201	112	250	273	118	145	175	415	450	402	
Agriculture and emergency credit												
Other	39	67	102	108	126	152	8/157	8/227	8/174	8/182	8/172	
Subtotal	1,983	2,747	3,385	3,847	3,236	1,767	2,071	3,725	4,811	4,471	3,575	
Research and marketing services												
Research and extension	324	341	391	414	457	503	8/570	8/618	8/437	8/489	8/543	
Consumer protection, marketing, regulation	3/	3/	3/	3/	3/	3/	3/	3/	8/152	8/181	8/206	
Other									8/56	8/60	8/65	
Agricultural credit												
Financing farm ownership 1/	-3	-6	4	-9	-17	-7	-21					
Financing farm operation	353	240	296	259	285	168	8/11	8/295	9/			
Rural electric and telephone 2/	301	303	342	342	392	373	12	303	314	338	390	
Other												
Agricultural land and water conservation												
Conservation and use	251	260	219	213	213	208	216	209	294	180	167	
SCS and watersheds	146	157	182	193	195	211	8/219	8/216	8/218	8/245	8/256	
Conservation reserve	363	344	309	297	203	159	196	109	189	118	77	
Other		0	3	3	24	30	26	28	8/32	8/34	8/41	
Offsetting receipts							-37	-42	-85	-41	-42	

Footnotes located at end of table.

Continued

Table 1--Net Federal budget outlays for agricultural related functions, fiscal years, 1950 to 1982--continued

Function	Fiscal Year										
	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971
	Million dollars										
Total agriculture and resources	3,718	4,395	5,131	5,559	4,988	3,412	3,263	5,561	6,318	6,075	5,278
Other programs											
Natural resources management											
Land management	41	44	50	57	65	77	8/	8/151	8/170	8/199	8/188
Forest resources	262	281	303	332	374	406	8/482	8/487	8/473	8/556	8/649
Water resources	266	332	344	339	328	367	8/300	8/293	8/288	8/263	8/319
Rural development											
Farm/rural housing	--	--	--	--	--	--	--	--	13	132	-182
Rural development	--	--	--	--	--	--	--	--	28	25	26
Other	--	--	--	--	--	--	--	--	8/-37	8/84	8/94
Nutrition programs											
School lunch and other child nutrition programs	241	261	263	278	362	517	522	505	587	383	611
Food stamps	--	14	20	68	7/	7/	7/	7/	7/	577	1,568
International commodity assistance	1,654	1,726	2,040	1,704	1,641	1,784	1,452	1,204	975	937	918
Total other programs	2,464	2,658	3,020	2,778	2,770	3,151	2,843	2,640	2,497	3,156	4,191
Total all agricultural programs	6,182	7,053	8,151	8,337	7,758	6,563	6,106	8,201	8,815	9,231	9,469
Total Federal budget	81,515	87,787	92,642	97,684	96,507	106,978	10/158,254	178,833	184,548	196,588	211,425
Agriculture and agricultural resources											
Farm income and price supports											

Footnotes located at end of table.

Continued

Table 1—Net Federal budget outlays for agricultural related functions, fiscal years, 1950 to 1982—continued

Function	Fiscal Year													
	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	14/		
	Million dollars													
Price support and related programs	3,983	3,555	1,004	575	1,014	3,809	5,623	3,572	2,717	4,036	15/11,651			
Federal crop insurance	--	--	-2	30	15	91	57	-8	38	1	212			
International wheat agreement	--	--	--	--	--	--	--	--	--	--	--			
Sugar act	86	87	83	77	10	--	--	--	--	--	--			
Wool act	117	74	8	19	45	5/	5/	5/	5/	5/	5/			
Transfer of commodities to stockpile	--	--	--	--	--	--	--	--	--	--	--			
Removal of surplus agricultural commodities	593	740	--	--	--	--	--	--	--	--	--			
Agricultural adjustment programs	--	--	--	--	--	--	--	--	--	--	--			
Agriculture and emergency credit	8/131	8/162	94	-133	296	393	653	1,017	478	-228	405			
Other	8/170	8/170	8/225	8/176	155	191	254	269	226	184	81			
Subtotal	5,080	4,788	1,412	744	1,535	4,484	6,587	4,850	3,459	3,993	12,349			
Research and marketing services	500	471	589	548	570	655	708	797	834	925	977			
Research and extension	297	380	216	240	256	287	257	294	332	369	414			
Consumer protection, marketing, regulation	8/119	8/103	8/119	8/135	8/144	161	219	304	297	324	281			
Other	--	--	--	--	--	--	--	--	--	--	--			
Agricultural credit	467	529	11/	11/	11/	11/	11/	11/	11/	11/	11/			
Financing farm ownership 1/	--	--	--	--	--	--	--	--	--	--	--			
Financing farm operation	--	--	--	--	--	--	--	--	--	--	--			
Rural electric and telephone 2/	--	--	--	--	--	--	--	--	--	--	--			
Other	--	--	--	--	--	--	--	--	--	--	--			
Agricultural land and water conservation	158	188	8/247	447	13/432	13/468	13/582	13/559	13/548	13/597	13/572			
Conservation and use	8/281	8/274	12/	12/	12/	12/	12/	12/	12/	12/	12/			
SCS and watersheds	67	52	47	41	37	--	--	--	--	--	--			
Conservation reserve	8/40	8/19	--	--	--	--	--	--	--	--	--			
Other	--	--	--	--	--	--	--	--	--	--	--			
Offsetting receipts	-230	-185	-53	-48	-41	-62	-39	-7	-161	-40	-80			
Total agriculture and resources	6,879	6,619	2,477	2,107	2,933	5,993	8,314	6,797	5,309	6,168	14,512			
Other programs	--	--	--	--	--	--	--	--	--	--	--			

