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# Excess Capacity in U.S. Agriculture

By Fred H. Tyner and Luther G. Tweeten

The commercial farm problem has been defined as an excess of farm output over utilization at "satisfactory" prices. Evidence of farm production in excess of market outlets has been apparent in declining farm commodity prices and net incomes, growing stocks of farm products, or large Government costs for price supports, production restraints, and surplus disposal. Programs such as free markets, mandatory production controls, and action to increase exports and the mobility of farm resources have been advanced as possible solutions to problems of overproduction. A definitive analysis of ameliorative measures requires first an estimate of the problematic gap—the excess capacity in agriculture. This gap, defined in terms of the difference between the existing situation and some acceptable norm, is one measure of the magnitude of the problems faced.

**E**XCESS capacity can only be defined relative to some price level. Presumably, at some set of commodity prices all farm production would be utilized in normal market channels. In this study, the magnitude of overcapacity is defined as the excess of production over utilization at socially acceptable prices. The "excess production over utilization" is regarded as the total Government diversions of commodities from regular market channels. "Socially acceptable prices" are national average farm commodity prices resulting from Government stabilization of prices through CCC, acreage removals, and export programs. This definition of socially acceptable prices is expedient for our purposes, but is somewhat arbitrary and unsatisfactory due to the imperfect political process, realignment of interest groups, and changing preference patterns.

Past estimates of the magnitude of oversupply of farm products range from 4 to 10 percent (1, 2, 5, 8, 9, 10).<sup>1</sup> Hathaway and Jones estimated that Commodity Credit Corporation activities removed as much as 8.5 percent of total farm products from market outlets in 1955 (6). Other estimates of excess capacity were obtained indirectly from

studies that were directly focused on the implications of free markets for agriculture (8). These studies assumed that some major Government programs—for exports, CCC, or Conservation Reserve—were continued, hence they did not measure total diversions. This paper is an attempt at a more comprehensive listing of the Government's role in controlling farm production and marketing from 1955 to 1962.

## Scope and Method

The primary objective of this paper is to define the magnitude of aggregate excess productive capacity in U.S. agriculture as a basis for determining adjustment needs and trends. Excess aggregate production implies an overcommitment of resources to agriculture and an oversized agricultural plant. Specification of the adjustment gap is the first step for later research relating the excess capacity to resource levels and combinations, and determining resource adjustments necessary to bring production in line with utilization. Emphasis in this study is on estimating the magnitude of the gap rather than relating it to prices; however, as a secondary objective we illustrate how much the oversupply of farm commodities would have been reduced at various price levels.

The procedure is to define the adjustment gap annually over the period 1955–62 in terms of value of production diverted from the commercial market by Government storage operations (CCC), land withdrawal programs (ASCS Soil Bank and others), and subsidized exports (P.L. 480, etc.). The sum of the value of these diversions (at current prices) for all major farm commodities is defined as aggregate excess production capacity, and the ratio of this sum to the value of total agricultural production is the adjustment gap in each particular year.

The annual adjustment gap is defined not for the calendar year, but for the fiscal, marketing, or crop year to conform with the available data. CCC and export data are by fiscal year. We weight quantities by average prices received by

<sup>1</sup> Italic numbers in parentheses refer to the Literature Cited, p. 30.

farmers during the crop marketing year.<sup>2</sup> Acreage Reserve, Conservation Reserve, and compensatory payment program diversions for year  $i$ , e.g., 1960, are used in calculations for "year" ( $i$ )—( $i+1$ ); e.g., 1960–61. Values of total farm output are specified similarly. For example, the "analysis year" 1960–61 relates to CCC stock accumulation and subsidized exports for fiscal 1961, Soil Bank diversions for 1960, marketing year prices for 1960–61, and value of total farm output for 1960.

### Government Storage Operations

A major facet of Government price support programs has been the withholding of commodities from the commercial market through storage operations. The Commodity Credit Corporation acquires its stocks of "owned" commodities through (1) acquisition of commodities pledged as collateral for price support loans, and (2) purchases from processors or handlers, or from producers by purchase agreements (12). These acquisitions less domestic disposals by CCC may be considered as surplus production, i.e., they would not enter the commercial market at acceptable prices.

