The Import Dependence of

Britain and Western Germany:

A Comparative Study

H. H. Liesner

PRINCETON STUDIES IN INTERNATIONAL FINANCE

✧

INTERNATIONAL FINANCE SECTION
DEPARTMENT OF ECONOMICS AND SOCIOLOGY
PRINCETON UNIVERSITY

✧

The Import Dependence of

Britain and Western Germany:

A Comparative Study

By

H. H. Liesner

PRINCETON STUDIES
IN INTERNATIONAL FINANCE

THIS is the seventh number in the series called PRINCETON STUDIES IN INTERNATIONAL FINANCE, published from time to time under the sponsorship of the International Finance Section of the Department of Economics and Sociology in Princeton University. The author, H. H. Liesner, is an assistant lecturer at the London School of Economics. This study is the outgrowth of a thesis he prepared while a student at Nuffield College in Oxford.

The Section will provide single copies of the STUDIES to United States residents on the basis of specific requests accompanied by twenty-five cents to cover mailing and packaging costs. No charge will be made for single copies requested by residents of foreign countries. Numbers still in print are listed on the inside of the back cover.

This series is intended to be restricted to meritorious research studies in the general field of international financial and economic problems, both policy and theory, which are too long for the journals and too short to warrant publication as books. The Section welcomes the submission of manuscripts for this series.

While the Section sponsors the STUDIES, the writers are free to develop their topics as they will. Their ideas and treatment may or may not be shared by the editorial committee of the Section or the members of the Department.

GARDNER PATTERSON, *Director*
International Finance Section

Princeton University
December 1957

CONTENTS

LIST OF TABLES

CHARTS

PREFACE

This study was originally part of a thesis on which I was engaged during the tenure of a Studentship at Nuffield College, Oxford. It was brought up to date and considerably enlarged after I had taken up my present appointment at the London School of Economics and Political Science. I am indebted to Nuffield College for assistance in a number of ways, and very grateful to Sir Donald MacDougall, my supervisor there, for valuable criticism and advice. Professor J. E. Meade of the London School of Economics kindly read the whole of the draft and offered many helpful comments and suggestions. Some unpublished material was obtained from the Organisation for European Economic Co-operation, the Food and Agriculture Organisation of the United Nations, and the Board of Trade, and I am indebted to all concerned for their co-operation. Finally, I owe a great deal to my wife for her help and advice.

<div align="right">H. H. Liesner</div>

London
November 1957
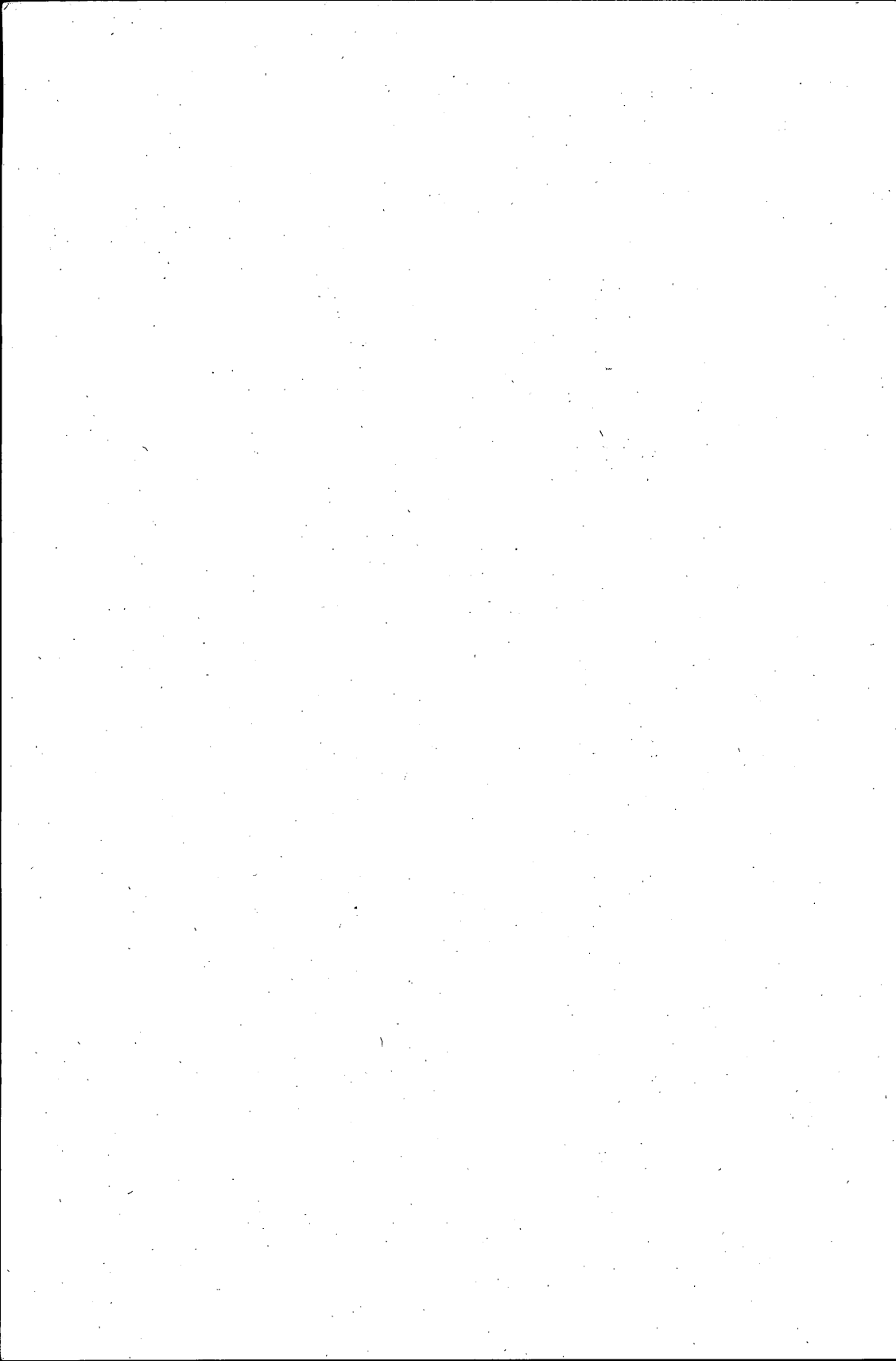
I. Introduction

One of the most surprising aspects of the post-war recovery of Western Germany has been the strong balance of payments position. Since 1951, German payments have consistently been in surplus, and in some years the surplus has been very substantial, resulting in large additions to the country's gold and dollar reserves, and in a very marked creditor position in the European Payments Union. As Table 1 shows, by far the most important reason for this sound external account has been the large surplus of visible trade. Both exports and imports have expanded at a fast rate, but exports have always kept well ahead of imports, thus ensuring a positive trade balance.

In sharp contrast, the balance of payments of the United Kingdom over the same period has been in a much less satisfactory state. Not only has the average current account surplus achieved by the United Kingdom been smaller, but there is little doubt that the basic position has been considerably weaker. The fluctuations of the balance of payments bear testimony to this statement, and even if a sizeable surplus was earned in any particular year, observers were never free from concern about the future.

Over much of this period, Britain's moderate rate of expansion has threatened the balance of payments both directly through the relatively increased demand for imports and the relatively reduced availabilities of goods for export, and indirectly through the effects of the boom on the internal price level; the tightening of government economic policy in 1955 and 1956 was prompted in the main by this fact. In Germany on the other hand, although the rate of economic growth has been much faster, there has been no particular need to worry about the repercussions on the external account. The main concern has been the effects of the boom on internal prices; this not so much because it might lead to a less favourable payments position—many would even have welcomed a decline in the embarrassingly large surplus—but because the maintenance of the internal purchasing power of the mark as such has been, and no doubt will continue to be, one of the chief objectives of government policy.

It is clear, then, that over the recent past the current account

1

TABLE 1

BALANCE OF PAYMENTS ON CURRENT ACCOUNT, GERMANY AND THE UNITED KINGDOM

(millions of dollars*)

		1950	1951	1952	1953	1954	1955
GERMANY	Imports[a]	−2,536	−3,112	−3,504	−3,589	−4,422	−5,463
	Exports	+1,979	+3,473	+4,034	+4,471	+5,374	+6,279
	Invisibles, net	−44	−175	+37	+88	+5	−120
	Balance	−601	+186	+567	+970	+957	+696
UNITED KINGDOM	Imports[a]	−6,672	−9,775	−8,243	−8,084	−8,434	−9,607
	Exports	+6,300	+7,694	+7,916	+7,476	+7,888	+8,582
	Invisibles, net	+1,294	+1,039	+806	+972	+1,154	+851
	Balance	+922	−1,042	+479	+364	+608	−174

Source: Germany: *Statistisches Jahrbuch*, 1956.

United Kingdom: *Balance of Payments White Paper*, Cmd. 9871 (1956).

No grants of any kind are included in the figures.

* National currencies were converted into dollars at official exchange rates.

[a] There are two reasons why the import figures in this table differ from those in Table 2. (1) Imports in this table are quoted f.o.b., in the same way as exports, whereas Table 2 (and all subsequent tables relating to imports) refers to c.i.f. values. (2) In the case of the United Kingdom, imports in this table refer to total imports, i.e., re-exports are not subtracted, whereas Table 2 (and all subsequent tables) shows retained imports.

position of the United Kingdom has been a great deal less satisfactory than that of Western Germany. Obviously, any of the major components of the two countries' current account balances could theoretically be held responsible for this divergence, but in practice, most observers have concentrated on the relatively faster growth of German merchandise exports, and a number of studies have been made dealing with that part of the question.[1] By comparison, little work has been done as regards merchandise imports or invisible trade, and this study is intended to direct attention to one of these relatively neglected factors—namely, visible imports.

As can be seen in Table 1, German imports, although they have been expanding much faster than British, are still considerably smaller in absolute terms. At first sight, there may be nothing very surprising about this difference in reliance upon imported commodities. Given conditions in the rest of the world, there are, in general, a great many reasons why the import dependence of two countries should differ at any one time. One could cite the size of the population in the two countries, the extent and nature of their agricultural land, the degree of industrialization achieved as well as the nature of these industries, comparative supplies of raw materials required in the productive process, comparative standards of living, "consumers' tastes," and government economic activities in general and commercial policies in particular, as being but a few of the considerations which appear to be of major importance in this respect. These determinants are evidently to some extent dependent both upon each other and upon the level and composition of trade in the past, and in the face of such complex links the establishment of a few cause-and-effect relationships, which is all we can hope to achieve, must necessarily give a very incomplete picture of reality.

[1] Cf. Ludwig Erhard, *Deutschlands Rückkehr zum Weltmarkt*, Düsseldorf, 1953; Horst Mendershausen, *Two Post-war Recoveries of the German Economy*, Amsterdam, 1955; H. C. Wallich, *Mainsprings of the German Revival*, New Haven, 1955; A. K. Cairncross, "Britain's Export Prospects," *London & Cambridge Economic Bulletin*, published in *The Times Review of Industry*, June 1954; H. H. Liesner, "Comparative Costs and Prices in British, American and German Manufacturing Industry," *London & Cambridge Economic Bulletin*, published in *The Times Review of Industry*, September 1956.

In this case, i.e., the relative positions of Britain and Western Germany as regards import dependence, the fact that several of the fundamental parameters of comparative costs mentioned above are of a fairly similar nature both heightens the interest in the problems arising out of the striking quantitative difference between the two countries' imports, and eases the task of the investigator. Both countries have a population of slightly more than 50 million, occupying almost identical areas; moreover, the agricultural land of each is of about the same size if allowance is made for differences in distribution and quality.[2] Again, both the United Kingdom and Western Germany are heavily industrialized, although they both lack indigenous supplies of the great majority of raw materials required—coal being the most notable exception. And, lastly, the fact that the people of both countries broadly share the same civilization and are at a similar stage of general development would lead one to expect a basic similarity of tastes and consumption habits.

It is against this background of perhaps surprising likeness in a number of important respects that the disparity in import levels must be placed—a disparity which has been the object of frequent comment and speculation in the past few years,[3] though the narrowing of the difference in the most recent past has probably led to reduced interest in these problems. Nevertheless, even if German imports were at some date in the future to rise to the level of British imports, it would still seem to be worth while enquiring why at a critical stage in the two countries' post-war

[2] Cf. Economic Commission for Europe and Food and Agriculture Organization, *Output and Expenses of Agriculture in Some European Countries*, Geneva, 1953, p. 15. Permanent grass and rough grazings are converted into arable by applying conversion factors of 2:1 and 4:1, respectively. Cf. also Economic Commission for Europe and Food and Agriculture Organization, *European Agriculture, a Statement of Problems*, Geneva, 1954, chart 3. A different definition of agricultural area appears to be used, but agricultural land is still shown to be the same in the two countries.

