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BRITISH INDEXES OF INDUSTRIAL ACTIVITY

Arthur L. Broida

Two new indexes of British industrial production have appeared this year, to fill a gap that had been rather inadequately covered by the Financial Times index since the middle of 1946. One, published in the Bulletin of the London and Cambridge Economic Service, is prepared by four economists1/ of the Department of Applied Economics of Cambridge University. The other, an official index published in the Monthly Digest of Statistics, is compiled in the Central Statistical Office and is characterized as "interim" until the completion of the 1948 Census of Production makes a revision possible. The indexes are shown in the accompanying charts.

The Cambridge index is described in the February and May issues of the journal in which it is presented. Only a summary description of the official index has as yet been published. More detailed descriptions of both at a later time are promised, but sufficient information is available now to compare them in general terms. This discussion is confined to these indexes, except for a few comments on the Financial Times index.

1/ C. F. Carter, W. B. Reddaway, J. R. N. Stone, and F. Winter.

Methods of Construction

The two indexes are similar in a number of respects. Both are designed to measure the physical volume of industrial production in the United Kingdom. Both are calculated monthly, from January 1946, with the average month in 1946 taken as 100. The Cambridge index also has been estimated for the year 1935. Both are adjusted for variation in the number of calendar days, and neither is adjusted for holidays or for seasonal variation. For weights both use estimates of relative "net output," or value added, in 1946, and base their estimates on data from the 1935 Census of Production, brought forward by changes in the wage bill, and other means. The methods of estimating net output differ in some respects, however, and the weights consequently differ on this account as well as because of different systems of classification. In both indexes the weights for products not directly represented are generally assigned to other products in the same industry.

The official index includes about 400 individual series, and the Cambridge index some 250, but without complete lists available it is not possible to tell which is based on more comprehensive data--series vary greatly in importance, with footballs and steel ingots each being one in a simple count. Both indexes rely mainly on physical quantity data, but use other types of current measures where such data are not available. Deflated value figures are used in the official index to represent clothing and electrical and mechanical engineering, and in the Cambridge index to represent a number of individual industries, such as those making certain types of machinery, leather goods, and glassware, totaling 12 per cent of the weight in that index. In addition, the Cambridge index uses materials consumption data for 14 per cent of the total, and employment data for 11 per cent. Where employment data are used, no adjustments are made at present for variation in average hours worked or in output per hour, but such adjustments may be introduced later.

The coverage of the two indexes is roughly comparable. The Cambridge index is said to cover "the same field as the prewar Censuses of Production," except for the following activities, excluded for lack of data: production of finished munitions, construction work done by public utilities for themselves, road work, the supply of water, and all repair work other than ship repairing. The official index covers "orders" II to XVIII of the 1948 Standard Industrial Classification,[1/] which will be used for the 1948 Census, and includes production "whether for the home market, for export, or for the Armed Forces." Both indexes cover a broader area than the Federal Reserve Board's index, including, in addition to manufacturing and mining, construction activity, manufactured gas, and electricity. The official index also includes the supply of water.

The classification system of the Cambridge index departs significantly from that of the 1935 Census and may have been especially developed for this index. Mining, manufacturing, and construction activities are not shown separately. Metal mining is grouped with metal manufacture, quarrying

1/ Central Statistical Office, London, 1948. Orders I and XIX-XXIV, which are not included in the index, are Agriculture, Forestry, and Fishing; Transport and Communication; Distributive Trades; Insurance, Banking, and Finance; Public Administration and Defence; Professional Services; and Miscellaneous Services.

with building materials in a group that also includes the building industry itself, and coal mining with petroleum refining, manufactured gas, and electric power. The official index, on the other hand, follows the Standard Classification closely, segregating mining and quarrying in one order, construction in another, gas, electricity, and water in a third, and manufacturing industries in the remaining fourteen.