Domestic dispositions are regulated by Section 407 of the Agricultural Act of 1949. They include sales for dollars, transfers to other Government agencies, donations, and payment in kind for unrestricted use. CCC diversions are calculated as acquisitions minus domestic dispositions. The value of commodities used in school lunch and welfare programs is not considered part of surplus production.

Table 1 shows the value of diversions (acquisitions less domestic dispositions) by Government storage and purchase operations for 11 major commodities for the fiscal years 1956–62. These values were calculated as the quantities diverted times the seasonal average price received by farmers for the respective commodities.<sup>3</sup> Acquisition quanti-

ties for tobacco are new loans made during the year; for lack of better data, the loan quantities are considered to be removed from the commercial market (6, p. 861). All other commodity figures represent quantities actually acquired by CCC. Ten of the commodities (tobacco loans excluded) comprised between 90 and 94 percent of the cost value of CCC acquisitions except in 1958–59 (85 percent) and 1961–62 (79 percent).

A general tendency for net diversions to decline is apparent in table 1. This trend was prompted in part by growing CCC stocks, which suggested placing greater emphasis on export and such programs as land diversions in the Soil Bank and the Emergency Feed Grain Program rather than accumulation of unneeded stocks. Net diversions declined from a high of \$2.2 billion in 1955–56 to net sales of \$0.3 billion in 1961–62. The downward trend was interrupted only by net diversions of \$1.7 billion in 1958–59, reflecting the record wheat crop in 1958.

### Land Withdrawal Programs

Acreage allotments for basic crops (wheat, corn, cotton, peanuts, rice, and tobacco) were authorized under the Agricultural Adjustment Act of 1938. These allotments have helped to control the output of the basic crops. However, excess production was not limited to these crops alone—and, without cross-compliance measures, land diverted from these crops could be used to grow other crops. These programs may have had little influence on the total volume of production (13). Hence, we only consider control programs designed to remove cropland from production.

Excess production was largely responsible for a drop in realized net income of farm operators from farming—including Government payments—of nearly a fourth in the period 1951–55 (4), resulting in the passage of the Soil Bank Act in 1956. The Soil Bank had two components, the Acreage Reserve and the Conservation Reserve. The Acreage Reserve program was in effect for tobacco, rice, cotton, wheat, and corn during 1956–58, and for peanuts during 1956 only. The Conservation Reserve program applied to any land normally used to grow crops. Farmers were allowed to make contracts of 3 to 10 years' duration from 1956–60. Cropland placed in the Soil Bank

<sup>2</sup> Weighting Government removals of all types by seasonal average prices is only an approximate procedure because (a) the quality of commodities removed by CCC storage, ASCS land withdrawal, or export subsidies may not be comparable to the quality of commodities moving in the markets, and (b) the relative prices may be a function of the type and emphasis of the particular Government program.

<sup>3</sup> Dairy products (milk equivalent) weighted by manufacturing milk prices.



TABLE 1.—*Estimated value of diversions by CCC, 11 major commodities, fiscal years, 1956-62*<sup>1</sup>

Commodity	Fiscal year						
	1955-56	1956-57	1957-58	1958-59	1959-60	1960-61	1961-62
	<i>Million dollars</i>	<i>Million dollars</i>	<i>Million dollars</i>	<i>Million dollars</i>	<i>Million dollars</i>	<i>Million dollars</i>	<i>Million dollars</i>
Wheat.....	483.1	239.2	261.6	747.3	310.0	420.1	102.1
Rice.....	55.0	<sup>2</sup> -9.2	<sup>2</sup> -23.8	33.9	20.9	10.2	<sup>2</sup> -13.9
Rye.....	12.0	3.0	7.6	5.7	.7	1.3	.1
Corn.....	255.4	311.5	391.1	181.6	168.9	155.3	<sup>2</sup> -530.2
Grain sorghum.....	78.3	8.4	262.6	230.5	71.4	126.2	25.0
Barley.....	72.3	56.2	91.3	40.2	<sup>2</sup> -.4	9.1	<sup>2</sup> -7.2
Oats.....	24.1	<sup>2</sup> -3.4	17.3	16.0	<sup>2</sup> -18.0	<sup>2</sup> -2.5	5.1
Cotton.....	952.0	905.2	244.8	348.5	640.7	<sup>2</sup> -386.6	<sup>2</sup> -64.6
Peanuts.....	8.3	16.7	3.3	20.2	7.1	12.6	<sup>2</sup> -1.8
Tobacco.....	193.7	174.1	76.4	85.5	36.0	43.1	57.7
Dairy products <sup>3</sup> .....	33.5	40.4	78.3	<sup>2</sup> -10.1	13.0	9.3	112.7
Total <sup>4</sup> .....	2,167.9	1,742.0	1,410.5	1,669.2	1,250.3	398.1	<sup>2</sup> -315.0