[3] Cf. especially Economic Commission for Europe, *Economic Survey of Europe Since the War*, Geneva, 1953, pp. 97ff.; E. A. G. Robinson, "The Changing Structure of the British Economy," *Economic Journal*, September 1954; T. Zotschew, "Die Strukturwandlungen im deutschen Aussenhandel und deren Folgen für die westeuropäische Wirtschaft," *Weltwirtschaftliches Archiv*, Band 66, Heft 2, esp. pp. 296ff.; F. von Bismarck-Osten und T. Zotschew, "Der deutsche Aussenhandel im Rahmen der Welthandelsentwicklung," *Weltwirtschaftliches Archiv*, Band 69, Heft 2, esp. pp. 249f.; H. J. Dernburg, "Germany's External Economic Position," *American Economic Review*, September 1954.

economic history Germany managed with a far lower level of imported supplies than did Britain. Such was certainly not the expectation of economists after the war, when it became apparent that the division of the country would be more than a temporary phenomenon. There were confident predictions that Western Germany's import dependence would be similar to that of Britain, for fairly obvious reasons—the loss of the eastern provinces with their surplus of agricultural products, the large population increase in the west, and the need for much larger raw material supplies to sustain a higher level of industrial output, both to produce the exports needed to pay for these larger imports, and to provide employment as well as goods for the refugees.[4]

This, then, is the problem before us. Over the period under consideration, the import dependence of the German economy has been substantially below that of the British; for a number of reasons, this conflicts with what one would expect on a-priori grounds. At the same time, this gap in imports narrowed considerably in the last two years of our period. What is called for, therefore, is first of all an analysis of the factors which enabled Germany to manage with a very much lower level of imports; and, secondly, an account of the changes as a result of which these factors are less operative now than they were at the beginning of this period.

Our first task is to look a little more closely at the facts of the situation. Table 2 presents statistics of German and British imports by value between 1950 and 1955, broken down into three groups: (a) food, drink, and tobacco; (b) materials for industrial processing;[5] and (c) finished manufactures and other.

It is apparent at a glance that the distribution of imports among these three groups is rather similar for the two countries under discussion. In either case, the first two groups account for the bulk of the import bill, and finished manufactures play only a fairly small quantitative role. For this reason, our enquiry will

4 Cf. F. Baade, "Der Europäische Long-term Plan und die Amerikanische Politik," *Kieler Studien*, No. 1; O. Emminger, "Deutschlands Stellung in der Weltwirtschaft," *Kieler Vorträge*, N.F., No. 4; Economic Commission for Europe, reports, *passim*.

5 That is, raw materials and semi-manufactures. For a precise definition, cf. note to Table 5, p. 37.

TABLE 2

GERMAN AND BRITISH IMPORTS, GROUPED ACCORDING TO THREE MAIN CATEGORIES

		1950		1951		1952	
		millions of dollars	per cent of total	millions of dollars	per cent of total	millions of dollars	per cent of total
A. Food, drink, and tobacco	Germany	1,042	38.7	1,147	32.9	1,242	32.6
	United Kingdom	2,834	40.1	3,567	33.7	3,316	35.5
	Germany/United Kingdom	36.9		32.1		37.5	
B. Industrial materials	Germany	1,344	49.8	1,906	54.6	2,004	52.5
	United Kingdom	3,356	47.6	5,851	55.4	4,915	52.7
	Germany/United Kingdom	40.1		32.5		40.7	
C. Finished manufactures and other	Germany	311	11.5	438	12.5	568	14.9
	United Kingdom	864	12.3	1,153	10.9	1,102	11.8
	Germany/United Kingdom	36.0		37.9		51.5	
TOTAL	Germany	2,697	100	3,491	100	3,814	100
	United Kingdom	7,054	100	10,570	100	9,333	100
	Germany/United Kingdom	38.2		33.1		40.9	

		1953 millions of dollars	1953 per cent of total	1954 millions of dollars	1954 per cent of total	1955 millions of dollars	1955 per cent of total
A. Food, drink, and tobacco	Germany	1,172	*31.1*	1,449	*31.5*	1,544	*26.7*
	United Kingdom	3,613	*39.8*	3,643	*39.8*	3,961	*37.5*
	Germany/United Kingdom	*32.5*		*39.7*		*39.0*	
B. Industrial materials	Germany	2,073	*54.9*	2,551	*56.0*	3,420	*59.0*
	United Kingdom	4,417	*48.8*	4,522	*49.3*	5,255	*49.9*
	Germany/United Kingdom	*46.9*		*56.4*		*65.0*	
C. Finished manufactures and other	Germany	526	*14.0*	570	*12.5*	830	*14.3*
	United Kingdom	1,035	*11.4*	999	*10.9*	1,332	*12.6*
	Germany/United Kingdom	*50.8*		*57.0*		*62.2*	
TOTAL	Germany	3,771	*100*	4,571	*100*	5,793	*100*
	United Kingdom	9,065	*100*	9,164	*100*	10,549	*100*
	Germany/United Kingdom	*41.6*		*49.9*		*54.9*	

Source: Germany: Organisation for European Economic Co-operation, Statistical Bulletins, *Foreign Trade*, Series III and IV. United Kingdom: 1950-1954: *Annual Statement of the Trade of the United Kingdom*. 1955: As for Germany.

The three groups in this table are derived from statistics showing the imports of each country according to the Standard International Trade Classification. Group A corresponds to sections 0 and 1; group B to sections 2 (with minor exceptions) and 4, and parts of sections 3, 5, 6, and 8; and group C to sections 7 and 9 and the remaining parts of 3, 5, 6, and 8. Edible oils and fats are shown as part of group B as the Standard International Trade Classification does not show them separately from other oils and fats. For greater detail, cf. note to Table 5, p. 37.

concentrate on food and industrial materials, and finished manu-factures will be disregarded. As to the first two groups taken separately, almost 40 per cent of British imports consisted of food, drink, and tobacco, and about 50 per cent consisted of industrial materials. The German figures are much the same—the share of food, etc., was about one-third, and that of industrial materials a little over one-half.[6] However, while these shares ap-pear to be fairly constant in the British case, there seems to be a downward trend in the share of German food imports and a corre-sponding upward trend in industrial materials; viz., the first group is expanding less fast than imports as a whole, whereas the second is expanding at a faster rate. The effect of these divergent trends upon the difference between German and British imports in each group (cf. the rows showing German imports as a percentage of British) is that the gap between German and British imports of food, drink, and tobacco has remained almost the same, German purchases being a little less than 40 per cent of British, whereas that between German and British imports of industrial materials has shrunk at a particularly fast rate. Early in this decade, German imports in this latter group were less than 40 per cent[7] of corresponding British imports, but by 1955 they had risen to two-thirds, and there is little doubt that the difference has still further decreased since then.

In other words, as regards food, etc., the forces making for a lower German import dependence have remained largely un-changed, whereas they have weakened considerably as regards industrial materials. The implication for our analysis is that in the first case we can, to some extent at least, ignore the movement over time, and therefore the position will be considered not on an annual basis but for two periods of three years each. This simpli-fies matters considerably, fits in with the available statistics, and

[6] To a small extent, the lack of change in the difference between relative food imports is due to divergent price movements; whereas British import prices rose slightly between period 1 and period 2, German import prices declined to a small extent (cf. also Appendix A, note 2, p. 75). In the case of industrial materials, on the other hand, price movements appear to have been very similar (cf. Appendix B, p. 83).

[7] The figures for 1950 and 1951 are best considered together, as stock changes were important in the case of both economies, though opposite in direction. Cf. p. 34 below.

yet allows us to obtain some idea of changes over time with respect to particular commodities which—in contrast to the total—have been quite marked in some instances. In the case of industrial materials, on the other hand, the changes over the period have been as important as the absolute difference itself, and hence we shall be obliged to work on an annual basis.

II. Food Imports

Introduction

We begin, then, with food, drink, and tobacco. Our first task is to break down this group into its constituent commodities. Table 3 shows the composition of German and British imports of food, etc., according to nine subgroups over the two periods 1950-1952 and 1953-1955. The figures suggest that during both periods the difference in total food imports was spread over all the major subgroups, though to varying degrees. Taking the more important items, the difference was particularly marked in the cases of meat, dairy products, sugar, and tobacco, while as regards cereals, fruit and vegetables, and coffee, etc., the difference in imports was smaller than the average. If we look briefly at the changes from the first period to the second, we see that the position has remained more or less the same in the cases of meat, cereals, and tobacco, the gap between relative imports has narrowed in the cases of dairy products, fruit and vegetables, and coffee, etc., and it has widened very sharply in the case of sugar.

Role of Current Governmental Policies

This, then, is a fairly detailed picture of the position. But what are the reasons for these facts? We might best begin with a negative factor. It is unlikely that *current* government policies towards agriculture and food imports have an important bearing on our problem. The main reason for this is, of course, that the two governments do in fact pursue a very similar policy towards agriculture.[1] At present, both Britain and Germany systematically protect their agricultural sector against overseas competition, though they employ very different means in order to attain

[1] A second—rather more theoretical—reason might well be added. It is in any case unlikely that differences in current commercial policy would change the situation to any great degree. Assume that we had two economies alike in all respects, including a certain measure of protection. If at some point in time this protection were removed in one of the countries, the full effect on home output and imports would probably not be felt for some considerable time, and hardly at all during a period of only six years. Agricultural manpower is notoriously immobile, and there might even be a temporary increase in output as farmers attempted to make up for the loss of income by higher output. Supply would probably be equally inelastic if protection were suddenly increased very substantially in one of the countries.

this end.[2] Moreover, in at least some respects the effectiveness of current government policy, or the "degree of protection," appears to be similar. Some rough estimates suggest that, during our period, protection maintained the prices received by farmers in Britain and Germany to approximately the same degree—about 30 per cent—above prices ruling on world markets.[3] In the case of particular commodities, it is true, differences in commercial policy do exist, and such differences may affect relative imports,

[2] In Britain, imports generally enter freely and farmers sell on this free market, but are re-imbursed by the government for the difference between the price they obtain and a guaranteed price which is generally higher. In Germany, imports are monopolized by government-controlled import and storage agencies, which estimate in advance the likely differences between demand and supply at the desired internal prices and then permit imports to the required extent, thus preventing low-priced offers from overseas from interfering with the higher internal price level. For relatively unimportant commodities, different arrangements apply in both countries.

[3] It might be thought at first that the extent to which protection raises internal prices above import prices could be determined quite simply by examining the ad-valorem incidence of tariffs. However, protection may exclude imports altogether; more important, in both Britain and Germany tariffs are now relatively insignificant, and non-tariff protection in varying forms supplies the chief means of shielding agriculture from overseas competition. As direct comparisons of internal and import prices are also ruled out because of differences in quality and the non-availability of statistics, it is necessary to rely on more indirect ways of obtaining the required results. In the case of the United Kingdom, estimates relating to our problem have been made elsewhere; these indicate that in 1954/55 internal prices were 35 per cent above import prices, whereas in 1955/56 the difference was somewhat smaller—between 25 and 30 per cent (cf. E. F. Nash, "The Competitive Position of British Agriculture," *Journal of Agricultural Economics,* June 1955; and "Some Reflections on Agricultural Policy," *Lloyds Bank Review,* July 1956). It is assumed that during the earlier years of our period the position has been much the same. In the case of Germany, estimates were made by the author in connection with an enquiry into the effects of agricultural protection upon the German economy, which he hopes to publish at some future date. Two sets of index numbers were constructed, the first showing the development of prices received by farmers relative to the base period (1909-1913), the other the behaviour of the corresponding average import values. The two series were calculated with the same weights, and the ratio of the indices for any particular period should give an indication of the difference between home and world market prices during that period relative to the base. It is possible to calculate from the ad-valorem incidence of tariffs—then almost the sole means of protecting agriculture—that during the base period prices received by German farmers were between 15 and 25 per cent above import prices; and as internal prices have in the intervening period risen more than import prices, the estimate for 1950-1955 suggests that prices received by farmers were between 25 and 36 per cent above world market prices (Internal prices from *Statistisches Jahrbuch* and from Economic Commission for Europe and Food and Agriculture Organisation, *Prices of Agricultural Products and Fertilizers,* Rome, 1954 and 1955; import prices from the German foreign trade statistics.) The author also made a direct comparison of prices received by farmers in Britain and Germany during 1950/51, which suggested that on the average prices were much the same in the two countries.