The Cambridge index is published in two forms, labeled "A" and "B", which differ in their treatment of the groups shipbuilding and building. In the A series only completions are included; in the B series an attempt is made to measure work done. The treatment of these activities in the official index is similar to that of the Cambridge B series, which is probably the preferable procedure. As the Cambridge group state in their discussion, a useful production index may show either work done in the area to which the index relates or deliveries to people outside this area. The B series is an estimate of the former, on the assumption that in industries other than construction and shipbuilding deliveries are a good measure of work done because of short production cycles. The A series is not an estimate of the latter, however, because all stages of production are included, and not just the final stages. As the Cambridge group point out, it is "a sort of cross" between the two desirable indexes. The B series, which is presented simply as "an alternative", is to be preferred, and the Cambridge group probably would have been well-advised to publish it only.

The classification and weights of the two indexes are shown in the table on the following page. From the available information it appears that both indexes are superior to the Financial Times index in concept and execution. They are designed to measure current physical volume of output, and the procedures followed are consistent with this purpose. In contrast, the rationale of the Financial Times index is not entirely clear. According to an article in the July 22, 1946, issue of that paper, the Financial Times index is an attempt to measure "the prospective activity of industry as a whole and not any particular section of it." For this purpose, the article continues, "the group of figures giving the consumption of raw materials in industry is the most promising." In line with the objective of obtaining a measure at an early stage of activity in all industry, 22 series were selected, relating more or less directly to consumption of a wide variety of materials, including imported materials. These series are combined, however, by the use of weights which are quite unrelated to this objective. The weights taken are the values of the materials consumed in a given period, which are related to the importance of the activities involved in making the materials available for consumption--many of which, incidentally, take place abroad--rather than to the importance of the activities in the industries processing the materials. Moreover, the basic assumption is that changes shown by the series for materials consumption precede changes in activity at later stages of manufacture. However, activities such as mining, which are presumably included in "industry as a whole", occur at stages earlier than the point at which materials consumption is measured. Finally, the assumption would not always hold that the sequence of changes in activity must proceed from the early stages of processing to the later. The opposite is quite conceivable. A change in the level of activity in the later stages can take place on the basis of raw material stocks, and may be reflected in the earlier stages at a later time.

Components and Weights in the Official and Cambridge B Indexes of Industrial Production

Official "Interim" Index			Cambridge B Index	
Order Number	Group	Weight (Proportion of total in 1946)	Group	Weight[1] (Proportion of total in 1946)
II	Mining and quarrying	78		
III	Treatment of non-metalliferous mining products other than coal			
	China and earthenware	4		
	Glass	6		
	Bricks, cement & other	21		
IV	Chemicals & allied trades	65	Chemicals & allied trades	66
V	Metal manufactures			
	Ferrous	38	Metal production (including metal mining)	61
	Nonferrous	18		
VI	Engineering, shipbuilding and electrical goods	186	Industrial machinery & equipment	124
			Shipbuilding & repairing	23
VII	Vehicles	95	Motors, cycles, & aircraft	31
VIII	Metal goods, n.e.s.	36	Other metal using	116
IX	Precision instruments, jewelry, etc.	8		
X	Textiles	55	Textiles	76
XI	Leather, leather goods, & fur	6	Clothing and leather	51
XII	Clothing	38		
XIII	Food, drink, & tobacco		Food, drink, and tobacco	120
	Food	60		
	Drink and tobacco	47		
XIV	Manufactures of wood & cork	25		
XV	Paper and printing	39	Paper and printing	50
XVI	Other manufacturing industries	19	Sundry trades	38
XVII	Building and contracting	92	Building, building materials, & furniture (including quarrying)	111
XVIII	Gas, electricity, & water	64	Fuel & power (including coal mining & petroleum refining)	143
	Total	1,000	Total[2]	1,010

1/ These weights are taken from the table in the February 1948 Bulletin of the London and Cambridge Economic Service. Slightly different weights for four of the groups were published in the May issue.

2/ In the A series the weight for building is 101, and the total 1,000.