<sup>1</sup> Diverted quantities times seasonal average price.<sup>2</sup> Domestic dispositions exceeded acquisitions during year.<sup>3</sup> Milk equivalent of net USDA acquisitions times manufacturing milk prices.<sup>4</sup> Totals may not add due to rounding.

Sources (of quantities): *Moving Agricultural Abundance into Consumption*, Foreign Agr. Serv., July 1962; *Reports of Financial Condition and Operation of Commodity Credit Corporation*, Agr. Stabil. and Conserv. Serv.; *1963 Agricultural Outlook Chartbook*, Econ. Res. Serv., November 1962; *Dairy Situation*, Econ. Res. Serv., April 1963.

could not be harvested or grazed unless specifically authorized by the Secretary of Agriculture as a drought relief measure or under conditions of extreme market shortage.

The 1961 Emergency Feed Grain program was an effort to reduce the production of feed grains by reducing the planted acreages of corn and grain sorghum. Participation in this program is estimated to have removed the production of 19.1 million acres of corn and 6.1 million acres of grain sorghum (15).

In the absence of detailed estimates of removals by the Conservation Reserve program for 1961, quantity estimates for 1960 were used. Contracts in 1961 were about 0.1 million acres less, but the general yield level for 1961 was higher than in 1960. Also, 1960 average yields of corn and grain sorghum were used in estimating diversions under the 1961 Feed Grain program.

The probable production of major crops on acreages diverted under these programs is an additional component of the excess productive capacity in agriculture. The estimated values of these diversions (USDA estimates of production diverted under the programs times average price) are shown in table 2. Diversions totaled less than \$0.3 billion in crop year 1956, but increased sharply, with an expanded program, to \$1.2 and \$1.6 billion respectively in crop years 1957 and 1958. In crop years 1959 and 1960, diversions again

were low but increased to \$1.8 billion in 1961 due to the Emergency Feed Grain program. The commodities under the Conservation Reserve program considered in this study only comprised between 63 and 78 percent of CR *acreage* diversions. However, a sizable portion of the remainder of acres diverted was land normally devoted to hay and rotation pasture or summer fallow, idle land, and failure, so that other *crops* not considered represented only 13 to 21 percent of acres diverted under the CR. Estimates of diversions for the Acreage Reserve and Feed Grain programs include all crops coming under these programs, thus representing 100 percent of diversions for these programs.

### Subsidized Exports

Our analysis is an attempt to measure the total removals of surplus commodities from commercial markets rather than to compare the relative importance of storage, land withdrawal, and export programs; hence, exports from CCC stocks are not considered separately. Instead, these quantities are included in removals by the CCC storage program with estimates of subsidized export removals limited to quantities from commercial stocks.

The normal commercial demand for exports depends on world prices and economic conditions,

TABLE 2.—*Estimated value of diversions by Soil Bank and 1961 Feed Grain program, nine major crops, 1956-62*

Crop	Crop year					
	1956-57	1957-58	1958-59	1959-60	1960-61	1961-62
	<i>Million dollars</i>	<i>Million dollars</i>	<i>Million dollars</i>	<i>Million dollars</i>	<i>Million dollars</i>	<i>Million dollars</i>
Wheat.....	55.2	355.9	236.0	81.2	132.9	139.8
Rice.....	2.2	30.7	28.2	.8	1.0	1.0
Corn.....	144.5	401.7	616.8	154.0	203.9	1,083.2
Grain sorghum.....		52.3	84.2	18.9	121.5	350.1
Barley.....		8.7	16.1	28.1	39.1	45.6
Oats.....		22.8	41.5	70.1	91.1	97.5
Cotton.....	37.8	292.6	501.8	61.7	75.9	73.5
Peanuts.....	5.7	2.8	6.1	10.2	14.7	16.1
Tobacco.....	13.4	53.2	85.4	10.0	11.2	11.7
Total <sup>1</sup> .....	258.7	1,221.0	1,616.3	435.0	691.5	1,818.5

<sup>1</sup> Totals may not add due to rounding.