TABLE 3

GERMAN AND BRITISH IMPORTS OF FOOD, DRINK, AND TOBACCO

Standard International Trade Classification			1950-1952		1953-1955	
			millions of dollars	per cent of total	millions of dollars	per cent of total
00 +01	Live animals and meat	Germany	101.2	8.9	123.6	8.9
		United Kingdom	646.9	20.1	844.8	22.6
		Germany/United Kingdom	15.7		14.6	
02	Dairy produce	Germany	130.0	11.4	163.2	11.8
		United Kingdom	435.3	13.6	449.7	12.0
		Germany/United Kingdom	29.9		36.3	
04	Cereals	Germany	387.3	33.8	344.3	24.8
		United Kingdom	622.1	19.3	591.0	15.8
		Germany/United Kingdom	62.2		58.3	
05	Fruit and vegetables	Germany	188.9	16.5	311.2	22.4
		United Kingdom	454.7	14.1	550.6	14.8
		Germany/United Kingdom	41.6		56.4	
06	Sugar	Germany	79.3	6.9	20.5	1.5
		United Kingdom	299.2	9.3	312.7	8.4
		Germany/United Kingdom	26.5		6.6	

12

07	Coffee, tea, etc.	Germany	122.2	10.6	243.1	17.5
		United Kingdom	344.6	10.7	494.7	13.2
		Germany/United Kingdom	35.2		49.2	
08	Feed for animals	Germany	15.8	1.4	38.1	2.7
		United Kingdom	63.2	2.0	128.2	3.4
		Germany/United Kingdom	25.0		29.7	
12	Tobacco	Germany	53.2	4.7	77.5	5.6
		United Kingdom	180.8	5.6	221.7	5.9
		Germany/United Kingdom	29.5		35.0	
03 09 +11	Other	Germany	65.4	5.7	66.8	4.8
		United Kingdom	174.2	5.4	145.5	3.9
		Germany/United Kingdom	37.5		45.9	
0 +1	TOTAL	Germany	1,143.3	100	1,388.3	100
		United Kingdom	3,221.0	100	3,738.9	100
		Germany/United Kingdom	35.5		37.1	

Source: Germany: *Aussenhandel der Bundesrepublik Deutschland*, Band 1. United Kingdom: 1950-1954: *Annual Statement of the Trade of the United Kingdom*, 1950 and 1954. 1955: Organisation for European Economic Co-operation, Statistical Bulletins, *Foreign Trade*, Series IV.

but the general position is that domestic production finds an assured market at a "satisfactory" level of farming income, and that imports rather passively fill the gap which generally exists between domestic output and consumption.

Commercial policies will not, therefore, be considered in detail. This is not to say, however, that they are generally unimportant. As will be pointed out below, the chief reason for the current difference in British and German food imports probably lies in the different commercial policies pursued by Germany and Britain in the past, which have deeply influenced the structure of the two economies, and although their commercial policies may be similar now, the effects of past differences are still largely with us. But these speculations will have to wait until we have analysed the present position more thoroughly.

Home Production and Consumption Compared

In the case of the major part of the two countries' food imports, supplies from abroad form only part of home consumption, the rest being met out of domestic production. Hence the difference in import levels between the two economies can in principle be ascribed to either one or both of two reasons—differences in home production, and differences in consumption. In cases where home production is negligible or zero, there is, of course, only one possible reason for differing amounts of imports—a difference in consumption levels.

For the bulk of food imports, the position in this respect is illustrated in Table 4, which for the two periods 1950/51-1952/53 and 1953/54-1955/56[4] shows home production, net imports, and availabilities of fifteen items in physical terms. For convenience, this table has been divided into two parts: commodities included in the first part are to some extent produced in both countries as well as imported;[5] those in the second part are wholly imported, home production being zero.[6]

[4] Harvest years.

[5] Except for "liquid milk for consumption as such," imports of which are negligible. This item was included nevertheless both because it is an important item in national diets, and because it is a valuable source of income to farmers in the two countries—i.e., it constitutes a significant part of total production.

[6] Except for tobacco, which is produced in Germany but not in Britain.

TABLE 4

FOOD: PRODUCTION, NET IMPORTS, AND AVAILABILITIES, BY VOLUME

Harvest Years 1950/51-1952/53

	Production '000 metric tons		Net imports '000 metric tons		Availabilities '000 metric tons		Imports as a proportion of availabilities (per cent)	
	Germany	United Kingdom	Germany	United Kingdom	Germany	United Kingdom	Germany	United Kingdom
Bread grain	3,532	1,343	2,499	4,526	5,944	5,940	43	77
Coarse grain	—439	—905	1,694	2,550	1,067	1,728	159	148
Potatoes	9,391	5,448	254	91	9,391	5,539	3	2
Sugar	993	686	518	1,560	1,441	2,080	36	75
Vegetables	2,383	2,492	356	661	2,739	3,153	13	21
Fruit and nuts	2,335	838	863	1,489	3,198	2,327	27	64
Meat	1,850	1,378	97	1,108	1,947	2,461	5	45
Eggs	273	485	106	139	379	630	28	22
Butter	246	13	18	234	264	251	7	93
Cheese	227	55	40	162	267	213	15	76
Liquid milk for consumption as such	6,201	7,883	—	—	6,201	7,883	—	—
Rice	—	—	91	72	91	72	100	100
Coffee	—	—	41	36	41	36	100	100
Tea	—	—	2	194	2	194	100	100
Tobacco	28	—	48	103	76	103	63	100

(Harvest years 1953/54-1955/56 on next page)

TABLE 4 *continued*

Food: Production, Net Imports, and Availabilities, by Volume

Harvest Years 1953/54–1955/56

	Production '000 metric tons		Net imports '000 metric tons		Availabilities '000 metric tons		Imports as a proportion of availabilities (per cent)	
	Germany	United Kingdom	Germany	United Kingdom	Germany	United Kingdom	Germany	United Kingdom
Bread grain	3,812	919	2,510	4,672	6,136	5,821	42	80
Coarse grain	—500	—1,461	1,788	3,104	1,287	1,735	139	179
Potatoes	8,491	4,797	250	320	8,741	5,117	3	6
Sugar	1,332	713	260	1,875	1,531	2,641	17	71
Vegetables	2,370	2,628	451	657	2,821	3,285	16	20
Fruit and nuts	2,446	781	1,436	1,688	3,882	2,519	37	67
Meat	2,217	1,748	141	1,319	2,358	3,067	6	43
Eggs	321	564	180	110	501	688	36	16
Butter	272	22	17	245	289	272	6	90
Cheese	250	79	55	126	305	213	18	59
Liquid milk for consumption as such	6,569	7,930	—	—	6,569	7,930	—	—
Rice	—	—	92	77	92	77	100	100
Coffee	—	—	100	25	100	25	100	100
Tea	—	—	5	217	5	217	100	100
Tobacco	24	—	62	120	86	120	72	100

Source (except where indicated otherwise below): Organisation for European Economic Co-operation (OEEC), *Agricultural and Food Statistics*, Paris, 1956, tables 24 and 25.

Grains and potatoes: For 1950/51-1952/53, the source is OEEC, *Basic Statistics of Food and Agriculture*, Paris, 1954, table 64. The production data for grains and potatoes are net; viz., they allow for the fact that a part of the gross amount available (= home production plus imports) is used as an input, either in the form of feed for livestock production, or in the form of seed. In the case of coarse grain, this leads to a negative output figure for both countries, which means that imports of coarse grain exceed the amount leaving the agricultural sector. In other words, there is a net inflow of coarse grain into domestic agriculture.

Sugar: Converted from refined sugar by applying a conversion factor of 1.11 (cf. *The Economist, The Economist Guide to Weights and Measures*, London, 1954, p. 52). This was done because average import values refer to raw sugar.

Milk: The source is OEEC, *Agricultural and Food Statistics, op.cit.*, table 35м. Converted to total consumption by using population data in the Appendix of the same publication.

Rice, coffee, tea and tobacco: Data refer to calendar years (1950-52 and 1953-55). For net imports (= consumption) the source is as follows: Germany: OEEC Statistical Bulletins, *Foreign Trade*, Series III. United Kingdom: 1950-1954, *Annual Statement of the Trade of the United Kingdom*, 1950 and 1954. 1955: As for Germany. Statistics of German production of tobacco were taken from OEEC, *Agricultural and Food Statistics, op.cit.*, table 15. The figures for net imports (and therefore consumption) of coffee and tobacco are only approximate because of substantial exports of these products, but in a more processed form, from both countries, especially from Britain. In the case of coffee, no allowance could be made for this; i.e., exports were simply subtracted from imports. In the case of tobacco, exports were converted to unmanufactured tobacco by applying a conversion factor of 1.25 (taken from *The Economist Guide to Weights and Measures, op.cit.*, p. 56) before subtracting from imports.

The difference between production plus imports, on the one hand, and availabilities, on the other, equals stock changes (generally 1 to 2 per cent).

We begin with the first group of commodities. Apart from one or two exceptions—notably, eggs—it is apparent from the figures that the general tendency is for Germany to produce more food at home than Britain does and to import less. As a result, the proportions of total consumption supplied by German imports tend to be a good deal below the corresponding figures for the United Kingdom. This difference in import dependence is particularly marked in the case of livestock products, except eggs; Germany is almost self-sufficient with regard to meat and butter, and her cheese imports are only marginal, whereas Britain is heavily dependent upon imports as regards each of these items. Imports of grain, on the other hand, are of very considerable importance for both economies, although the German dependence on imported bread grains is a good deal smaller than that of Britain.

To some extent, this difference between livestock products and grains is the result of the division of Germany since the end of the war. Before 1945, the part of the old Germany which now constitutes the Federal Republic produced on balance almost all its own livestock products, but obtained from the east an appreciable part of its consumption of cereals.[7] Being cut off from that source of supply, Western Germany now has to import the grain from abroad, but still manages to produce most of its consumption of livestock produce in its own territory, in spite of the marked rise in population. A special case is that of sugar. Before the war, Western Germany depended to a considerable extent upon supplies from the east, but that loss has been met by a doubling of pre-war output in the Federal Republic, and imports have been falling sharply over our period.

The switch of grain "imports" from Eastern Germany to overseas suppliers has probably been of advantage to Western Germany. Pre-war Germany had a heavily protected agriculture—as the Federal Republic still has, of course—and internal prices of grain, like those of other agricultural products, were well above those ruling on world markets. Western Germany's terms of trade between manufactured "exports" to the east and "imports" of

    [7] Cf. Economic Commission for Europe, *Economic Bulletin for Europe*, Geneva, Third Quarter 1949, pp. 25-53, esp. table 3.

grain were therefore probably worse than they would have been in a similar exchange with the outside world.[8] Since the division of Germany, this particular exchange has in fact been diverted to the outside world, and thus Western Germany obtains her grain rather more cheaply than she would have done if Germany had remained undivided.[9]

However, we must return to Table 4. As we saw, Germany tends to produce more food than Britain and to import less, but the resultant availabilities in the two countries—which indicate relative per capita food consumption[10]—do not present such a clear-cut picture. While Germans eat more potatoes, fruits and nuts, butter, and cheese, consumption of coarse grains, sugar, meat, and eggs, among other products, is higher in Britain. As regards the commodities in the second part of the table, Germany is shown to have imported and consumed more rice and, especially in the second period, coffee, while the position is the reverse with tea and tobacco.

If the position in the second period is compared with that in the first, in both countries home production as well as imports have tended to increase somewhat, with resultant increases in consumption. There were some exceptions to the general trend; more particularly, net output of grain in Britain decreased quite sharply between the two periods, German imports of sugar fell off (for reasons we have just mentioned), and British purchases of eggs and cheese declined. In both these last cases, home output expanded faster than consumption (which actually stagnated in the case of cheese)—hence the decrease in imports.

Though the figures in Table 4 are interesting insofar as they illustrate the position with regard to individual commodities, they cannot tell us very much about the situation as a whole. It is fairly evident that *total* German production is larger than

[8] If West German manufacturers obtained higher prices in eastern Germany than they would have done on world markets—which is quite possible in the circumstances—there may not in fact have been a loss on the terms of trade.

[9] This gain is not, however, passed on to the consumer, but is taken by the government in the form of the profits of the state-owned import and storage agency for grain which controls grain imports.

[10] Cf. Organisation for European Economic Co-operation, *Agricultural and Food Statistics, op.cit.,* Explanatory Notes and Sources. As mentioned above, the two populations are almost identical.

British, but does this make up for the difference in imports, thus giving us roughly equal consumption figures for the two countries? And what are the proportions of *total* food consumption which are met by home output and imports, respectively, in Britain and Germany?

A rough answer to these questions can be found if these physical quantities are weighted with their respective prices. Although this exercise runs into difficulties in relation to a number of both conceptual and practical points further discussed in Appendix A,[11] which also reproduces the detailed figures, it has been thought worth-while to attempt it here.

Some important facts emerge from the comparison of total production, net imports, and availabilities on p. 21, which is derived from Appendix A. The first is Germany's far greater self-sufficiency with regards to foodstuffs. During this period, Britain produced just under 50 per cent of the total value of the food and tobacco she consumed, and imported just over 50 per cent. Germany, on the other hand, produced close to 80 per cent herself, and imported only between 20 and 25 per cent. Secondly, this significant difference in dependence upon imported food was due both to Germany's higher production of these commodities (German output exceeded British by about 50 per cent) and to lower German consumption (about 12 per cent less than British). Or, to put this rather differently, just under two-thirds of the difference in imports was due to Germany's larger home production, and just over one-third was due to her lower consumption.[12] Finally, it is worth emphasizing that these facts hold to much the same extent for both periods. It is true that Germany's production, imports, and consumption have all grown

[11] Cf. p. 75 below. The results are shown in Table A (p. 77).