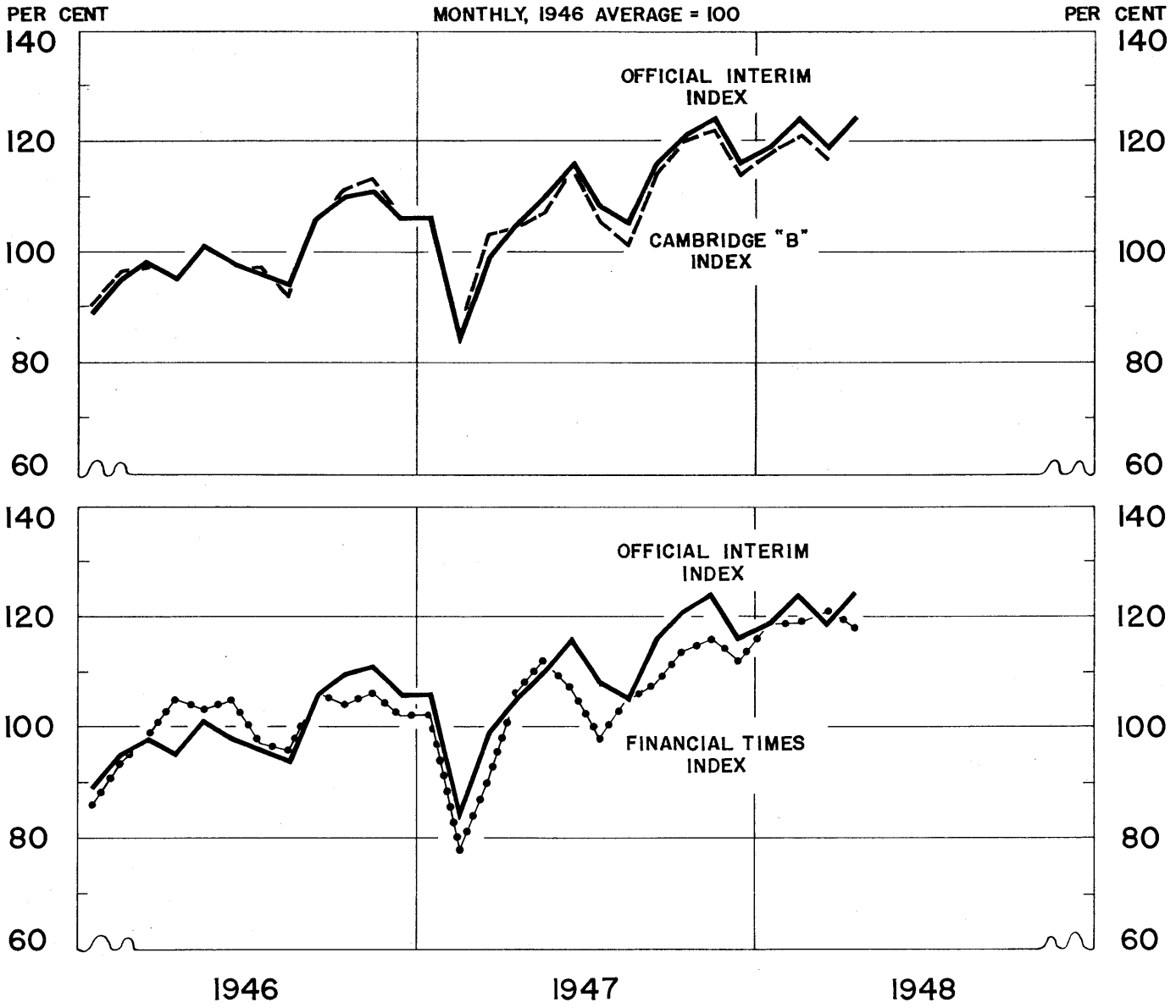
Behavior of Indexes

In the accompanying charts the official index is compared with the Cambridge B series and with the Financial Times index, which has been converted from a 1944 to a 1946 base for this purpose. The agreement between the first two indexes, shown in the upper chart, is relatively good. The Cambridge index fluctuates somewhat more than the official and shows a slightly lower rate of growth over the period. Since April 1947, the Cambridge index has been consistently below the other, with the spread varying from one to four points. Their 1947 annual averages are 109 for the official and 108 for the Cambridge. The first quarter 1948 averages, which are subject to revision, are 121 and 119, respectively. The estimated 1935 level of the Cambridge index happens to be the same as the 1946 level, or 100.