Sources (of quantities): *Economic Effects of Acreage Control Programs in the 1950's*, Agr. Econ. Rpt. 18 (4); *Conservation Reserve Program of the Soil Bank—1960 Statistical Summary*, Agr. Stabil. and Conserv. Serv.; *Feed Situation*, Econ. Res. Serv., November 1962.

and on the production of agricultural products in foreign countries. Support prices, export subsidies, and other factors complicate considerably the separation of subsidized exports from exports that would have moved without subsidies. For this reason, several alternative estimates were made for Government-supported exports.

Since it was desired to determine total removals (diversions) for the major commodities, the procedure followed was to determine the quantities (from commercial stocks) that were exported with subsidies but would not otherwise have entered the export market. It was arbitrarily judged that exports under the payment-in-kind (PIK) program were in this category. This is an approximation of the upper limit of exports that might be considered as part of surplus production. Other assumptions have also been made which flow from the idea that part or all of Government exports reflected overall policy objectives that removed them from consideration as surplus production.

The PIK program covers exports made from commercial stocks under the Commodity Export program (CEP), Title I of P.L. 480, and the International Wheat Agreement (IWA). Title I sales for foreign currencies are made pursuant to formal government-to-government agreements with friendly countries. Actual sales are made from commercial stocks through private U.S. exporters (16), and are assumed to be over and above normal exports (14). For example, the USDA states that Title I cotton exports "have been

largely net additions to quantities moving otherwise in world trade" (11). Under the CEP and IWA programs, CCC subsidizes the difference between U.S. and world prices of export commodities by issuing certificates redeemable in CCC stocks (restricted use, generally) to commercial exporters.

Table 3 shows the values of commodities receiving PIK payments by years and indicates the date of initiation of the program for each commodity. The table includes all nonprocessed commodities eligible for payment in kind. Subsidized wheat exports were \$0.4 billion in fiscal year 1957 and increased to \$0.8 billion in 1958. Subsidies were nominal for other commodities until 1958-59, when the dollar volume totaled \$1.1 billion. The volume continued to expand and the 1960-61 value of subsidized exports was estimated to be \$2.2 billion. The 1962 value is slightly reduced from the 1961 level.

Estimates based on alternative assumptions of the role of exports as a part of excess capacity are presented in the following section.

### Aggregate Excess Capacity

Summing the foregoing categories of commodities diverted by Government programs, total "excess capacity" is illustrated in table 4. An upward trend in total diversions is apparent until diversions reached a peak of \$4.4 billion in 1958-59. (Data before 1955 are not included, but Government removals were less in those years.) After



TABLE 3.—*Estimated value of exports from commercial stocks receiving PIK payments and beginning dates of programs by crops, eight major crops, fiscal years, 1957-62*

Crop	PIK began	Fiscal year					
		1956-57	1957-58	1958-59	1959-60	1960-61	1961-62
		Million dollars	Million dollars	Million dollars	Million dollars	Million dollars	Million dollars
Wheat.....	Sept. 4, 1956	382.2	785.2	644.0	676.4	877.3	980.7
Rice.....	Dec. 15, 1958			20.6	62.0	85.1	101.9
Rye.....	July 1, 1958			4.8	5.3	5.1	1.1
Corn.....	May 12, 1958		( <sup>1</sup> )	167.4	175.4	128.2	15.6
Grain sorghum.....	July 1, 1958			53.8	71.6	57.5	54.9
Barley.....	do.....			79.2	66.2	40.2	28.4
Oats.....	do.....			15.4	21.0	6.3	1.2
Cotton.....	May 29, 1958		( <sup>1</sup> )	112.4	969.5	1,000.0	706.0
Total.....		382.2	785.2	1,097.6	2,047.4	2,199.7	1,889.8

<sup>1</sup> Included in 1959 value.