Footnotes located at end of page

Continued



Table 1--Net Federal budget outlays for agricultural related functions, fiscal years, 1950 to 1982--continued

Function	Fiscal Year												
	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	14/	
Million dollars													
Natural resources management													
Land management	8/211	8/226	140	207	13/231	13/367	13/355	13/395	13/456	13/492	13/489		
Forest resources	8/681	8/723	719	870	13/916	13/1,109	13/1,275	13/1,536	13/1,798	13/1,920	13/1,968		
Water resources	8/360	8/447	8/412	8/2,098	8/730	8/976	8/884	8/983	8/1,048	8/1,038	8/1,093		
Rural development													
Farm/rural housing	170	-227	1,296	-892	7	100	449	184	1,719	-129	1,095		
Rural development	35	-181	315	4	313	465	13/516	13/669	13/798	13/839	13/1,066		
Other	8/102	8/104	--	8	11	--	--	--	--	--	--		
Nutrition programs													
School lunch and other child nutrition programs	716	693	1,588	2,044	2,327	3,129	3,427	3,965	4,898	4,949	15/3,359		
Food stamps	1,909	2,208	2,845	4,599	5,632	5,539	5,499	6,822	9,117	11,253	15/11,331		
International commodity assistance	993	754	639	936	691	850	808	976	1,073	1,254	1,141		
Total other programs	5,177	4,747	7,954	9,874	10,858	12,535	13,213	15,530	19,834	21,616	21,542		
Total all agricultural programs	12,056	11,366	10,431	11,981	13,791	18,528	19,800	22,327	23,293	25,609	33,891		
Total Federal budget	231,021	247,074	269,620	326,151	366,418	402,710	450,804	490,997	476,675	657,204	725,531		

NA=Not Available.

1/ Includes only the administrative and other actual Government cost of the Farm Credit Administration (FCA). FCA open market funds are not in the budget.

2/ Loan collections are not reflected since such funds revert directly to the U.S. Treasury.

3/ Included in "research and extension."

4/ Included in "financing farm operation."

5/ Included in "price support and related programs."

6/ Included in "other" under farm income stabilization.

7/ Included in "school lunch and other child nutrition programs."

8/ Included trust funds.

9/ "Financing farm operation" broken into two parts--"agriculture and emergency credit" and "regional development."

10/ Budget figures prior to 1967 were for an administrative budget which did not include trust funds. Budget figures starting in 1967 are for an unified budget which includes trust funds.

11/ Included in "rural development."