[12] If the two parts of Table 4 are taken separately, the following results emerge:

Part 1: Percentages are much the same as those for the whole table, but both countries' dependence on imported supplies comes out at a slightly lower figure, and the proportion of the difference in imports due to Germany's larger output is greater than for food as a whole (about 80 per cent), and that due to lower German consumption is smaller (about 30 per cent, and −10 per cent for stock changes).

Part 2: As output is zero in the British case and small in the German, only relative imports and consumption are of importance. The figures are (United Kingdom = 100): Period 1—German imports 31, German consumption 39; period 2—German imports 46, German consumption 53.

COMPARISON OF TOTAL PRODUCTION, NET IMPORTS, AND AVAILABILITIES

(A) Dependence on food imports

Domestic production and imports respectively contributed as follows to total consumption (in per cent) :[a]

	Domestic production		Net imports	
	Germany	United Kingdom	Germany	United Kingdom
1950/51-1952/53	78.6	47.7	22.3	52.6
1953/54-1955/56	75.6	46.1	24.8	52.8

(B) Relative production, imports, and availabilities

If British production, imports, and availabilities = 100, the corresponding German figures are as follows:

	Production	Imports	Availabilities
1950/51-1952/53	142.5	36.6	86.3
1953/54-1955/56	146.1	41.9	89.1

(C) Determinants of the difference in imports

Germany's higher production and lower consumption of food accounted for the following proportions of the difference in imports (per cent) :[a]

	Larger German production	Lower German consumption
1950/51-1952/53	60.7	40.9
1953/54-1955/56	69.3	35.5

---

[a] The figures do not add up to 100 because of stock changes. In period 1, stocks increased in both countries, though faster in Germany than in the United Kingdom. In period 2, they continued to rise in Germany, but fell in Britain. One might have had a third set of figures in section C, showing the difference in imports due to differential stock changes. The figures would be: —1.6 for period 1, and —4.8 for period 2. I.e., because of Germany's higher rate of accumulating stocks, the difference in imports was higher than it would otherwise have been.

faster than those of Britain, but the relative changes have been quite small, and therefore the position has remained fundamentally unchanged.[13] As was pointed out in Chapter 1, over these six years the German economy has been growing at a much faster rate than that of Britain, and although this has affected the sector under discussion, the effects appear to have been relatively small.

Differences in Domestic Consumption Examined

We have found that a higher level of agricultural production in Western Germany than in Britain, and a lower level of food consumption, were directly responsible for the difference in imports. Our next step, obviously, is to probe further into these two factors. Turning to consumption first, there are one or two further remarks to be made about the figures in Table A (cf. Appendix A). In absolute terms, the difference in consumption was $640 million in period 1 and $560 million in period 2, while over the same period German imports were $920 million and $1,180 million, respectively. Therefore, if Western Germany had in fact enjoyed a standard of food consumption similar to that of the United Kingdom during this time, then, assuming that she would have been obliged to import the whole of the additional amounts required,[14] her food import bill would have increased by roughly two-thirds in period 1 and by 50 per cent in period 2. This throws an interesting light upon the relative ease with which Germany managed her external accounts over these years. For if these proportions are applied to *actual* imports of food, drink, and tobacco (as provided in Table 2),[15] the current account surpluses shown in Table 1, which averaged about $450 million for the period as a

---

[13] No precise measure of these changes for each country alone can be obtained from our table; i.e., we cannot derive national indices of output, imports, and consumption, as the physical quantities in Table 4 have been weighted with current prices (though the change in prices between period 1 and period 2 was on balance very small). However, we know from Table 4 that production, imports, and consumption have risen in both countries, and a comparison of the proportions for the second period with those for the first (cf. p. 21) shows that in Germany these items have risen slightly faster than in Britain.

[14] This assumption is consistent with what was said above about commercial policy (cf. p. 10).

[15] For an account of the difference between imports as calculated and actual imports, see Appendix A.

whole, would have been turned into a deficit of roughly $250 million. If the two periods are taken separately, a very sizeable deficit—about $700 million—would have been incurred in period 1, and only a small surplus—roughly $200 million—would have been earned in period 2.

Also, it should be remembered that the above estimate of relative food consumption refers to food at a comparatively early stage of processing,[16] as distinct from expenditure by consumers on food in the processed form in which it in fact reaches them, and as distinct again from a comparison of nutritive standards.[17] Estimates relating to consumers' expenditure on food over this period can be made, and may be compared with the results established above. During 1950-52 (calendar years), the expenditure of German consumers on food, drink, and tobacco is estimated at 81 per cent of that in Britain, and for 1953-55, a figure of 93 per cent is returned.[18] On this basis also, therefore, German consumption is shown to have been below that in Britain.

As to the reasons for Germany's lower consumption of food over this period, the main factor responsible is likely to have been the lower overall standard of living there. In 1950-52, gross national product per head in Western Germany was on the average about 71 per cent of that in Britain, and although the increase in German real incomes from the first period to the second was considerably greater than that in British incomes, the figure for period 2 is still only 81 per cent of the British.[19] Thus the differ-

[16] Cf. also Appendix A.

[17] Cf., for example, Organisation for European Economic Co-operation, *Agricultural and Food Statistics, op.cit.*, Tables 35 and 36.

[18] *Source:* M. Gilbert and I. B. Kravis have estimated relative food consumption in 1950 in *An International Comparison of National Products and the Purchasing Power of Currencies*, published by the Organisation for European Economic Co-operation, Paris, 1954 (cf. table 12). These figures were extended with the help of national indices over the remainder of the period. Source for national data: Germany: *Statistisches Jahrbuch*, 1956, p. 521. Population change is allowed for. United Kingdom: *National Income and Expenditure*, 1956, table 25. Population data from OEEC, *Agricultural and Food Statistics, op.cit.*, Appendix. The difference between these figures and the results established on p. 21 may be due to the wider coverage of the expenditure figures and the very different method of calculation, even if we neglect the fact that we are measuring somewhat different objects.

[19] Relative per capita output in 1950 from M. Gilbert and I. B. Kravis, *op.cit.*, table 12. Extended to other years with the help of indices obtained from Organisation for European Economic Co-operation, Statistical Bulletins, *General Statistics*, January 1957, p. 102.

ence in the overall standard of living has been a good deal more marked than that in food consumption levels, and, together with a low income elasticity of demand for food, this looks like being the main reason for the lower consumption of food in Germany.

The next step, then, would be some "explanation" of why over this period real income per head in Britain should have been some 30 per cent higher than the corresponding German figure. Obviously, such an analysis is far beyond the scope of this study—quite apart from the immense difficulties which such an attempt would encounter. One would tend to assume that the much greater volume of destruction suffered by Germany as a consequence of the war, as well as her late start in the general post-war recovery, would be among the chief factors, together with the effects of the country's partition and the much higher level of unemployment. The fact that before the war the difference between per capita real incomes appears to have been a good deal less than it was over our period supports this line of reasoning.[20] On the other hand, the considerably larger volume of investment[21] in post-war Germany no doubt operated in a mitigating fashion.

Differences in Domestic Production Examined

However, there appear to be some more permanent factors at work which make German real income lower, relative to British real income, than it would otherwise be. This is suggested by a closer examination of the other determinant of the difference in food imports—the difference in domestic production. We saw above that about two-thirds of the difference in imports could be ac-

[20] If the comparison is made between the Federal Republic and Britain, per capita income in Britain seems to have been 7 per cent above that in Germany in 1938. If we take the whole of Germany, British incomes exceeded German incomes by about 13 per cent. These estimates were derived by linking 1938 to relative per capita incomes in 1950 as estimated by M. Gilbert and I. B. Kravis, op.cit. Sources for indices of per capita national income at constant prices: Germany: Organisation for European Economic Co-operation, *Statistics of National Product and Expenditure, 1938, 1947 to 1952*, p. 55, and *Statistisches Handbuch von Deutschland*, 1949, p. 600. A comparison of national income estimates relating to the whole of Germany in 1936 with those referring to the area now comprising the Federal Republic indicates that 60 per cent of total German national income originated in the Federal Republic. United Kingdom: OEEC, *Statistics of National Product and Expenditure, op.cit.*, p. 86.

[21] Both absolutely and relative to total national product. Estimates can be obtained in the same manner as those for relative gross products. (Cf. note 19 on p. 23.)

counted for by the fact that German production of the commodities concerned was roughly one and a half times as large as British. Although our method of calculation diverges in a number of ways from the usual method of computing agricultural output,[22] this result is by no means misleading. A number of estimates of relative agricultural outputs have been made, but they all tend to show that net German output is about 50 per cent higher than British.[23]

How does Germany manage to obtain 50 per cent more produce from her agricultural land? The chief reason surely lies in the very much larger input of labour. Reliable and comparable statistics relating to agricultural manpower are notoriously difficult to obtain, but the following figures should give at least a correct impression of the facts. It is estimated that between 1950 and 1952 about 4.8 million men and women were active on German farms as against roughly 1.1 million in Britain; in period 2, the labour force is estimated to have fallen in both countries, to about 4.3 million in Germany and 1 million in Britain. When males only are considered, the disparity is much smaller, because women form a very substantial part of the total labour force in Germany, whereas they are relatively unimportant in Britain. The figures are 2.2 million for Germany and 960 thousand for Britain in

22 Cf. Appendix A.

23 Cf., e.g., Organisation for European Economic Co-operation, *Agricultural and Food Statistics, op.cit.*, table 9 (II). The weights of Germany and the United Kingdom in the combined index give an indication of pre-war relative output in agriculture, net of imported feed and store cattle. If these weights are extended (with the index numbers provided there) to our period, we obtain figures of 142 (1950/51-1952/53) and 149 (1953/54-1955/56), respectively, for German output if the United Kingdom = 100. Cf. also Economic Commission for Europe, *Economic Survey of Europe in 1954*, Geneva, 1955, table 86, which suggests a ratio of relative outputs of 1: 1.45. This refers to relative output net of feed imports per hectare during the years 1950-1953, but as the agricultural areas are of much the same size (cf. p. 4 above), this does not invalidate the estimate for our purposes.

For the purpose of making productivity comparisons, however (see below), one really requires "net" output in a much fuller sense—that of "value added" in the agricultural sector. No estimates appear to be available, apart from a probably not very accurate shot at the problem made in Economic Commission for Europe and Food and Agriculture Organisation, *Output and Expenses of Agriculture in Some European Countries, op.cit.* (cf. especially Table 4), but a rough calculation based on national statistics suggests that the difference in net agricultural outputs in this sense is a little more pronounced than that above—a ratio of British to German output of 1: 1.6 — 1.7 appears likely for our period.

period 1, and 2.0 million for Germany and 910 thousand for Britain in period 2. If females are converted into males at a ratio of 2:1 (as has been suggested by some authors), we obtain 3.5 million for Germany in period 1 and 1 million for Britain, and 3.1 million for Germany as against 970 thousand for Britain in period 2.[24]

It is clear from these figures that, in order to achieve the extra 50 per cent of output, German agriculture uses a much more than proportionately larger input of labour, with the result that labour productivity—average output per head—is considerably lower than it is in Britain. Estimates of relative productivity depend on which definitions of output and of labour force are used, but a rough approximation would suggest that output per man in British agriculture is about twice as high as it is in Germany.[25]

Low output per head over a sizeable sector of the economy—about 19 per cent of the active population in Western Germany is engaged in agriculture, as against 4.5 per cent in Britain[26]—naturally tends to depress overall real incomes and real consump-

[24] Germany: Average rates of decrease were derived from data of "Ständig in der Landwirtschaft familieneigene Beschäftigte." Between 1949 and 1953, total manpower declined by 16 per cent, or roughly 3.8 per cent per annum, and males only by 9 per cent, or 2.1 per annum. Between 1953 and 1954, the rates of decrease were 2.3 per cent for total manpower and 3 per cent for males. Between 1954 and 1955, manpower was assumed to have declined at the same rate as between 1953 and 1954 (no data available). *Source: Wirtschaft und Statistik,* 1955, p. 306, table 2. These rates of decrease were then applied to the 1950 figures of total agricultural labour force as obtained from the census of occupations (*Berufszählung*). Cf. *Statistisches Jahrbuch,* 1953, p. 113, Landwirtschaft und Gärtnerei.

United Kingdom: Basic figures from *Annual Abstract of Statistics,* 1953-1956, tables on "Distribution of Total Manpower." Figures obtainable there include forestry and fishing, and apply to Great Britain only. For employees, however (about 70 per cent of total manpower), separate figures for agriculture including horticulture, forestry, and fishing, and for Great Britain and the United Kingdom, are available (cf. *Ministry of Labour Gazette,* 1953-1956, February issues), and the manpower statistics in the *Annual Abstract* were interpolated accordingly.