Sources (of quantities): *Report of Financial Condition and Operation of the Commodity Credit Corporation* (June 1961-62), Agr. Stabil. and Conserv. Serv.; *Annual Report by the Secretary of Agriculture* (December 1962); *Feed Situation* (February 1963) and *Wheat Situation* (February 1963), Econ. Res. Serv.

TABLE 4.—*Government diversions, farm output, and adjustment gap in agriculture, 1955-62*

Year	Government diversions				Farm output <sup>1</sup>	Adjustment gap
	CCC	Land withdrawals	Subsidized exports	Total		
	Million dollars	Million dollars	Million dollars	Million dollars	Million dollars	Percent
1955-56.....	2,167.9			2,167.9	26,845.3	8.1
1956-57.....	1,742.0	258.7	382.2	2,382.9	26,894.3	8.9
1957-58.....	1,410.5	1,221.0	785.2	3,416.7	27,882.3	12.3
1958-59.....	1,669.2	1,616.3	1,097.6	4,383.1	32,439.3	13.5
1959-60.....	1,250.3	435.0	2,047.4	3,732.7	30,191.7	12.4
1960-61.....	398.1	691.5	2,199.7	3,289.3	30,959.1	10.6
1961-62.....	-315.0	1,818.5	1,889.8	3,393.3	32,643.0	10.4

<sup>1</sup> Net farm output in 1957-59 dollars deflated by the index of prices received by farmers (1957-59=100). Farm output figures are from worksheets of Costs, Income, and Efficiency Branch, ERS.

To farm output estimates from the Costs, Income, and Efficiency Branch, we add the value of output removed by acreage diversion programs. This measure is intended to reflect more accurately "total capacity" of agriculture.

1958-59, the total value of commodities diverted by Government programs remained stable, ranging from \$3.7 to \$3.3 billion. While there is no apparent tendency for the excess production (diversions) to increase after 1958-59, the future trend will depend on (a) what the public considers to be "socially acceptable prices" for farmers,<sup>4</sup> (b) rates of growth in foreign and domestic population and income, (c) farm productivity and weather,

<sup>4</sup> Shifts in voting power from farmers to nonfarm population and results of votes on farm programs submitted to farmers can be expected to affect this definition. If "socially acceptable prices" are lowered, ceteris paribus, the necessary diversions from a given output would be reduced and the excess capacity would be smaller.

and (d) the institutional and market structure, including the existence of farm organizations designed to restrict marketings and maintain prices.

The trend in total diversions is more stable than trends in the CCC, land withdrawal, and export components. Prior to 1957, emphasis was placed on storage of excess production. Land withdrawal gained importance in 1957 and 1958, but declined in favor of export programs in 1959 and 1960. In 1961, export programs remained at a high level and, combined with a renewed emphasis on land diversions, made possible net sales from CCC stocks.

Overcapacity, measured as the percentage of output diverted from commercial market channels

TABLE 5.—*Alternative estimates of the adjustment gap, 1955-62*

Year	(1) Exports from CCC stocks <sup>1</sup>	(2) Exports from commercial stocks receiving PIK	Total diversions <sup>2</sup>		Farm output <sup>3</sup>	Adjustment gap <sup>2</sup>	
			A	B		A	B
	<i>Million dollars</i>	<i>Million dollars</i>	<i>Million dollars</i>	<i>Million dollars</i>	<i>Million dollars</i>	<i>Percent</i>	<i>Percent</i>
1955-56-----	1, 160. 4		1, 703. 7	1, 007. 5	26, 845. 3	6. 4	3. 8
1956-57-----	2, 014. 1	382. 2	1, 424. 4	-13. 4	26, 894. 3	5. 3	. 0
1957-58-----	1, 406. 9	785. 2	2, 540. 0	1, 224. 6	27, 882. 3	9. 1	4. 4
1958-59-----	777. 6	1, 097. 6	3, 633. 0	2, 507. 9	32, 439. 3	11. 2	7. 7
1959-60-----	392. 6	2, 047. 4	2, 756. 7	1, 292. 7	30, 191. 7	9. 1	4. 3
1960-61-----	547. 4	2, 199. 7	2, 190. 5	543. 2	30, 959. 1	7. 1	1. 8
1961-62-----	590. 8	1, 889. 8	2, 401. 1	912. 7	32, 643. 0	7. 4	2. 8

<sup>1</sup> 11 commodities. Quantities weighted by seasonal average prices.