The difference between the official and Financial Times indexes, shown in the lower chart, are more striking. Since the latter is designed to represent "prospective" rather than current activity, close agreement perhaps should not be expected. Both show a general upward trend of about the same magnitude, and at one or two points the Financial Times index appears to anticipate the official, but at several points its short-term movements are opposite in direction to or substantially different in amount from the other's.

Information concerning production in leading industries is to be found in tables published in the Monthly Digest of Statistics and the Bulletin of the London and Cambridge Economic Service. Altogether the information provided should be extremely useful in analyzing the course of British production.

BRITISH INDEXES OF INDUSTRIAL PRODUCTION



LATEST MONTH IN EACH CASE IS PRELIMINARY.

INFLATION AND BALANCE OF PAYMENTS DEFICIT

Albert O. Hirschman

Two theses on the "dollar shortage", one relating to its cause and the other to its cure, have gained wide acceptance over the past year. The former maintains that the balance of payments difficulties of many countries are largely due to domestic inflation, the latter that the principle of non-discrimination cannot be applied as long as the world remains short of dollars. The following note offers some comments on the first of these problems. The second problem will be discussed in the next issue of this Review.

During the first two postwar years, the need for balance of payments assistance of European countries was generally explained in terms of the structural changes in the world economy which were brought about by World War II. The great need for reconstruction and the low level of production in Europe, the loss of invisible income from overseas, and the disruption of traditional trade relations of Western Europe with both Eastern Europe and the Far East--all these were held, and no doubt justly, to provide a sufficient explanation for the need of large-scale aid from the United States. When, however, in 1947 European recovery suffered a relapse, and balance of payments equilibrium seemed farther away than ever, "monetary" phenomena were given increasing weight at the expense of the "real" structural factors. The development of the terms of trade was widely discussed; devaluation was no longer entirely brushed aside as an untimely and blunt instrument; and the connection between domestic inflation and external imbalance was increasingly stressed. The latter, in particular, is the central theme of the latest annual BIS report which acknowledges that the economic policies of several European governments display an increasing awareness of this connection.

The causal link between inflation, whether open or repressed, and foreign exchange shortages is easily understood. In the case of open inflation, the rise in domestic prices soon makes it unprofitable to export and profitable to import as long as exchange rates remain pegged.1/ In the case of repressed inflation, the pressure of redundant internal purchasing power brings about a diversion of both factors of production and output from export industries to domestic nonpriority uses.

This reasoning is appealing inasmuch as it seems to offer a shortcut to the solution of balance of payments difficulties: it is obviously easier to "disinflate" or to stop an open inflationary process than to bring about basic readjustments of industrial structure and of trade patterns.

There certainly is a good deal of validity in the "monetary" explanations of the foreign exchange shortage, but it would be dangerous to rely on "disinflation" alone for securing external equilibrium. The relaxed tension of domestic demand, the greater availability of labor, and the symptoms of depression in nonessential activities, all of which characterize at present the economic situation in a number of European countries, are merely presenting these countries with an opportunity to carry out such readjustments

1/ It may be noted that the existence of a fixed rate of exchange is a limitation on the "openness" of the inflation. During the ideally "open" German inflation of the 'twenties there never developed a foreign exchange shortage, one reason being that the fall in the foreign value of the mark in general kept ahead of the increase in domestic prices.

in their productive structure as may help to render them eventually independent of foreign aid. If this opportunity is not seized, there will be either economic stagnation offering no hope for ever emerging from the condition of external imbalance or a growing public demand for indiscriminate "reflation" which would reproduce the situation prior to "disinflation." 1/