Figure 1  
**Agricultural Program Outlays, 1950-59**

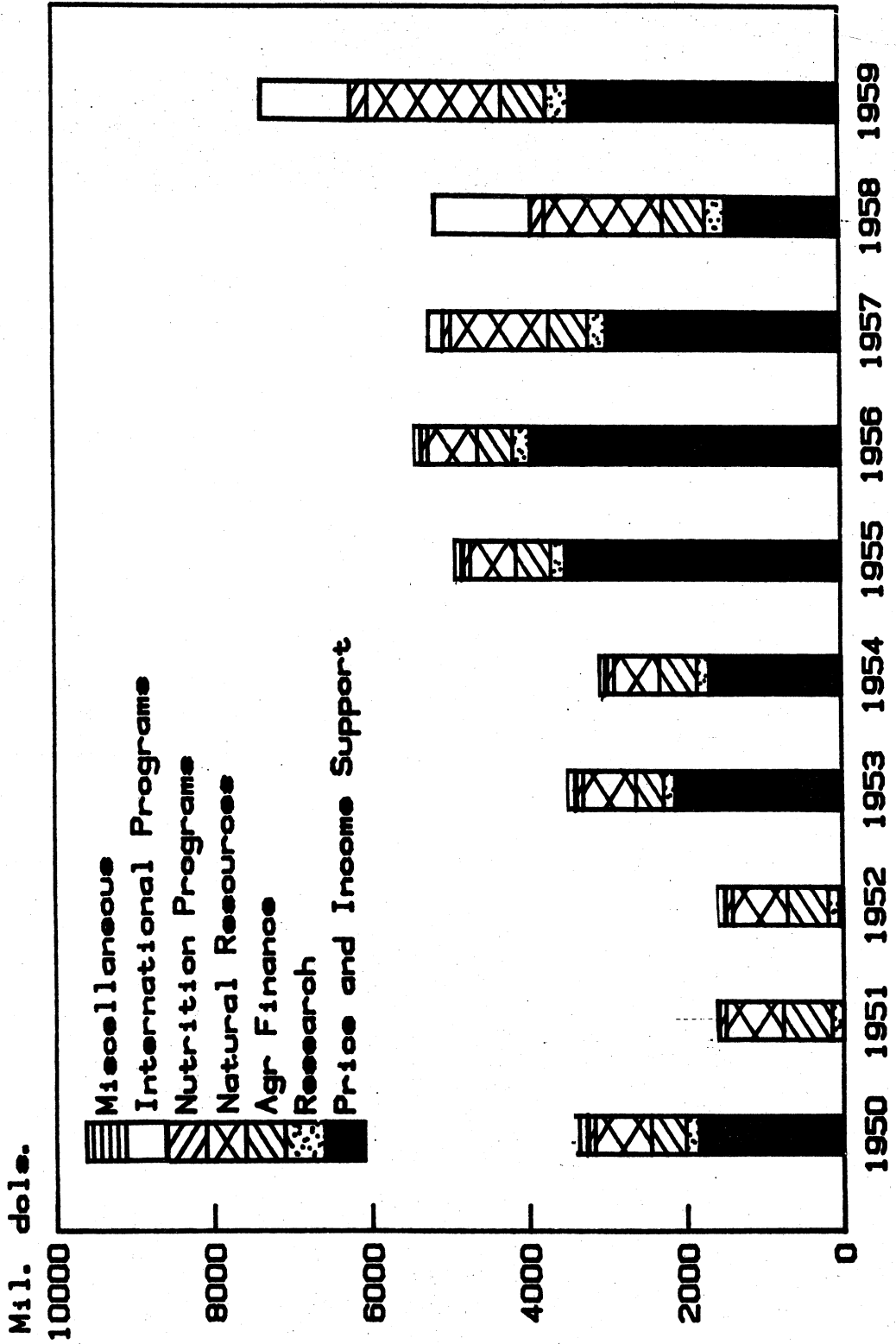


Figure 1--Continued  
**Agricultural Program Outlays, 1960-69**

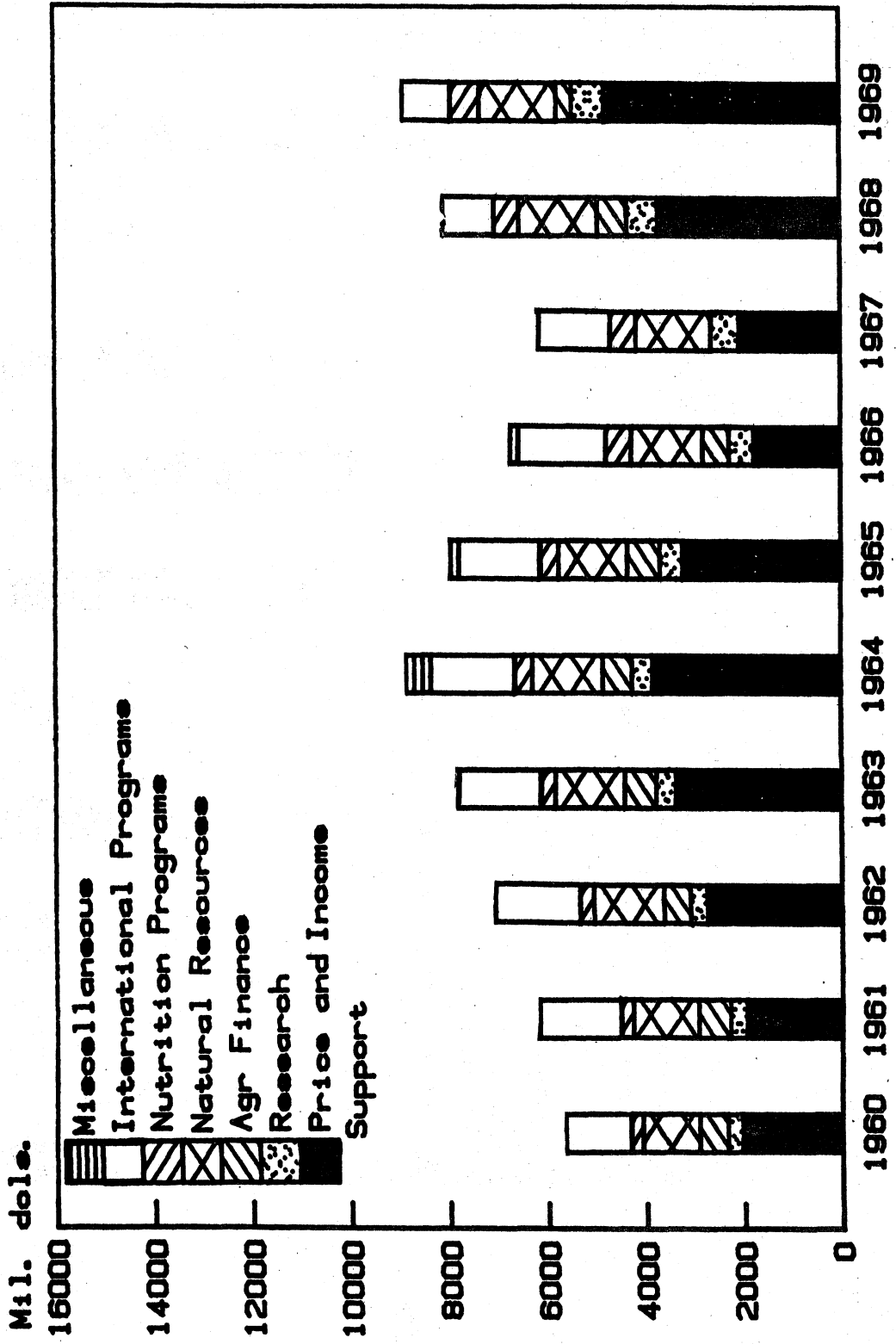
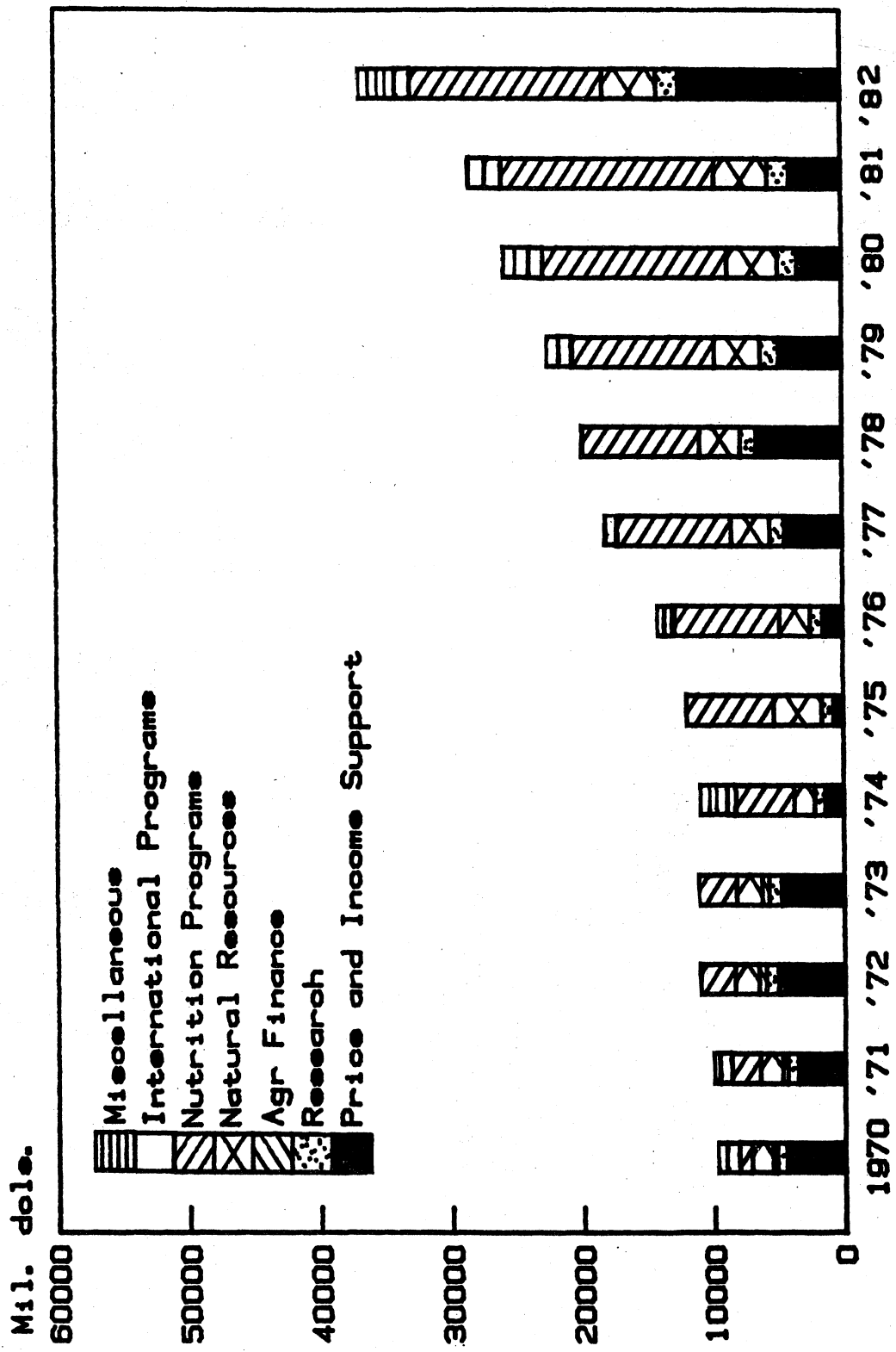


Figure 1--Continued  
 Agricultural Program Outlays, 1970-82



The 1965-72 Period: This period marks a transitional phase for U.S. agriculture. Legislation enacted during this period operated on both the demand for and supply of farm products. The Food and Agriculture Act of 1965 offered commodity price support at or near world price levels to protect farmers from unexpected short-term declines in prices; income support above equilibrium levels by making direct payments to producers who participated in acreage control programs; and control of production through voluntary programs, with the authority to offer diversion payments when necessary.