[25] Assuming that output net of feed and store cattle was 50 per cent higher in Germany, we obtain the following figures for output per head (both periods—little change): Men and women: Germany = 100; United Kingdom = 280. Men only: Germany = 100; United Kingdom = 135. Women converted into men as above: Germany = 100; United Kingdom = 210. If output in the sense of value—added is used, the estimates for Britain should probably be reduced by about 10 per cent.

[26] For agricultural labour force, see note 24 directly above. Total active population obtained from the following sources: Germany: *Statistisches Jahrbuch,* 1956, p. 111. United Kingdom: *Annual Abstract of Statistics,* 1956, table 128.

tion, including food consumption. A rough calculation, based on orders of magnitude only, suggests that, over the period as a whole, one-third of the difference between British and German real incomes per head was due to Germany's lower productivity in agriculture.[27] In this way, Germany's larger production of food—which accounted, as we saw, for about two-thirds of the difference in food imports—also takes us some way towards an explanation of the other factor responsible for the difference in food imports—the lower consumption of food in Germany—because this higher production is achieved with a much more than proportionate extra input of labour.

But why is German agriculture, by comparison, so inefficient? There is no room here for any lengthy discussion,[28] but the basic reason is certainly to be found in the fact that the typical German farmer works on a small holding (which in addition is frequently fragmented into tiny plots), and in consequence can only to a limited extent apply modern techniques and machinery. In comparison with this, British farming is of a large-scale, "capitalist" character, which allows a much wider application of the numerous advances in agricultural technology.[29]

[27] According to the estimates made above (cf. p. 23, note 19), income per head over our period averaged about $1,000 in the United Kingdom and $760 in Germany. About 5 per cent of British income is derived from agriculture—$50. Assuming that the net output (in the national income sense) of German agriculture was 60 per cent higher than British production, this would make German output $80. Had German productivity been twice as high as it in fact was (i.e., about equal to British), this would have added $80 to German per capita income—one-third of the absolute difference of $240 between British and German incomes.

[28] For details, cf. Economic Commission for Europe and Food and Agriculture Organisation, *European Agriculture, a Statement of Problems, op.cit.*; Economic Commission for Europe, *Economic Bulletin for Europe*, Geneva, 2nd Quarter 1951; *Economic Survey of Europe Since the War*; and *Economic Survey of Europe in 1954.*

[29] The following table well illustrates the relatively small size of German farms:

Distribution of Farms According to Size of Holding

(Recent Years)

(in per cent)

| | SIZE OF HOLDINGS (IN HECTARES) | | | |
	0-10	10-20	20-50	Over 50
Germany	40	26	24	10
United Kingdom	7	8	25	60

Source: Economic Commission for Europe and Food and Agriculture Organisation, *European Agriculture, op. cit.*, chart 3.

These differences in agricultural structure are the result of very different historical developments; in particular, the pursuit of different commercial policies by the two countries between 1880 and the recent past has no doubt had a decisive influence. In Britain, there was no attempt to prevent the free importation of agricultural produce until the early 1930's, and very few internal arrangements favouring agriculture existed.[30] During the 1930's, a certain degree of agricultural protection was initiated, but this consisted of no more than an agglomeration of ad-hoc measures which attempted to alleviate the worst hardships among farmers,[31] and it was not until the outbreak of war that a systematic policy of fostering home agriculture, similar to the one which exists today, was introduced. In Germany, on the other hand, the policy of protecting agriculture dates back to the time when overseas competition first began to constitute a serious threat to the domestic farmer in the late 19th century. By means of tariffs and other forms of protection, German agriculture was artificially preserved[32] and fostered, and although the "degree of protection" has varied, German farmers have never had to compete with overseas suppliers on level terms.

Two related consequences of this difference in agricultural and commercial policies may be distinguished. First, the artificial fostering of German agriculture has twisted the structure of the German economy in such a way as to give agriculture a larger share of resources and output than it would have enjoyed in the absence of protection. In both countries, the use of resources on the part of agriculture, and its contribution to total national output, have declined over these seventy years,[33] but the decline in

[30] Cf. National Institute of Economic and Social Research, *Trade Regulations and Commercial Policies of the United Kingdom*, Cambridge, 1943, ch. 5.

[31] *Ibid.*, chs. 1 and 5-7.

[32] There is little doubt that free trade would have posed far more serious problems for German agriculture than it did for agriculture in Britain. In the late nineteenth century, as now, British agriculture was technically far superior to German (largely as a result of the enclosure movement in Britain), and the agricultural sector formed a much smaller proportion of the total economy. The absence of protection would have placed millions of German peasants in an exceedingly perilous position.

[33] Decline, that is, relative to the total amount of resources available, if not absolutely.

Germany would no doubt have been far more marked if imports had been allowed to enter freely. Second, protection allowed German agriculture to remain relatively inefficient, whereas free trade forced British farming, which in the late nineteenth century was already among the most advanced of its kind in Europe, to keep abreast with new developments.[34] As a result, Germany is now saddled with a large and relatively backward agricultural industry, which tends to depress overall real income. In Britain, on the other hand, although the present agricultural policy has probably led to a less than optimum allocation of resources, the resulting loss imposed on the economy as a whole is certainly much less serious than it is in the German case, because the sector concerned is relatively much smaller, and because it uses fewer resources per unit of output.

Pre-War Situation

It is evident that full justice cannot be done to these important and far-reaching issues in a few sentences, but this is not the place to carry the matter further.[35] There is, however, one related aspect of the "historical background" which might in conclusion be examined a little more closely. As we know, post-war German food imports have been very much below British. What was the position in the past? One would infer from the above discussion of agricultural and commercial policies that the present position is not a new one; furthermore, one might expect that the effects of the division of Germany would lead to a higher post-war import level—i.e., that the pre-war difference was even more marked than the present. Although the well-known hazards of constructing and interpreting index numbers over a long stretch of time are very much increased in this particular case because of territorial changes and other unusual influences, the comparison of German and British per capita food imports between 1913 and

---

[34] There is no doubt that various imperfections in the system, such as the lack of access to capital, prevented British agriculture from adapting itself as quickly and as extensively to changed circumstances as might otherwise have been the case, and that much of the depressed state of the industry was due to such imperfections and not to free trade itself.

[35] As mentioned above, the author hopes at some later date to publish an examination of the effects of agricultural protection on the German economy.

the present time, as depicted in Chart 1, should at least give a rough idea of the actual story.

As can be seen, the volume of food imports per head of population into both Britain and Germany in the post-war years has been fairly similar to that obtaining in 1913. During the intervening period, however, food imports by the two countries fared very differently. During the 1920's, German imports on the average were a little below the 1913 level, and after the onset of the depression they very rapidly declined further, until in 1935 and 1936 they had fallen to almost half the pre-1914 amount. Just before the outbreak of war there was a marked recovery, to about 80 per cent of 1913. In the post-war period, per capita food imports at first fell again, but in the last two years under consideration they increased at a fast rate, apparently reaching the 1913 level in 1955.
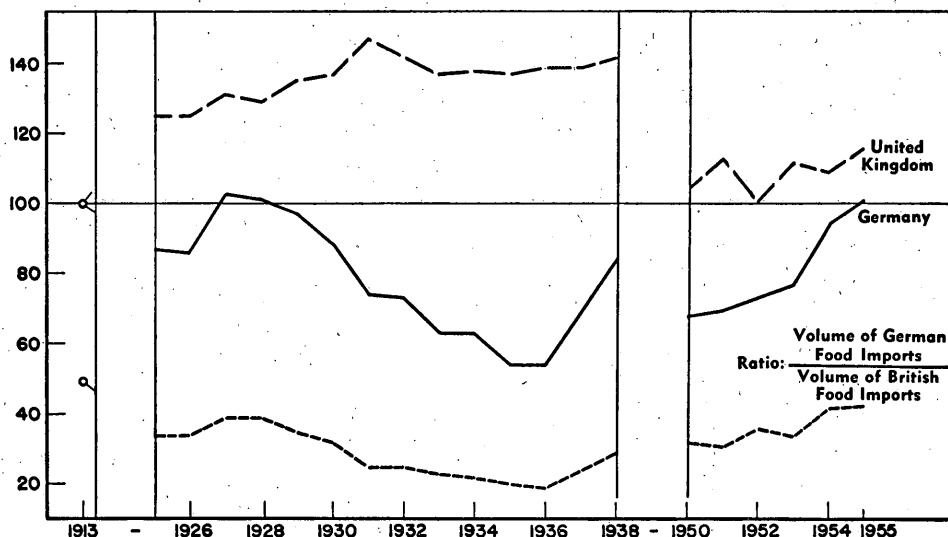
In Britain, on the other hand, per capita food imports during the inter-war period were very much higher than either in 1913 or in the post-war years. They rose steadily until 1931, when they were about 50 per cent above 1913, and then settled at a slightly lower level during the remaining years of the 1930's. Between 1939 and 1950, they fell sharply, and the average amount during 1950-1955 was only about 10 per cent above 1913.

It follows from these changes in German and British food imports that the difference between them is not new, and that indeed over much of this half-century the gap has been a good deal wider than it has been since the war. The dotted curve, representing the ratio of the two countries' per capita imports of food, shows this very clearly. In 1913, this ratio stood at roughly 50 per cent, i.e., German food imports were about half as large as those of Britain; in the inter-war period, it fell continuously, until in 1935/36 German imports were less than 20 per cent of British, but after the war the ratio rose again to about 36 per cent.

As to the reasons for these relative changes, a few factors stand out quite clearly. There is the policy of autarky pursued in Germany during the 1930's. Superimposed on the already existing system of agricultural protection, it cut food imports to a minimum, and thus prevented the German consumer from

CHART 1

Volume of German and British Food Imports per Head, 1925-1955
(1913 = 100)

benefiting from the favourable terms of trade between food and manufactures, which in the British case encouraged the expansion of imports to the record levels prevailing during that time. The effects of British protection are also clearly visible. This led to a rapid increase in domestic output during and after the war,[36] hence the sharp decline in imports. Furthermore, as we expected, the division of Germany led (through the cessation of "imports" from the east, and through the large influx of refugees into the western part) to a rise in per capita imports, though not perhaps on as large a scale as one might have presumed.

There were no doubt many other influences at work, but without a great deal of further analysis these cannot be sorted out. Ideally, one should probably start with the kind of approach followed above, reducing the difference in imports to a production effect and a consumption effect, and then examine each of these in turn. It appears likely, however, that the factors we have indicated—changes in commercial policy and in the terms of trade, together with the effects of the division of Germany—would figure prominently among the ultimate determinants.

[36] During the first part of this decade, net output was at least 50 per cent higher than in pre-war years. Though most of the "credit" for this expansion must go to government policy, some expansion of domestic agriculture would probably have taken place even under free trade conditions, as a result of prices of agricultural products rising relative to those of manufactures.

III. Imports of Industrial Materials

Introduction

As we saw in Table 2, the difference between the import dependence of Britain and Germany is not only a matter of food imports, but also extends over the second big group of commodities, industrial materials. Before we analyse the position, however, a note of caution should be sounded. In the case of food, it was possible to arrive at some fairly definite conclusions, mainly because the statistical material available proved to be both fairly easy to handle and very appropriate for the purpose in hand. As regards industrial materials, however, the situation is a good deal more difficult. Owing, no doubt, to the complexities of the subject matter, the existing data are a great deal less comprehensive; moreover, the reliability of some of the available figures can validly be questioned.

The result of this deficiency of really suitable data, in combination with the doubtful reliability of others, has been that the analysis is rather less precise than that of relative food imports. In the latter case, we were able to start from a set of single-commodity data which we then combined to obtain an overall result; here, although a good deal of our discussion is directed to particular groups of industrial materials, the actual analysis of the difference in imports is based almost exclusively on global comparisons, using statistics derived elsewhere. Thus, the comparison of industrial production and imports of industrial materials which is made below, and on which a great deal of the argument depends, can only be done for aggregate output and imports, as very little precise information about the raw material inputs of different single industries is available. This insufficiency of input data means that differences in the imports of particular commodities cannot really be analysed; moreover, as will be shown below, a part of the difference in *total* imports escapes close examination for the same reason.

These limitations do not mean that the conclusions are necessarily misleading; on the contrary, the author holds that the emerging picture gives a fairly accurate impression of the real situation, but the margin of error, or the degree of uncertainty,

is necessarily greater. Moreover, some results are just unobtainable.

A related difficulty arises with regard to stock changes. These can markedly influence the results for particular years, but hardly any information about the level or composition of stocks of industrial materials exists for either Britain or Germany.[1] In the subsequent discussion, when it appears particularly important, allowance will be made for the substantial changes in stocks during 1950/51,[2] but otherwise inventories will be disregarded. This means that the results for single years should not be unduly emphasised.