The need for caution in drawing conclusions from the connection between inflation and balance of payments deficit becomes even more apparent when it is realized that the causal relationship runs both ways. In the postwar situation, foreign aid was not so much a consequence of internal inflation as vice versa: internal inflation was given a powerful stimulus by reconstruction and investment activities which in turn were rendered possible only by the large volume of raw material and equipment imports financed by U.S. grants or loans. No doubt, these imports do eventually result in an increased flow of consumers' goods. In the short run, however, foreign aid shipments other than food and consumers' goods in general can exert, paradoxically, an inflationary effect on the recipient countries. This is true in particular when the net imports, because of their "bottleneck" nature, permit use of large quantities of hitherto unused domestic labor and raw materials in reconstruction and investment activities while individual savings are still at very low levels. In fully employed economies, additional investment resulting from "reconstruction imports" will attract already employed domestic factors of production and will therefore result in an upward pressure on wages and prices. 2/

The possible inflationary effect of certain categories of foreign aid shipments on the economies of the recipient countries creates a difficult problem of policy. To press for monetary stability on the one hand, and for inclusion of a maximum amount of so-called "recovery items" in shipments financed through U.S. aid on the other, may mean advocating deflationary and inflationary measures at the same time. Should monetary stability be achieved primarily by a reduction in investment activity, the absorption of "recovery items" on the scale which prevailed during the inflationary phase would become impossible. Such inability to absorb recovery imports 3/ is a danger signal

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1/ See on this problem in the United Kingdom, "Retreat from Austerity," The Banker, July 1948, pp. 12-15.

2/ It may be pointed out that, similarly, U.S. net exports of raw materials and machinery can have, in the short run, an anti-inflationary effect on the U.S. economy. For the shipment of these goods abroad may result in the postponement of capital expansion projects which might otherwise have materialized; it also makes it impossible for these goods to compete for complementary and already otherwise employed factors of production (labor and materials) through which they would be put to use in the American economy. This anti-inflationary effect of U.S. net exports on the domestic economy is the logical counterpart to their inflationary effect on the foreign economies, but in the present situation the actual significance of the former effect is no doubt far smaller than that of the latter and is certainly outweighed for the United States by the aggregate inflationary impact of our foreign aid program.

3/ The Italian Government has had considerable difficulties in recent months in disposing domestically of the coal it had imported under the Interim Aid Program.

since it denotes economic stagnation and failure to proceed with the capital formation which is essential to the achievement of equilibrium in the long run. If disinflation is brought about and is maintained by a reduction in essential investment expenditures, the cure may be worse than the disease; if, on the contrary, it is caused by a curtailment of expenditures for non-essential investment and consumption, and if the resources thus released are gradually channeled into export industries and essential investments, disinflation can indeed make a considerable contribution to the economic rehabilitation of the areas now dependent on aid from the United States.

ECA ASSISTANCE TO CENTRAL EUROPE

J. Herbert Furth

For the six-month period April-September 1948, the three Central European areas, Western Germany, Austria, and Greece, have been allocated ECA funds totaling $423 million, of which $201 million had been utilized through purchase authorizations by August 8 (latest date available). The distribution of these sums is shown in Table I.

Table I
ECA Allocations and Authorizations for Central Europe
(In millions of dollars)

Area	Allocations			Authorizations (up to August 8)
	April-June	July-Sept.	Total	
Western Germany	120	62	182	101
Austria	70	69	139	57
Greece	50	52	102	43
Total	240	183	423	201

The effect of that assistance upon the areas in question will be very different. For Western Germany the allocations mean a net addition to imports, raising the import volume to 150 per cent of the rate prevailing during the first half of 1948. In Austria and Greece they merely make possible small increases over the previous import level; their monthly average is not substantially higher than that of the aid extended in the early months of 1948, to Austria under the Interim Aid Program and to Greece under the special Greek-Turkish aid legislation.

For the second half of 1948, imports into the Central European areas are estimated to be approximately equal to prospective export proceeds, plus ECA shipments, and, for Western Germany, plus U.S.-U.K. Army appropriations. Neither private credits nor existing foreign exchange resources will any longer be available on a substantial scale, nor is it to be expected that current export proceeds will be used for accumulating foreign exchange reserves.