The Food Stamp Act (passed in 1964) signaled a major increase in program outlays intended to increase the domestic demand for farm products. Expenditures started off modestly, but increased significantly by the early seventies. PL-480 was reauthorized, and along with the Food Stamp and School Lunch Programs, began a transition from a program for the disposal of food surpluses to an instrument of economic aid.

The Agricultural Act of 1970 suspended marketing quotas, acreage allotments, and base acreages for wheat, cotton, and feedgrains. Instead, a more generalized set-aside concept was employed where a farmer had only to place some amount of base acreage in a conserving use. The farmer was then free to produce any amount of crop not otherwise subject to restriction. This provided greater flexibility to farmers and took at least one step away from restrictive and often inequitable acreage allotments. In addition, a limit of \$50,000 was placed on the amount of Government payment a wheat, cotton, or feedgrain farmer could receive.

The 1973-82 Period: While economic conditions varied substantially, the passage of the Agriculture and Consumer Protection Act of 1973 preserved in large measure the policies enacted in 1965 and 1970. It retained the basic loan program while formalizing the direct payment concept via the target price and deficiency payment. The 1973 Act also continued the set-aside approach to production control but made provision, too, for tighter controls on an individual commodity basis. The payment limit was continued but at the reduced level of \$20,000 per farmer.

It was during the early seventies that U.S. agricultural exports grew tremendously. Exports increased from \$7 billion in 1970 to over \$40 billion in 1981. Export growth in 1973 and 1978-79 was accompanied by significantly rising prices. U.S. export sales, assisted by the Commodity Credit Corporation (CCC), amounted to less than \$1 billion in 1973, dipped to around \$250 million in 1974, and rose fairly steadily to some \$1.5-\$2.0 billion in the late seventies and early eighties. Carryover stocks dropped to low levels. Because of the market situation, agricultural program outlays for income stabilization and price support declined dramatically over the years 1974-76.

Toward the end of the decade, significant increases in production, encouraged by the export demand of world markets, generated supplies of wheat and feedgrains at a rate faster than utilization could handle. The result was accumulating stocks and downward pressure on prices. Deficiency payments were made to rice growers in 1976 and sorghum, barley, and wheat producers in 1977. Government outlays increased dramatically in 1977 from the market growth years of 1974-76.

In 1977, major farm legislation was passed by the Congress. It indexed changes in the target price to cost of production for wheat, feedgrains, rice, and

cotton. By moving away from an equivalent feeding value for the minor feedgrains, an unstable support arrangement was introduced. More importantly, however, the passage of the 1977 Act introduced the farmer-owned grain reserve for wheat, feedgrains, and rice. In implementing the reserve, its buffer stock and price support objectives tended to get mixed. Still, the reserve did provide an extended loan arrangement for farmers and gave rise to Government outlays beginning in 1978. Because of the drought in 1980, program expenditures moderated somewhat. However, since then, they have escalated sharply, nearly tripling as a result of weak demand and record supplies.

Currently, program features of the Agriculture and Food Act of 1981, include retention of the farmer-owned reserve, implemented in the 1977 Act, with the elimination of the call price except in emergency situations. Target prices and loan rates are mandated by the 1981 Act, although the Secretary is given considerable discretion in making adjustments (although peanuts are adjusted by a cost of production formula).

#### Program Outlays Overview 1/

U.S. agricultural program outlays reflect actions undertaken by the Federal Government to influence the supply of and demand for agricultural commodities, farm product prices, and farmers' incomes. In addition, they also involve spending for rural infrastructure, research and education programs, and health and nutrition activities. While some expenditures are targeted directly at farmers, a significant proportion are of a less direct and less immediate nature.

We have chosen to group agricultural program outlays according to eight program categories. These include:

- o Farm income support and price stabilization,
- o Research and marketing services,
- o Agricultural credit,
- o Agricultural land and water conservation,
- o Other natural resource management,
- o Rural development,
- o Nutrition programs, and
- o International commodity assistance.

The first four categories relate most directly to production agriculture. Even here, the benefits of the research and marketing services category and the agricultural land and water conservation category are less direct or at least accrue over an extended period. Natural resource programs are of benefit to farmers and many others, while the rural development programs relating to rural infrastructure are shared by many rural residents. Nutrition programs and international commodity assistance involve demand enhancement, which benefits the farmer, while at the same time meets other domestic and foreign policy goals that extend far beyond the farmgate.