A word should also be said about the meaning of "industrial materials." This term covers raw materials and semi-manufactured articles, purchased by industry[3] for (further) processing. Imported materials not, or only partly, for use in industry—a fairly small proportion of total imports in this group—were excluded.[4]

[1] In the case of food, information about stocks can be obtained from Table 4 (cf. also the Comparison of Total Production, Net Imports, and Availabilities on p. 21 above).

[2] Stocks in general, which no doubt included inventories of industrial materials, were run down in Britain in 1950, and built up again (at considerably higher cost) in 1951. In Germany, the opposite appears to have taken place, partly, at least, as a result of the temporary but sharp increase in import restrictions in 1951. Both countries' imports were correspondingly affected; i.e., British imports were particularly low in 1950 and particularly high in 1951, while the opposite holds for Germany.

[3] Industry is defined in this study as comprising all manufacturing industries (but excluding food-processing trades, tobacco manufacture, and production of beverages), gas and electricity production, and building. This definition aims at isolating what might be called the "raw-material-consuming sector of the economy" (though this sector may of course also "consume" semi-manufactures originating outside it), so as to enable us to contrast imports and home production of industrial materials with the aggregate output of the consuming units.

[4] The selection of commodities to be included was made from the detailed list of commodities in the Standard International Trade Classification. No doubt mistakes were made in some cases—i.e., particular items were erroneously thought to be purchased by industry, and vice versa—but these are not likely to be serious. Two items of particular importance which were not included are coal and petroleum products. In neither case is information available concerning the distribution of imports between industrial and non-industrial usage; in the case of coal, an additional reason for its exclusion was the rather artificial position in the coal market in both countries. In the last few years, both countries have exported and imported coal in fairly large quantities, but it appears doubtful that this trade would have been substantial if the market for coal had been free, and if the price of coal had been allowed to rise to its equilibrium level. Some of the trade—that due to location factors or product differentiation—might well have continued, but the import of expensive American coal and the export of cheaper domestic

One last remark before we embark on the analysis. Very early in the examination of imports of industrial materials, a choice had to be made between dealing with either gross or net imports, i.e., imports minus exports of industrial materials.[5] This problem is quantitatively unimportant as far as raw materials are concerned, but it assumes considerable quantitative significance in the case of semi-manufactures which are both imported and exported on a large scale by the two countries under consideration.[6] The ultimate decision to neglect exports of semi-manufactures entirely was based on the following line of reasoning. This part of our study is concerned with imports of industrial inputs, be they raw materials or semi-manufactures. The fact that industrial materials similar[7] to those which are imported and which are then used as industrial inputs may also be exported at the same time does not appear to be relevant for our purposes. If we were considering something like the "minimum import needs" of Britain and Germany, then indeed an examination of the extent to which exports of semi-manufactures could be turned into import substitutes would be of great importance. However, as our aim is to

coal (owing to treaty obligations of the European Coal and Steel Community or long-standing export contracts) would probably not have taken place. On the other hand, oils and greases were included among industrial materials, although a part of this group of commodities is used in the production of margarine, which is not included in our definition of industrial output.

[5] In the case of food, we were spared this particular choice, since the data used for the main analysis (cf. Table 4, p. 15 above) are only available in terms of net imports. In any case it does not matter much one way or the other, because in the great majority of cases exports are zero or small, particularly as most food exports consist of processed food, which would count very little if reduced to the unprocessed form in which we compared production, imports, and availabilities. Also, a considerable part of food exports consists of commodities which could not be included in our tables, especially fish and, in the British case, cocoa, including chocolate.

[6] In fact, exports of semi-manufactures exceeded imports to a substantial degree, especially in the German case. Over the period as a whole, German exports of semi-manufactures appear to have been somewhat smaller than British, but the difference was a good deal less than that between the two countries' imports of semi-manufactures.

[7] Sometimes the similarity between imports and exports of semi-manufactures may go no further than a common denomination as "semi-manufactures"—as, for example, the import of paper and paper board and the export of steel tubes by Germany. On the other hand, the technical substitutability of exports and imports may appear to be high, but if we have a working price mechanism, those goods still are not economic substitutes. The import and export of textile yarns by Britain would seem to be a case in point.

consider actual British and German purchases of industrial materials over a certain period, and to analyse some of the factors responsible for the size of these purchases, exports of semi-manufactures do not appear to enter into the argument. One exception to this general statement should just be mentioned, however. If, as a result of distortions in the price mechanism, some goods which are perfect economic substitutes were yet imported and exported at the same time,[8] there might have been a case for considering net imports only. However, the detection of such instances—which would not appear to be of great quantitative importance—would require a great deal of detailed knowledge of industries in both countries, which the author cannot claim. Hence exports of semi-manufactures were disregarded throughout.[9]

Dependence on Imports Compared

We begin by considering the imports of industrial materials according to eight main subgroups (Table 5). Three aspects of the statistics deserve particular mention. First, it is apparent at a glance that the differences between German and British imports vary considerably from group to group. Thus, Germany's imports of oils and greases never fell below 50 per cent of British imports of these commodities, and in the last few years her purchases of ores and metals have likewise not been much below British imported supplies in that group; on the other hand, German imports of wood and timber, pulp and paper, and crude petroleum have been considerably smaller than British—less than one-third, in fact, apart from one or two instances. At the same time (and this is the second point), in all the subgroups the difference has tended to diminish over our period. This has been particularly marked in the case of ores and metals—between 1950 and 1955, German imports rose almost three times as fast as British. Crude

[8] The outstanding example is probably the trade in basic iron and steel products. Both in Britain and in Germany (or, more accurately, in the European Coal and Steel Community), prices of these products have over much of our period been well below prices obtained by exports to third countries. As a result, there has been a constant temptation for steel manufacturers to export their products to third countries instead of selling them at the lower internal price to domestic consumers, and insofar as they have yielded to this temptation, these domestic consumers have had to import their requirements, instead of obtaining them from home sources.

[9] The implications of this decision are indicated at the appropriate places below.

TABLE 5

IMPORTS OF INDUSTRIAL MATERIALS, CLASSIFIED INTO MAJOR COMMODITY GROUPS

(millions of dollars)

		Oils & greases	Rubber	Wood & timber	Pulp & paper	Textile materials	Ores & metals	Crude petroleum	Chemicals	Other	TOTAL
1950	Germany	222.9	56.8	49.5	43.8	516.0	187.9	40.8	46.2	179.9	1,343.8
	United Kingdom	354.6	144.3	284.0	201.4	1,095.2	595.4	207.9	141.9	331.6	3,356.4
	Germany/United Kingdom	62.8	39.3	17.4	21.8	47.1	31.6	19.6	32.6	54.3	40.0
1951	Germany	296.8	105.1	85.2	127.9	604.1	339.6	84.2	60.5	202.1	1,905.6
	United Kingdom	492.3	370.0	654.1	599.8	1,651.0	883.9	445.7	261.2	492.7	5,850.6
	Germany/United Kingdom	60.3	28.4	13.0	21.3	36.6	38.4	18.9	23.2	41.1	32.6
1952	Germany	228.7	80.0	140.6	94.6	485.9	569.6	98.1	70.0	235.7	2,004.1
	United Kingdom	457.4	155.2	436.0	389.9	1,001.2	1,302.7	664.1	171.1	337.2	4,914.8
	Germany/United Kingdom	50.0	51.5	32.2	24.3	48.5	43.7	14.8	41.5	69.8	40.8
1953	Germany	248.9	70.3	126.4	82.1	540.0	571.3	107.0	80.3	246.9	2,073.2
	United Kingdom	349.5	131.3	467.0	280.2	1,063.0	1,004.6	610.1	163.9	347.5	4,416.9
	Germany/United Kingdom	71.2	53.6	27.1	29.3	50.8	56.9	17.5	49.0	71.0	46.9
1954	Germany	273.2	76.2	176.1	116.8	593.7	755.8	130.1	125.4	282.7	2,529.9
	United Kingdom	328.1	134.7	510.0	383.5	1,009.2	953.8	617.3	226.9	359.1	4,522.3
	Germany/United Kingdom	83.3	56.6	34.5	30.5	58.8	79.3	21.1	55.3	78.7	56.0
1955	Germany	293.4	131.5	245.0	149.4	633.2	1,175.2	154.0	153.8	357.9	3,293.4
	United Kingdom	308.0	241.4	642.8	478.7	931.1	1,395.5	628.5	253.5	375.8	5,255.3
	Germany/United Kingdom	95.1	54.5	38.1	31.3	68.0	84.2	24.5	59.5	95.2	62.6

Source: Organisation for European Economic Co-operation, Statistical Bulletins, *Foreign Trade*, Series III.

The commodity groups in Table 5 correspond to the following numbers in the Standard International Trade Classification (U stands for raw materials and S for semi-manufactures):

Oils and greases: U: 22, 411, 412; S: 413.

Rubber: U: 23; S: 621.

Wood and timber: U: 24, excluding 242 04 and 243 01; S: 63.

Pulp and paper: U: 25; S: 641.

Textile materials: U: 26; S: 651, 652 01.

Ores and metals: U: 28; S: 671, 68.

Crude petroleum: U: 312.

Chemicals: U: 51, 52; S: 531, 532, 533, 551, 591, 599.

Other: U: 27, 29; S: 661, 662, 663, 664, 672, 699, 81.

The division into raw materials and semi-manufactures more or less followed the principle that materials originating outside industry as defined in Appendix B are classified as raw materials, and that materials produced by industry thus defined (though, of course, in another country) are classified as semi-manufactures. In one case—that of chemicals—the author by mistake departed from this rule by classifying basic chemicals (51, 52) as raw materials. However, as all calculations were completed when this slip was discovered, it has not been corrected, since the quantitative significance is likely to be very small.

petroleum, on the other hand, provides an example at the opposite end of the scale—the relative increase of German imports has been quite small. Third, it appears worth pointing out that relative expenditure on textile materials, initially much the largest group in both import totals, declined over the period, and that the share of other groups, especially ores and metals, increased correspondingly. Thus, in 1950, 38 per cent of total German imports of industrial materials consisted of textiles and only 14 per cent of ores and metals. Over the period the share of textiles fell steadily and that of ores and metals expanded, until in 1955 the initial positions were almost reversed—only 19 per cent of the total consisted of textile materials, and 36 per cent of ores and metals. A similar movement took place in the United Kingdom, though it was a good deal less marked and less smooth. In 1950, 33 per cent of British imports consisted of textile materials, and 18 per cent of ores and metals; during the following years, the shares of both groups fluctuated a good deal, but that of textiles tended to fall and that of ores and metals to rise until in 1955 the figures were 18 per cent for textiles and 27 per cent for ores and metals. To some extent, these trends were the result of divergent price movements, for the prices of ores and metals rose relative to those of textile materials, but there were also important shifts in import volumes, reflecting the fast growth of the metal-using industries in both countries and the relatively much slower rise of output in the textile sector.[10]

As was pointed out above, industrial materials consist of both raw materials and semi-manufactures. A rough division of the two totals into these two groups is provided in Table. 6. This shows that, in the case of both Germany and Britain, roughly three-quarters of total imports of industrial materials consist of raw materials, and one-quarter of semi-manufactures. However, the proportion of semi-manufactures appears to be rising slowly in both countries, particularly so in Germany. Part of this trend has been due to prices of semi-manufactures rising more, or fall-

[10] A rough calculation indicates that, in the case of Germany, about one-third of the relative changes in the shares of textile materials and of ores and metals, respectively, was due to divergent price movements, and two-thirds to relative changes in volume. In the British case, the price factor accounts for more than one-half of the relative movement of shares.

TABLE 6

Imports of Industrial Materials, Classified into Raw Materials and Semi-Manufactures

	Raw materials			Semi-manufactures			Proportion of raw materials and semi-manufactures in total imports of industrial materials			
							Raw materials		Semi-manufactures	
	Germany	United Kingdom	Germany/ United Kingdom (per cent)	Germany	United Kingdom	Germany/ United Kingdom (per cent)	Germany	United Kingdom	Germany	United Kingdom
	(millions of dollars)			(millions of dollars)			(per cent)		(per cent)	
1950	1,062	2,617	40.6	282	739	38.1	79.0	78.0	21.0	22.0
1951	1,548	4,468	34.6	358	1,382	25.9	81.2	76.4	18.8	22.0
1952	1,530	3,591	42.6	474	1,324	35.8	76.3	73.1	23.7	26.9
1953	1,534	3,423	44.8	539	994	54.2	74.0	77.5	26.0	22.5
1954	1,785	3,419	52.2	745	1,103	67.5	70.5	75.6	29.5	24.4
1955	2,196	3,674	59.8	1,097	1,581	69.3	66.6	69.9	33.4	30.1

Source: As for Table 5.

ing less, than prices of raw materials,[11] relative to 1950, but the volume of imported semi-manufactures has also risen a good deal faster than that of imported raw materials.[12]

The reasons for this faster growth of imports of semi-manufactures must be manifold and cannot be discussed here, but some part of the explanation probably lies in the fairly high rate of expansion of the two economies over most of this period. Such expansion is always likely to lead to bottlenecks at various points in the economic system, especially where industries are highly capital intensive (as are many industries producing semi-manufactures—for example, the iron and steel industries, oil refining, and basic chemicals), and then larger purchases of supplies abroad may be the only solution for the unsatisfied customers.