The main problem in making import estimates is posed by the lag between allocation, authorization, and actual shipment of ECA commodities.

The figures shown in Table I indicate that the allocation for one quarter tends to be exhausted by authorizations about one to two months after the end of that quarter: the authorizations until August 8 corresponded to about five-sixths of the allocation for the first quarter of ECA operations; however, virtually no authorizations were made during the first month of the quarter so that it actually took only about three and one-fourth months from the beginning of operations to reach the authorized amounts. At that rate, the remaining sixth of the first quarter allocations should be utilized within another three weeks.

Information about actual shipments is not so conclusive. Judging from overall payment figures, only relatively small shipments of ECA goods have been made so far, averaging probably less than one-fifth of the first quarter allocation. This would indicate that the lag between authorization and shipment is at present far greater than between allocation and authorization. Taking into consideration the difficulties of the initial period, however, a gradual reduction of this lag may be expected. It seems likely, therefore, that the lag between authorization and shipment finally may become no larger than the lag between allocation and authorization, i.e., between one and two months, so that the total lag between allocation and shipment might average about three months. In other words, the allocations for the six-month period April-September 1948 may be expected to be fully reflected in shipments during the second half of 1948.

The development of imports, as determined by ECA allocations and exports, and--in Western Germany--also by U.S.-U.K. appropriations, is thus estimated as follows: In Western Germany, the U.S.-U.K. appropriations for financing the importation of essential foodstuffs, fertilizer, and fuel into the U.S.-U.K. zones are expected to continue at the average rate of about $65 million per month. This rate will be somewhat lower than that prevailing during the first half of 1948, but larger than the shipments made in 1947.

The second determinant of imports, i.e., the development of exports, is more difficult to estimate. In recent months, exports from the U.S.-U.K. zones have risen substantially while those from the French zone--to judge from the export plans for the second half of 1948--seem to remain at the 1947 level. If exports from the U.S.-U.K. zones increased as rapidly from July to December 1948 as they did between January and June, the total would surpass the most optimistic estimates made during the preparation of the European Recovery Program. Such a rapid change, however, is not likely. It is true that the German currency reform, through increase in productivity and greater inducements to export (rather than to sell in the disappearing black market), will tend to raise the export level, and the increased availability of imported raw materials will reinforce that tendency. The proposed economic merger with the French zone, however, will make necessary a considerable diversion of goods to that area, which so far has experienced an even greater scarcity of supplies than the rest of Western Germany. It is likely, therefore, that the rate of increase in exports from the U.S.-U.K. zones will slow down; the monthly average for the second half of 1948 may be only about $60 million, or about 30 per cent higher than the average for the period April-June 1948. Exports from the French zone are expected to continue at the present rate of about $10 million per month.

On the basis of these expectations, average monthly imports into Western Germany during the second half of 1948 are likely to equal the sum of the following items: monthly average of ECA allocations for the period April-September 1948, $30 million; U.S.-U.K. appropriations, $65 million; export proceeds, $70 million; total $165 million.

In Austria, exports also have been increasing almost without interruption. It is likely, however, that the rate of increase will slow down about as much as in Western Germany. Unlike interim aid shipments, ECA imports will not consist exclusively of relief goods, but the authorization of raw material and capital equipment purchases seems to be lagging behind the original plans. This development has two main reasons. First, the Austrian reconstruction and development program still seems not to have passed the blueprint stage, and secondly, the availability of foodstuffs and other vitally important consumers' goods has not increased sufficiently to take the mind of the Austrian authorities off the problem of securing the largest possible amount of consumers' goods imports. Under these circumstances, ECA imports will only slightly increase the productivity of the Austrian economy. The stimulating effect upon productivity of an improvement in consumption is being offset by the continuing dark outlook in international politics, which next to Germany affects Austria probably more than any other European country. While average monthly exports rose by almost 100 per cent between 1947 and the first half of 1948, it would be surprising if they increased more than half as much between the first and the second half of this year.