Total Outlays of Agricultural Programs. Total program outlays include expenditures in each of the eight categories plus offsetting receipts. As can

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1/ Cost data included in this paper cover the period 1950-82. They are reported on a fiscal year basis, corresponding loosely with crop years. A detailed listing of outlays by category is provided in table 1.

be seen in table 1, total outlays have ranged from \$3.3 billion in 1951 to ten times that amount or \$33.9 billion in 1982. The composition of these outlays has changed markedly over the years and, importantly, only a portion of these can be viewed as direct Government support of farmers.

Farm income support and price stabilization. Outlays in this program category represent actions intended to most directly benefit farmers. The level of outlays ranged from no net outlays in 1951 (due to loan repayments) to an estimated \$12.3 billion in 1982 (table 1). Among the specific activities undertaken by the Federal Government to stabilize income and support prices have been: price support loans and direct payments, Federal crop insurance, expenditures made in support of the International Wheat Agreement (until 1965) and the wool and sugar programs, the removal of surplus commodities (primarily Section 32 purchases), and agriculture and emergency credit (including FmHA disaster and economic emergency loans).

Research and Marketing Services. Activities in this category fall into three areas. First, there have been outlays for marketing activities (Agricultural Marketing Service). Second, health and safety inspections are provided at various points in the production, processing and marketing chain. Finally, a variety of research and statistical and economic intelligence functions are undertaken. Expenditures in this general category have ranged from \$143 million in 1952 to \$1.7 billion in 1982 (table 1).

Agricultural Credit. These outlays include a mix of farm credit programs (table 1). Farm Credit Administration overhead for farm ownership loans is included, until this was moved off-budget in the late sixties. Farm operation loans cover all FmHA lending through 1969; thereafter, separate accounting of agriculture and emergency credit loans and rural development loans were made. Rural electric and telephone program outlays were shifted in part to rural development and to an off-budget status in the early seventies.

Agricultural Land and Water Conservation. Program expenditures here belong in three categories: agricultural conservation payments, including loans made by the CCC; SCS expenditures for planning and engineering; and conservation reserve (that is, land retirement) payments to farmers. In general, outlays before 1957 amounted to \$200 to \$300 million annually. With the introduction of the Conservation Reserve in 1957, outlays rose to \$850 million dollars in 1959 and then slowly declined through the mid-seventies (table 1).

Natural Resource Management. A related, yet distinct category of outlays involves programs targeted to natural resources but less directly related to agriculture. These include the land management programs (mainly Bureau of Land Management), forest resource activities (Forest Service), and water resource programs (Department of the Interior and USDA). The latter set of water resource outlays has involved some amount of irrigation development. Although these programs might not usually be attributed to agriculture, farmers realize some indirect benefit from the flood protection and reclamation activities they represent. Of course, others receive benefits as well so it is not entirely appropriate to assign the full outlay in this category to farmers. Outlays for the natural resources category have grown steadily from \$300--\$400 million annually in the fifties to over \$3 billion in 1982 (table 1).

Rural Development. Expenditures in this category have been sporadic over time. This reflects, at least in part, the shifting of programs between

budget categories and the movement of certain activities off-budget. Included in this category are FmHA loans for housing and a variety of FmHA loan programs for rural facilities and services (table 1). Farm credit is accounted separately so outlays in this category provide only indirect benefits to farmers (for example, rural community sewer and water systems). Funds are not provided under this category for infrastructure related to farm production or marketing (for example, roads).

Nutrition Programs. Several nutrition assistance programs were initiated in the post-World War II years. Best known is the Food Stamp Program but also important have been the School Lunch (actually begun in 1946), Special Milk, Summer Feeding, and Women, Infants, and Children (WIC) Programs. These all started out modestly, with less than \$100 million spent annually through most of the fifties, with an increase in 1965 due to the introduction of the Food Stamp Program, and then significant increases over the seventies (table 1).

International Commodity Assistance. International food assistance and concessional sales under PL-480 were begun in 1954. By 1958 net outlays had grown to over \$1 billion each year and continued at quite high levels until dropping back during the seventies (table 1).

#### Interpretations and Limitations of Data

Federal budget outlays for agriculture can be analyzed in terms of a variety of policy-related questions: How efficient and effective are the outlays in terms of achieving the intended objectives? What are the ultimate consequences of the outlays? To what extent do the outlays represent transfers from the rest of society to agriculture? Does the distribution of ultimate benefits from these outlays suggest that they are progressive or regressive? To what extent do the outlays affect production and marketing costs, efficiency of production, and the competitive position of U.S. agriculture in world markets? The last question is of interest to those studying trade and how international markets for agricultural products are affected by domestic farm and food policies.

It would be useful to sort out the extent to which Federal budget outlays directly or indirectly subsidize U.S. exports and thus affect the competitive position of the United States, vis-a-vis other exporters of agricultural products. However, that analysis is beyond the scope of this paper. Hopefully, the data developed for table 1 will serve to stimulate that further interpretive work.