Role of Commercial Policies

Although German imports of industrial materials have grown a good deal faster than British over our period, a substantial difference remained even in 1955, when German imports in this group were less than two-thirds of British. How can we account for this lower level of German imports? Let us first of all turn to commercial policies. Again, it is unlikely that this is a factor of major importance. In general, raw materials enjoy duty-free entry into both Britain and Germany, and there are no import restrictions except perhaps on purchases from particular sources of supply such as the Dollar Area. In the case of semi-manufactures, the position is a little more difficult. In general, semi-manufactures are subject to duty in both countries, and although the complexity of tariff schedules renders it very difficult to make an accurate comparison, it appears that tariff rates have been fairly similar. However, there have been some changes in the German tariff, especially during the later years of our period, and these may well have contributed to the faster rise of imports of semi-

[11] Apart from 1951, when raw material prices were more than 50 per cent above 1950, whereas the prices of semi-manufactures were only 40 per cent above 1950.

[12] The exact proportions of price and quantity changes leading to the rising share of semi-manufactures very much depends on the particular year under discussion. In 1955 more than two-thirds of the rising share of semi-manufactures in total German imports of industrial materials was due to higher volumes; for the United Kingdom, the corresponding figure was about one-half.

manufactures into Western Germany.[13] Import quotas on semi-manufactures were of considerable importance in both countries during the early part of our period, but during the last few years trade has been progressively freed from restrictions. However, it is probable that trade liberalization progressed at a somewhat faster rate in Germany than in Britain; this again would have encouraged a more rapid rise in German imports of semi-manufactures. Changes in tariffs and import restrictions may therefore have had some effect on relative German and British imports of semi-manufactures; this possibility apart, current commercial policies do not appear to have influenced relative imports of industrial materials to any substantial degree.

Effect of Differing Industrial Output Levels

We return, then, to our main theme—why did the marked differences in imports of industrial materials exist? It might appear advisable, at this stage, to develop a theoretical framework within which the problem would be examined. However, in order to avoid an unnecessarily complicated structure (which the sparseness of available data would not warrant), it was decided to concentrate at this point on one single factor, the level of industrial output in the two countries. Roughly speaking, this indicates the "consumption" of industrial materials, and therefore represents one of the most important determinants of the situation.

Comparisons of industrial output which avoid the pitfalls of such an undertaking do not really exist. There are some published estimates,[14] but these were found to be unsuitable for our pur-

[13] During 1953 and 1954, imports of steel products from the other countries of the European Coal and Steel Community were freed altogether (though duties had previously been low), and there were some general reductions in the German tariff, especially during 1954 and 1955.

[14] Cf. Economic Commission for Europe, *Economic Survey of Europe in 1948,* Geneva, 1949, Table 16 and Appendix. The estimates refer to industry, including handicrafts but excluding building. It would probably be possible to estimate the output of building, but the extension of output including building from 1938 to the present time would present difficulties in the case of Germany, because handicrafts and the greater part of building are excluded from the index of industrial production. Cf. also L. Rostas, "Industrial Production, Productivity and Distribution in Britain, Germany and the United States 1935-37," *Economic Journal,* April 1943. This also excludes building.

poses, and hence a new comparison had to be made. The value of industrial output, excluding mining and food- and tobacco-processing industries but including building, was estimated for the year 1950, and then extended over the rest of our period with the help of indices. Appendix B, which explains the method of calculation in detail, should make it clear that these estimates are fairly rough, but it is hoped that the results, shown in Table 7, are nevertheless reasonably close to the actual position.[15]

The figures suggest that throughout this period the output of German industry was well below that of British industry, though the more rapid growth of the German economy has led to a very marked narrowing of the gap. Whereas in 1950 German industry produced only little more than one-half the volume of output of British industry, it reached four-fifths of British output by 1955. There is no room here for a detailed examination of why German industrial output over this period was lower than British, or why it expanded at a much faster rate. The reasons given above as to the difference in national income are also relevant in this context.[16] In addition, it should be remembered that in Germany a much larger proportion of the total labour force (which is practically the same as that in Britain) works on the land and is therefore not available for other occupations. This would appear to be a factor making for a permanently lower German industrial output.

For the purpose of comparison, imports of industrial materials, also at constant 1950 prices, are provided in columns 4 and 5 of Table 7. They show the already familiar picture of a substantial, though narrowing, difference between British and German purchases abroad.

A number of important results emerge from this table. First and foremost, a comparison of the two ratios—columns 3 and 6—

[15] For similar results, cf. the weights of German and British industry in the index of industrial production for member countries combined, prepared by the Organisation for European Economic Co-operation. The OEEC estimated relative industrial output, excluding building, in 1953 at 73.4 (Germany) to 100 (United Kingdom). If food and mining are excluded from this, an estimate slightly below our figure emerges. Cf. OEEC Statistical Bulletins, *General Statistics*, March 1957. The estimates are based on the figures of the Economic Commission for Europe quoted above.

[16] Cf. p. 24 above.

TABLE 7

Industrial Production and Imports of Industrial Materials

	Industrial Production			Imports of Industrial Materials			
	Germany	United Kingdom	Germany/ United Kingdom	Germany	United Kingdom	Germany/ United Kingdom	(3)/(6)
	(millions of dollars at 1950 prices)		(per cent)	(millions of dollars at 1950 prices)		(per cent)	(per cent)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1950	7,200	13,400	54	1,340	3,360	40	74
Index	100	100		100	100		
1951	8,500	13,900	61	1,270	3,870	33	54
Index	118	104		95	115		
1952	9,000	13,400	67	1,450	3,500	41	61
Index	125	100		108	104		
1953	10,000	14,300	70	1,770	3,770	47	67
Index	139	107		132	112		
1954	11,100	15,500	72	2,200	3,930	56	78
Index	154	116		164	117		
1955	12,900	16,400	79	2,680	4,310	62	78
Index	179	122		200	128		

Source: See Appendix B.

indicates that the difference in industrial output is somewhat smaller than that between imports of industrial materials. This means that relative industrial production cannot account for the whole of the difference in imports of industrial materials. If we divide the two ratios into one another, as has been done in column 7, we obtain a set of figures which might best be interpreted as what the ratios of German over British imports *would be if industrial output in the two countries had been equal.* If this ratio stood at 100, it would indicate that the difference in output explained the whole of the difference in imports.[17] A figure of less than 100, on the other hand, would show that only part of the difference in imports is due to a difference in the output of industry, and that some other factors are at work to account for the remainder; this, roughly speaking, is our case. As column 7 indicates, about three-fifths to four-fifths of the difference in imports can be accounted for by relative industrial production, and "other factors," which will be examined below, are responsible for the rest.

Second, Table 7 enables us to determine the first—and no doubt the most important—reason why German imports of industrial materials have grown faster than the corresponding British imports. German industrial output nearly doubled between 1950 and 1955, whereas British output increased only by about 30 per cent. Unless some powerful offsetting influences were at work, differences in the rate of industrial expansion of such magnitude would certainly be reflected in the relative growth of imports of industrial materials. In fact, a closer examination of the indices of industrial production and of imports in Table 7 would appear to indicate that the difference between imports narrowed more quickly than that between industrial outputs. The indices show that in Britain imports increased only slightly faster than output, especially if we allow for the artificial element in the base year figures.[18] In the case of Germany, one would come to a similar conclusion if one simply compared the 1950 and 1955 figures. However, here again the base year is not wholly satisfactory.[19]

[17] Unless other influences (see below, p. 45) just offset each other.
[18] Stocks were run down in Britain during 1950, and imports were therefore artificially low, whereas the opposite was the case in Germany (cf. p. 34 above).
[19] Cf. p. 34.

If, therefore, we take the average of 1950 and 1951 as the base for the output and import indices, it becomes apparent that German imports have grown a good deal faster than German output.[20]

In other words—and this is the third point—the ratio of imports to industrial output, which is a concept similar to the "import content of industrial output," has remained more or less constant in Britain, whereas it has increased somewhat in Germany. It follows from the first point above, however, that the absolute level of this ratio is still substantially higher in Britain than it is in Germany—at 1950 prices, about 26 per cent as against an average of roughly 18 per cent.[21]

Some Further Considerations

How does this difference arise? Or, to put this question differently and in accordance with the framework of the first point made above, what are the factors other than the relative levels of industrial output which allow Germany to manage with lower levels of imports of industrial materials? The following would appear to be the most important possibilities.

First, if domestic raw material production for industrial processing in the United Kingdom, *relative to the output of industry,* is smaller than the corresponding ratio in Germany, the United Kingdom will have to import more raw materials than her larger industrial output would justify. It should be noted that it is not required that the United Kingdom produce an absolutely smaller quantity of raw materials than Germany does; the condition is that she produce less relative to the output of industry, representing "consumption" of raw materials.

Second, differences in the structure of industry may exist and lead to differences in imports of industrial materials. Particular industries vary as regards the ratio of material input to output. Some industries, like textiles or iron and steel, tend to have a fairly high ratio of material input to output, and the ratio of value-added to output is correspondingly low; in other industries,

[20] In 1955, output on that basis would have been 165, and imports of industrial materials 206.

[21] The figures for Germany are: 1950/51 = 16.8 per cent; 1952 = 16.1 per cent; 1953 = 17.7 per cent; 1954 = 19.8 per cent; and 1955 = 20.8 per cent.

45

like clocks and watches or scientific instruments, the ratio of material input to output is low, and that of value-added to output correspondingly high. If German industry has a *relatively* larger sector of industries of the second type and a *relatively* smaller sector of industries of the first type, then again a difference in imports of industrial materials will arise; i.e., Germany will tend to import less than the United Kingdom does, quite apart from the relative size of industrial output in the two countries.

A related possibility is that, in the production of any commodity, one country relies upon processes which require fewer raw materials per unit of output than processes used in the production of the same commodity in the other country. The substitution of synthetic materials for "raw materials" in one country but not in the other would lead to such a result. This kind of factor, or a general emphasis on the value of raw materials (especially if imported), might arise from a policy of autarky as pursued by Germany during the 1930's.

Third, one of our two countries—e.g., Britain—may have a more specialized industrial structure, and as a result she may be importing and exporting semi-manufactures in larger amounts than Germany. If, in addition, the ratio of British exports of semi-manufactures to imports of industrial materials is higher than it is in the German case, gross United Kingdom imports will again be larger than German, quite apart from the effect of differences in industrial production. In other words, if these assumptions hold, the unexplained portion of the total difference in imports would be smaller if the analysis were based on net imports.

Fourth, one of the countries—e.g., the United Kingdom—may import its industrial materials in a more processed form; i.e., the proportion of semi-manufactures in the total import bill for industrial materials may be larger than it is in the case of Germany. If this is so, then again the ratio of imports of industrial materials over industrial output will be higher for the United Kingdom than it is for Germany; i.e., the difference in industrial output will not account for the whole of the difference in purchases of materials from abroad.[22]

[22] This and the preceding point can rightly be regarded as being merely further aspects of differences in industrial structure. They are listed separately because

Which of these four factors does in fact hold in our particular case? Let us take the last two points first, beginning with point three. We know that Britain imported semi-manufactures in very much larger amounts than Germany did, and it was also mentioned above (note 6, p. 35) that British exports of semi-manufactures were higher than those of Germany. However, although German exports of semi-manufactures were in absolute amount less than British sales, the difference was smaller than that between imports of semi-manufactures;[23] in other words, the ratio of exports of semi-manufactures to imports has probably been higher in the German case than in that of Britain. This means that not only do exports of semi-manufactures fail to explain any part of that difference in imports of industrial materials which we could not account for by the comparison of industrial production, but that this unexplained part of the total difference in imports of industrial materials would probably be larger if we took account of exports; hence the inclusion of exports would render our task more instead of less difficult.

A similarly negative conclusion is reached in the case of point four. It was established above (Table 6) that the proportion of industrial imports taken by raw materials and semi-manufactures, respectively, is very similar for our two countries—from 70 to 80 per cent consists of raw materials, the remainder of semi-manufactures. This would appear to indicate that the composition of imports cannot explain the remaining difference in imports of industrial materials. However, a careful examination of the figures in Table 6 suggests that this is not quite the end of the story. Let us return for a moment to column 7 of Table 7. It was pointed out above that a figure of less than 100 means that the difference in output does not explain the whole of the difference in imports. If we average the figures for the first two years, we obtain a clear upward trend in this ratio; i.e., the proportion of the difference in British and German imports which is not accounted for by the difference in industrial output diminished

they are being dealt with immediately, whereas point two is discussed on p. 59 below.