<sup>2</sup> Total diversions from table 4 except: Column A excludes 40 percent of columns (1) and (2); column B excludes 100 percent of columns (1) and (2).

<sup>3</sup> See footnote 1, table 4.

by the Government, was 8.1 percent in 1955-56 and reached a peak of 13.5 percent in 1958-59. Since 1958, the excess capacity in agriculture has decreased slightly but still remains above 10 percent. Much the same pattern pertains for other assumptions relating to the treatment accorded exports, but at a lower level. For 1961-62, the excess capacity is lowered to roughly 7 percent under the assumption that part of the export surplus should not be so designated, and to less than 3 percent if all exports are treated that way.

The assumption underlying the estimates of overcapacity in table 4 was that all Government exports and subsidized commercial exports were a component of surplus production. Other "policy objectives" or rationalizations advanced are that such exports return a value to the United States in terms of building subsequent dollar markets for U.S. products, improving nutrition, fostering international goodwill for the United States, and promoting internal political stability in developing countries (17). The divergencies of these objectives and inability to quantify the "value return" preclude estimation of a "single" aggregate excess capacity.

Between the extremes of the above assumption and the idea that "full value" is received lies the "true" excess capacity, but only an arbitrary estimate is possible. Schultz has estimated that the value of P.L. 480 products to the countries receiving them has been about 37 cents for each dollar of CCC costs (7). We arbitrarily subtract 40 percent of the value of CCC and subsidized commercial exports from total diversions as calculated

in the first estimate (table 4) to arrive at a second estimate (A, table 5) of excess capacity. A third estimate (B, table 5) is based on the assumption that these exports receive full value through welfare and defense benefits, and through gains to the United States from use of earned foreign currency—thus they do not represent any excess capacity.

The last two estimates depict the same general trend as the first estimate, with the peak excess appearing in 1958-59. The lack of a uniform increase to 1958-59 and the lack of a uniform decrease since that time are probably due to drawing from CCC stocks of previous years.

The minimum estimate (B) ranges from a slight deficit (essentially a gap of zero) in 1956-57 to an excess of 7.7 percent in 1958-59. The intermediate and perhaps most reasonable estimate (A) of the adjustment gap shows an excess ranging from 5.3 percent in 1956-57 to over 11 percent in 1958-59. The gap by this estimate has remained at slightly over 7 percent for the past 2 years.

### Excess Production by Commodities

Estimates of excess production by individual commodities (wheat, feed grains, and cotton) were also based on the assumptions of the intermediate estimate (A) discussed above. Since productive resources are transferable between enterprises, the estimates should not be construed as strictly indicative of needed adjustments that would eliminate the surplus capacity in agriculture. If the excess wheat production were eliminated, resources would



TABLE 6.—*Excess production of wheat, feed grains, and cotton, 1955-62*

Commodity	Fiscal year						
	1955-56	1956-57	1957-58	1958-59	1959-60	1960-61	1961-62
	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
Wheat.....	14.5	16.1	45.0	46.3	34.4	37.8	28.5
Feed grains.....	6.0	7.8	20.3	21.5	11.5	14.2	15.3
Cotton.....	38.9	23.5	11.8	33.1	56.0	12.4	19.7

be diverted to creation of greater feed grain overcapacity. Possibilities for adjustments lie not in individual commodities but in the basic factors of production.

In the estimates by crops shown in table 6, feed grain quantities are weighted by seasonal average prices and combined for presentation. Wheat and feed grain estimates reflect the same general trend as the aggregate measure, but diversions of cotton, as a percentage of production plus land diversions, are quite erratic. The wheat and cotton excess has been generally greater than the excess of feed grains. The surplus wheat output was nearly one-half of total production in 1957-59 and about one-third of production in 1959-62. In crop year 1961-62, excess wheat output (28.5 percent) was greater than the excess of either cotton (19.7 percent) or feed grains (15.3 percent).