What Federal budget outlays should be charged to agriculture? Direct farm program expenditures are easy to categorize. As pointed out earlier, programs such as the Food Stamp and related nutrition programs have dual purposes. And, while they stimulate consumption of agricultural products, that is no longer their primary purpose. To illustrate the point, should general welfare programs (Aid to Dependent Children, for example), which certainly stimulate consumption of food, be treated differently from Food Stamp outlays? For that matter, how do these differ from general fiscal and monetary policies which may stimulate employment, income, and trade, hence demand for agricultural products? Federal programs which underwrite development of waterways, roads, and airports, which service transportation of agricultural products, also constitute indirect assistance to the farm sector. These examples merely illustrate the difficulty of measuring with any precision the extent of assistance provided to agriculture by Federal programs and budget outlays.



The same difficulty arises in measuring assistance to other sectors of the U.S. economy as well as assistance provided to agriculture in other nations by their respective governments. The matter is complicated by further direct and indirect assistance provided by State and local governments. Thus, until further methodological and empirical work is done, attempts to compare assistance to agriculture among national governments are likely to result in crude approximations at best.

Net outlays for all Federal agricultural related programs rose from the \$1-\$3 billion range in the early fifties, to the \$10-\$12 billion range in the early seventies, past the \$20 billion range in 1979, and surpassed \$30 billion in 1982, only 3 years later. The outlays dipped to a postwar low of \$1.1 billion in 1951, but, as a percent of all Federal budget outlays, the low point came in 1952 (2.3 percent). The outlays rose to 7.6 percent of the Federal budget in 1955 and hovered in the 7 to 9 percent range until 1965. Thereafter they declined to the 3 to 5 percent range where they remained through 1982.

The total outlays for all agricultural related programs mask the large changes that have taken place in the relative mix of program outlays. The most dramatic change has been the increase in the relative importance of nutrition programs. These were insignificant in the fifties and sixties, first exceeded \$1 billion in 1971, and represented more than half of all agricultural program outlays by 1975. Moreover, the growth in outlays for nutrition programs was persistent from 1970 through 1981.

In contrast to the nutrition program outlays, costs of the traditional farm commodity programs (table 1) have been highly erratic and generally declined in importance relative to total agricultural program outlays. In 1951, net support program outlays were actually negative as repayments exceeded gross outlays.

The farm income support and price stabilization programs, combined with research and marketing services, agricultural credit, and conservation programs, account for the bulk of Federal outlays directly in support of agriculture. Outlays for "other programs" are indirectly supportive of agriculture (especially the domestic nutrition programs and the PL-480 food aid programs), but, as suggested earlier, so are many other Federal policies and programs not carried under the "agriculture" rubric. Such indirect assistance to agriculture also increases the difficulty of comparing levels of assistance to agriculture among countries.

Outlays in the "other programs" group (table 1) could be adjusted to reflect the fact that not all the benefits of these outlays flow to farmers. For example, some analysts have suggested that the net addition to food demand represented by the nutrition programs may be in the 40 to 50 percent range. The effect of computing adjusted total agricultural program outlays, which include only half the nutrition program outlays, is reflected in table 2 where such adjusted outlays are shown as a percentage of total agricultural receipts. Again, such an adjustment is not conceptually complete, since persons other than farmers benefit from expenditures in all the groupings (research, for example), and farmers certainly benefit from outlays not included in table 1.

For purposes of this paper, the most pertinent outlays are those most directly attributable to agriculture. These are the outlays totaled in table 1,

particularly the farm income support and price stabilization outlays. Total agriculture and resource outlays (table 1) have ranged from a low of under \$1 billion in 1951 to a high of over \$14 billion in 1982, with outlays in most years falling in the \$2 to \$6 billion range. As a percentage of all agricultural program outlays, these direct agricultural and resource outlays have been erratic but have generally declined from more than 80 percent in the fifties to the 20-to-30 percent range after 1974 (table 2).

Farm income enhancement and price stabilization outlays (table 1) generally increased over the 1950-82 period. In the earlier years, high price supports led to production greater than market equilibrium levels. Loan forfeitures translated into Government stock holdings. Exports were promoted via PL-480 and subsidies. Land retirement schemes were employed, at considerable taxpayer expense.

In the sixties, price supports were lowered, direct income payments were initiated, and paid voluntary land diversions were tried. Government stocks were gradually worked off and exports expanded. CCC price and income support payments dropped noticeably during the mid-seventies, but rebounded sharply in the latter part of the decade as good crops outpaced the growth in demand.

The relationship between changes in farm income enhancement and price stabilization outlays and changes in the level of farm production is significant. A simple regression demonstrates the relationship:

$$C = -8358.9 + 210.5 F1 + 47.2 F2 - 186.4 F3$$

(41.7)            (23.5)            (42.7)

$$R^2 = 0.56$$

$$F = 13.9$$

( ) = standard error

where: C = change from preceding year in farm income stabilization outlays (million \$), (table 1)

F<sup>1</sup> = change from preceding year in U.S. foodgrain (rice and wheat) production (million metric tons)

F<sup>2</sup> = change from preceding year in U.S. feedgrain (corn, sorghum, barley, oats) production (million metric tons)

F<sup>3</sup> = change from preceding year in U.S. fats and oilseeds (soybeans and products) production (million metric tons)

These results suggest that, on average, a 1 million metric ton change in foodgrain production from the preceding year has been accompanied by a \$210 million increase in program outlays for farm income stabilization. Associated with a 1 million metric ton change in feedgrains output from the preceding year has been an increase in direct support to farmers of \$47 million. A 1 million metric ton change in soybean output, a substitute in production for feedgrains, has yielded a \$186 million decline in program costs.