On the basis of these expectations, average monthly imports into Austria during the second half of 1948 are estimated as follows: monthly average of ECA allocations for April-September 1948; $23 million, plus export proceeds of about $20 million, totaling $43 million.

In Greece, exports--for which statistics are incomplete and often contradictory--do not seem to have changed much since the fall of 1947. So long as the civil war is not ended, it is unlikely that they will exceed substantially the monthly average of $10 million reached in the first quarter of 1948; especially so since ECA shipments will not differ greatly from the goods so far imported under the aid program. Average monthly imports during the second half of 1948 therefore are estimated as follows: average ECA allocations for April-September 1948, $17 million, plus export proceeds of about $11 million, totaling $28 million.

These estimates of the foreign trade of the Central European areas for the second half of 1948, compared with the figures for 1938, 1947, and the first half of 1948, are shown in Table II on the following page. The figures indicate that in the period January-December 1948 imports into Western Germany probably will be larger by about 100 per cent than in 1947 while the corresponding increase will be only 40 per cent for Austria and 10 per cent for Greece. In comparison with prewar, however, Western Germany will be worse off than Austria and Greece: converting 1937 dollars into 1948 dollars at the rate of about 1:2, the annual rate of imports during the second half of 1948 will be 68 per cent of 1937 for Western Germany, as compared with 96 per cent for Austria and 123 per cent for Greece.

Table II
Foreign Trade of Central European OEEC Areas
(In millions of dollars)

Area	1937	1947	1948 First Half	1948 Second Half	1948 Total
IMPORTS					
Western Germany					
ECA-financed	-	-	-	180	180
U.S.-U.K.-financed	-	621	435	390	825
Other	1,458	241	225	420	645
Total	1,458	862	660	990	1,650
Austria					
ECA-financed	-	-	-	140	140
Aid-financed	-	236	110	-	110
Other	270	119	120	120	240
Total	270	355	230	260	490
Greece					
ECA-financed	-	-	-	100	100
Aid-financed	-	130	90	-	90
Other	138	165	70	70	140
Total	138	295	160	170	330
EXPORTS					
Western Germany	1,584	333	290	420	710
Austria	227	84	80	120	200
Greece	87	79	60	70	130

Sources: Western Germany: 1937: Foreign Commerce Yearbook (two-thirds of sum for all of Germany)
1947: Military Government reports
1948 (first half): Estimated on basis of January-May data for U.S.-U.K. zones (Military Government)

Austria: 1937 and 1947: International Monetary Fund
1948 (first half): Aid-financed imports estimated on basis of January-March data (Department of Commerce); other imports and exports estimated on basis of January-April data (Austrian Government)

Greece: 1937: Foreign Commerce Yearbook
1947: International Monetary Fund (distribution of imports estimated on basis of Embassy and Department of Commerce data)
1948 (first half): Estimated on basis of January-March data (AMAG and Department of Commerce)

This consideration justifies the preferential treatment granted to Western Germany. Although Western Germany will be the only Central European area which under ECA will receive substantially more assistance than in previous years, and although these allocations will help to raise output in Western Germany by a larger percentage than in Austria or Greece, the level of economic activity in Western Germany will still remain further below prewar than in either of the other countries. According to rough estimates, present industrial production is in Austria about 80 per cent and in Greece about 70 per cent of 1937; in Western Germany it probably has not yet reached 60 per cent.

These relations explain the divergencies of opinion which, according to recent newspaper reports, have arisen among the OEEC countries. The representatives of Western Germany can point out that the recovery of their area, as compared with prewar, has lagged behind that of all other European countries. The delegates of the other countries can retort that U.S. assistance to Western Germany, including Army appropriations as well as ECA allocations, is larger than the aid given to any nation with the exception of the United Kingdom, and that in recent months progress in Western Germany probably has been more rapid than in the rest of Europe. Mutual understanding of the problems confronting the individual countries rather than the application of fixed formulas will be needed to achieve a distribution of ECA allocations which will serve the best interests of all of Europe.