### Adjustment Gap at Various Prices

To determine what prices might have been without the diversion programs, a measure of the aggregate price elasticity of demand is needed. Brandow has estimated the farm-level price elasticity of demand for all farm products used for domestic food to be  $-0.23$  (2). While the estimates of excess capacity included nonfood items (cotton and tobacco) and excluded livestock products other than dairy products, they are expected to be closely representative of the aggregate excess for all farm commodities. We assume that the aggregate price elasticity of demand for all excess farm products does not differ markedly from the above estimate.

Given the aggregate elasticity of demand for farm products, what would the adjustment gap have been at various prices? An elasticity of  $-0.23$  implies that, over a particular range of prices and quantities, a 1 percent decrease in the output of farm products results in an increase in farm price of roughly 4 percent. Or, a 4 percent

TABLE 7.—*The adjustment gap at various price levels, 1955-62*

Year	Index of prices received (1910-14 = 100)	Adjustment gap at specified price levels			
		Current	.90 current	.80 current	Mean <sup>1</sup>
		<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
1955-56----	232	6.4	4.1	1.7	7.0
1956-57----	230	5.3	3.0	.6	6.1
1957-58----	235	9.1	6.8	4.4	9.4
1958-59----	250	11.2	8.9	6.5	10.1
1959-60----	240	9.1	6.8	4.4	8.9
1960-61----	238	7.1	4.8	2.4	7.1
1961-62----	240	7.4	5.1	2.7	7.2
Mean----	238	-----	-----	-----	-----

<sup>1</sup> The adjustment gap adjusted to the same price level (the 1955-62 average of prices received by farmers) for each year, hence corrected for year-to-year changes in "socially acceptable prices."

decrease in farm price would be necessary to increase consumption by about 1 percent. Thus, for an adjustment gap of 5.3 percent to be reduced to zero, a reduction in farm price of about 23 percent would be required. Since the intermediate estimate (A, table 5) of excess capacity is considered to be the most realistic, it is the only one considered for further analysis. Estimates of the adjustment gap at various prices, using the index of prices received by farmers and the elasticity estimate of  $-0.23$ , are shown in table 7. A column showing the estimated excess adjusted to the mean index of prices received for the period is included to correct for changes in the definition of "socially acceptable prices." This had the effect of reducing the peak excess from 11.2 to 10.1 percent, though changes were smaller or nonexistent in the other years.

Estimates of the respective magnitudes of the adjustment gap for prices at 90 and 80 percent of the actual level indicate a reduction of the maximums to 8.9 and 6.5 percent, and of the mini-



mums to 3.0 and 0.6 percent. These findings suggest that prices would have had to fall more than 20 percent for farm output to clear the market in the absence of commodity diversions by the Government.

### Summary

As noted in preceding sections, estimates in some cases may represent less than total quantities diverted by Government programs. Considering, however, the likelihood of overestimation of values of diversions by CCC and the Acreage and Conservation Reserves due to price weighting, coupled with underestimation of quantities due to failure to include some crops, the percentage of total diversions represented by these estimates is probably well over 90.

The logic of defining net CCC removals as surplus seems appropriate. Implicit in the definition as applied here is the assumption that all fiscal year net acquisitions are from production of the previous (included) crop year. Diversions under land withdrawal programs are calculated from USDA estimates. Estimates of what farmers "would have done" are subject to considerable error, and though estimated yields have been adjusted for quality and location of land contracted, many consider them to be high. The use of average prices received by farmers as weights for CCC acquisitions may impart some upward bias to this estimate, but the only alternative was an arbitrary deflation.

The results indicate that, during the period considered, the adjustment gap rose from 5.3 percent in 1956-57 to a maximum in 1958-59 of 11.2 percent of probable farm output in the absence of the diversionary programs. Since the peak in 1958-59 the gap has decreased slightly, but it remains above the gap existing at the beginning of the period. No basis is apparent for a departure away from the generally stable 1959-62 level of an excess capacity of 7 percent.

Estimates such as the foregoing are somewhat arbitrary due to the absence of a general agreement on what constitutes a "surplus," a condition also reflected in an insufficiency of pertinent data. We believe that this lack of refinement need not detract from the value of this investigation, but we caution that magnitudes defined in this paper may have to be redefined with changing concepts of "fair" or "reasonable" prices.

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