These relationships can be converted to outlay elasticities for farm income stabilization expenditures with respect to changes in production. A 1-percent change in foodgrains output has implied a 2.85-percent change in direct

Table 2--Federal agricultural program outlay comparison, 1950-82

Year	Outlay comparisons			
	1 1/	2 2/	3 3/	4 4/
1950	0.66	0.57	0.85	0.00148
1951	-.71	-.40	.57	.00135
1952	.04	.03	.69	.00129
1953	.72	.63	.87	.00131
1954	.66	.56	.84	.00138
1955	.80	.72	.90	.00140
1956	.80	.73	.91	.00139
1957	.65	.57	.88	.00165
1958	.44	.28	.65	.00264
1959	.62	.47	.75	.00325
1960	.57	.36	.64	.00345
1961	.53	.32	.60	.00347
1962	.63	.39	.62	.00384
1963	.66	.42	.63	.00383
1964	.69	.46	.67	.00463
1965	.65	.42	.64	.00472
1966	.52	.27	.52	.00624
1967	.64	.34	.53	.00605
1968	.67	.45	.68	.00590
1969	.76	.55	.72	.00639
1970	.74	.48	.66	.00961
1971	.68	.38	.56	.02151
1972	.74	.42	.57	.02337
1973	.72	.42	.58	.02059
1974	.57	.14	.24	.02390
1975	.35	.06	.18	.03766
1976	.52	.11	.21	.04196
1977	.75	.24	.32	.04583
1978	.79	.33	.42	.04583
1979	.71	.22	.30	.04246
1980	.65	.15	.23	.05130
1981	.65	.16	.24	.05660
1982	.85	.36	.43	.04971

1/ Farm income support and price stabilization outlays as a percent of all direct outlays for agriculture.

2/ Farm income support and price stabilization outlays as a percent of total agricultural program outlays.

3/ Direct farm program outlays (farm income stabilization, research, agricultural finance, and agricultural land and water resources) as a percent of all agricultural program outlays.

4/ Adjusted total agricultural program outlays (including only half of the nutrition program outlays) as a percent of total agricultural receipts.

Government outlays (at the mean). For feedgrains, a 1-percent increase in production has been related to a 2.19-percent increase in expenditures. The oilseeds elasticity is -2.39.

Farm income enhancement and price stabilization outlays have ranged from 50 to 80 percent of total agriculture and resource outlays (table 2). Thus, these support programs have tended to consume more of the outlays directly related to agriculture than have expenditures on research and marketing, credit, and resource conservation. However, the volatility of the total is most closely associated with the entitlement nature of commodity programs and constantly changing economic conditions in the farm sector.

Budget outlays most directly associated with support for farmers (table 1) have accounted for a decreasing share of all agricultural program outlays over the 1950-82 period (table 2), a decreasing share of all Federal budget outlays, and a decreasing share of total agricultural receipts. Farm income enhancement and price stabilization outlays have averaged well under 10 cents per dollar of farm receipts since 1950 and averaged significantly lower from 1974 to 1981.

In the context of total Federal outlays, farm income enhancement and price stabilization programs absorbed from 3 to 5 cents out of every Federal budget dollar during the fifties and into the sixties. The trend has been significantly down, however, with outlays in the past decade running at a penny or so per dollar of U.S. Government outlays.

The distribution of budget outlays for agriculture should be noted. Other than commodity specific program outlays, the benefits of Federal expenditures on agricultural programs are nominally available to all farmers. The ultimate effect of how these outlays is distributed is not fully understood. As might be expected, the benefits of commodity specific program outlays tend to be distributed somewhat proportional to volume of production, subject to constraints imposed by payment limitations. Moreover, the commodity programs obviously benefit most directly the producers of those commodities for which support programs exist.

### Conclusions

The outlay data presented in this paper represent only a crude first step in the estimation of public assistance to agriculture, and especially in the comparison of such assistance across countries. More precise estimates and comparisons of assistance await further refinement of outlay data, particularly data on outlays which indirectly assist agriculture. Moreover, such analyses will have to take account of other forms of assistance, including tax policy, tariff and nontariff trade-related assistance, and health and safety regulations which provide indirect support. When comparing aid to agriculture across countries it is also important to take account of the variation in importance from country to country of the assisted commodities as a part of total agriculture. Finally, comparisons of assistance across countries has to take into account the varying roles of subnational governments (State, provincial, etc.) in providing assistance to agriculture.

Hopefully, the data presented will stimulate further analyses to address questions about comparative assistance to agriculture among countries, assistance to agriculture relative to assistance to other sectors of the U.S. economy, the cost-effectiveness of outlays in achieving program and policy objectives, and the ultimate effects of the outlays on the health of agriculture and the larger economy.