23 Or between imports of industrial materials, since the proportion of imports of semi-manufactures to total imports of industrial materials was more or less the same for Britain and Germany.

over our period.[24] A careful inspection of the data in Table 6 indicates one reason why this may have been so. In the first three years of our period, Britain imported a slightly larger proportion of semi-manufactures than did Germany; the average proportion of semi-manufactures in total British imports during those years was 24.4 per cent as against 21.2 per cent for Germany. In the second three-year period, on the other hand, Britain imported a slightly lower proportion of semi-manufactures than Germany did—25.9 per cent as against 30.2 per cent. The effect of these changes was a faster relative growth of German imports of industrial materials than would have occurred if the relative proportions had remained unchanged—and the decrease in the "unexplained" part of the difference in imports would have been less marked.[25] However, this rather fine interpretation of the figures in Table 6 may not be warranted and, in any case, it does not tell us why there is an unexplained part at all—i.e., why the relative size of industrial output does not account for the whole of the difference of imports of industrial materials.[26]

Domestic Production of Raw Materials and Import Dependence

Let us turn, then, to the two remaining possible reasons—domestic production of raw materials for industrial use in Britain and Germany, and the structure of their industries (including the possible effects of autarkic policies in Germany). Unfortunately, owing to the lack of suitable data, both these factors defy precise examination, but in the first case, that of raw materials, a few statistics have been collected, and these should suffice to give a rough picture of the position.

These data are shown in Table 8. Twelve products (of varying importance) have been grouped under five main headings—metal ores, wood, hides and skins, mineral fuels, and wool. The items chosen do not exhaust the list of important raw materials (the

[24] The rise of imports of industrial materials relative to industrial production in Germany is another way of putting the same fact, since in the United Kingdom the ratio of imports to output remained on balance the same.

[25] The relatively more rapid expansion of German imports of semi-manufactures may have been partly due to changes in commercial policy (cf. above, p. 40).

[26] The figures in Table 6 are in current prices. The ratios of imports of raw materials and semi-manufactures in constant prices are very similar.

most important products not included would appear to be certain minerals and in particular potash, which is found in large quantities in Germany) nor are the figures in the table fully representative. In particular, no account could be taken of the recovery of basic materials from scrap and waste; this is of particular importance in the case of metals, but also provides a significant additional source of raw materials in the production of paper and textile materials.

However, we must turn to the figures in Table 8. No definite overall pattern seems to exist; in some lines, such as all the wood products, non-ferrous metals, and oil, Germany's output far exceeds Britain's; in others, such as coal,[27] wool, and iron ore, Britain produces larger amounts.

We cannot gauge the net position until we have applied some prices to these products. This has been done in Table 9 where the output of each main group is shown at constant (1950) prices.[28] The results can be summarized quite briefly. Outputs are more or less the same in metals and also in hides and skins; Germany produces far more wood, and the difference between the two countries is increasing, but Britain leads in fuels, though the difference between Germany and Britain is diminishing, and in wool. In quantitative terms, the importance of the various groups differed very sharply. As much as 80 per cent of total British raw material output consisted of fuels (i.e., coal), and the other four items shared the remaining 20 per cent. In Germany, fuels (coal plus oil) accounted for 57 per cent of total output[29] and wood for

[27] As we are only considering raw materials intended for industrial processing, the figure for coal here shown only covers coal going into industry. Total coal production is also larger in the United Kingdom than in Western Germany, though the difference is a little less marked.

[28] As in the case of food, quantities were valued with average import values, with the important exception of coal. In 1950, Britain imported practically no coal at all, and Germany's imports were also on a small scale. It was therefore thought that the average import values might not be representative. As coal is of considerable quantitative importance, any marked distortion in its price might have serious consequences for our results. Therefore an average of domestic prices was used in this particular case. For sources, cf. note to Table 9.

Constant 1950 average import values were used instead of current average import values because this is more convenient for our purposes. If the quantities in Table 8 are weighted with current average import values, results are fairly similar. The ratios of German output as a percentage of British output are then as follows: 79.9, 96.0, 97.2, 83.4, 89.7, and 102.8 for the six years, respectively.

[29] The figure for coal alone is 52 per cent.

TABLE 8

Domestic Production of Raw Materials for Industry, by Volume
(Units for each commodity given under Source)

		Metal Ores (Metal content)			Wood			Hides and Skins			Mineral Fuels		Wool
		Iron	Lead	Zinc	Soft-wood	Hard-wood	Pulp-wood	Cattle hides	Calf skins	Sheep & goat skins	Coal	Petro-leum	
1950	Germany	2.38	44.8	98.4	12.00	2.33	3.30	57.0	8.96	1.78	59.0	1.12	7.8
	United Kingdom	3.94	3.1	—	.42	1.79	.07	68.8	4.30	7.20	113.6	—	40.5
1951	Germany	2.78	50.4	101.9	11.35	3.02	3.75	58.8	11.69	1.86	65.5	1.37	6.7
	United Kingdom	4.51	4.2	.2	.37	1.62	.12	73.2	4.00	6.70	123.6	—	41.5
1952	Germany	3.26	51.6	106.5	10.80	2.91	3.19	62.5	11.68	1.72	70.8	1.75	6.3
	United Kingdom	4.94	4.8	1.7	.31	1.46	.11	65.7	3.60	6.50	119.5	—	43.5
1953	Germany	2.80	62.9	116.1	10.30	2.44	3.10	72.3	12.58	2.10	67.2	2.18	5.8
	United Kingdom	4.81	6.7	2.9	.40	1.36	.14	64.6	3.10	6.60	123.3	—	46.5
1954	Germany	2.52	67.5	120.7	10.70	2.69	4.07	77.2	12.27	2.02	71.2	2.66	5.2
	United Kingdom	4.74	6.9	3.5	.48	1.17	.14	80.1	2.70	8.70	123.9	—	48.8
1955	Germany	2.96	68.2	120.3	13.35	3.00	3.90	76.4	10.50	1.32	82.9	3.14	4.8
	United Kingdom	4.92	6.1	2.8	.41	1.10	.14	73.5	2.17	9.39	128.0	—	47.0

Source: (1) *Metal Ores*
(a) Iron Ore: Organisation for European Economic Co-operation, Statistical Bulletins, *General Statistics*, September 1956, p. 27. Unit: million m.t. (metric tons).
(b) Lead: 1950-1954: OEEC, *Industrial Statistics, 1900-1955*, Paris, 1955, Table 59. 1955: Germany: Metallgesellschaft Aktiengesellschaft, *Metallstatistik, 1946-1955*, Frankfurt am Main, 1956, p. 67. United Kingdom: *Annual Abstract of Statistics*, 1956, Table 175. Unit: thousand m.t.

(c) Zinc: Germany: *Metallstatistik, op.cit.*, p. 141. (These data were preferred to those published in *Industrial Statistics 1900-1955* because the latter do not seem to include zinc obtained from pyrites; this is of some importance in Germany, but not in the United Kingdom). United Kingdom: 1950-1954: OEEC, *Industrial Statistics 1900-1955, op.cit.*, table 64. 1955: *Annual Abstract*, 1956, table 175. Unit: thousand m.t.

(2) *Wood*

(a) Softwood: Food and Agriculture Organisation, *Yearbook of Forest Product Statistics*, Rome, 1952-1956, table 2, item "sawlogs, etc." The German data refer to "forest years" (October-September) and were adjusted (except the figures for 1955) by assuming smooth annual production trends. Unit: million cubic meters.

(b) Hardwood: FAO, *Yearbook of Forest Product Statistics*, 1952-1956, *op.cit.*, table 3, item "sawlogs, etc." German figures adjusted as in the case of softwood. Unit: million cubic meters.

(c) Pulpwood: OEEC, *The Timber Industry in Europe, Statistics for 1955, Trends for 1956*, Paris, 1956, tables 21 and 22. Unit: million cubic meters.

(3) *Hides and Skins*

(a) Cattle hides: 1950-1954: OEEC, *The Hides and Skins Industry in Europe*, Annex 1, Paris, 1955. 1955: OEEC, *Statistics of the Hides and Skins Sector*, Annex 1, Paris, 1956. Unit: thousand m.t. of wet, salted weight.

(b) Calf skins: As above. Unit: thousand m.t. of wet, salted weight.

(c) Sheep and goat skins: As above. Unit: thousand m.t. of dried weight.

(4) *Mineral Fuels*

(a) Coal: Deliveries of solid fuels to industry. 1950-1954: OEEC, *Industrial Statistics 1900-1955, op.cit.*, table 24. "Industry" is equal to coke ovens and gas works (own consumption only); thermal power stations; iron and steel industry; other industries. 1955: Germany: Economic Commission for Europe, *Quarterly Bulletin of Coal Statistics*, 1956, Section C, which allows a calculation along the same lines as followed by the OEEC for 1950-1954. This was not possible in the case of the United Kingdom, however, and therefore the consumption of coal by industry was extended by means of an index of total consumption in all sectors. The use of consumption statistics naturally does not ensure that all the coal is in fact produced domestically. However, as explained above (note 4, p. 34), a good deal of British and German coal trade during our period has been of an artificial nature, and hence the reliance on delivery statistics is probably justified. Unit: million m.t.

(b) Petroleum: OEEC Statistical Bulletins, *General Statistics*, September 1956, p. 24. Unit: million m.t.

(5) *Wool*

OEEC, *Food and Agricultural Statistics*, 1956, Table 19. Converted from harvest to calendar years by assuming smooth annual production trends. Unit: thousand m.t.

TABLE 9

DOMESTIC PRODUCTION OF RAW MATERIALS FOR INDUSTRY, BY VALUE

(millions of dollars at 1950 prices)

		Metal Ores	Wood	Hides & Skins	Mineral Fuels	Wool	Total
1950	Germany	62	307	33	480	12	894
	United Kingdom	54	86	41	878	60	1,119
1951	Germany	70	334	36	536	10	986
	United Kingdom	62	78	42	956	62	1,200
1952	Germany	78	315	37	585	9	1,024
	United Kingdom	69	70	38	924	65	1,166
1953	Germany	76	286	43	567	9	981
	United Kingdom	67	68	38	953	69	1,195
1954	Germany	74	315	45	608	8	1,050
	United Kingdom	67	60	47	958	72	1,204
1955	Germany	80	362	42	709	7	1,200
	United Kingdom	69	56	44	989	70	1,228

Source: The figures in Table 9 were obtained by weighting the quantities in Table 8 with the average of British and German average import values for the commodities concerned in 1950, and then adding the results so as to derive the total value of output in each commodity group. The calculation of suitable average import values for the year 1950 proved to be difficult in a number of cases, and some of the estimates are subject to a fair margin of error.

Iron ore: Metal content of imported ore was estimated from statistics relating to countries of origin at 60 per cent for Germany and 57 per cent for the United Kingdom. The average import values (derived from Organisation for European Economic Co-operation, Statistical Bulletins, *Foreign Trade*, Series III), were adjusted accordingly.

Lead: As the United Kingdom does not appear to import lead ore, only the German average import value was available. It was calculated from OEEC, Series III, on the assumption of a metal content of imported ore of 70 per cent.

Zinc: OEEC, Series III, assuming a metal content of imported ore of 40 per cent.

Softwood and hardwood: Average import values cannot be obtained for Germany as no statistics are published for the corresponding Standard International Trade Classification items (242 02 and 242 03). The quantity of British imports was taken from Food and Agriculture Organisation, *Yearbook of Forest Product Statistics, op.cit.*, 1952, tables 5 and 6, and the value from the *Annual Statement of the Trade of the United Kingdom*, 1950, pt. 1, Supplement.

Pulpwood: OEEC, Series III.

Hides and Skins: Quantities imported: 1950-1954: OEEC, *The Hides and Skins Industry in Europe, op.cit.*, Annex III and IV. 1955: OEEC, *Statistics of the Hides and Skins Sector, op.cit.*, Annex 1. Values from OEEC, Series III.

Coal: Germany: *Statistisches Jahrbuch*, 1956, p. 458. Quotation for "Ruhr und Aachen, Fettkohle (Stück)." United Kingdom: National Coal Board, *Quarterly and Annual Statement*, 1950, average proceeds per ton in Great Britain.

Petroleum: OEEC, Series III, except for the quantity of United Kingdom imports, which was taken from OEEC Statistical Bulletins, *General Statistics*, September 1956.

Wool: OEEC, Series III.

another 31 per cent, so that only 11 per cent of total raw material production consisted of commodities in the remaining three groups. Fuels, with the addition of wood in the German case, are thus the only raw materials produced in large quantities in the two countries. Unless the consumption of raw materials differed very markedly between the two groups, one would expect, therefore, that the dependence on imported supplies had been a good deal lower as regards fuels (and wood in the German case) than in the case of the other commodity groups. But more of that below.

Turning to the total value of raw materials produced in Germany and Britain (column 6), we can see that throughout the period Britain produced a slightly larger value of raw materials than Germany did, but that the difference between the two countries has been shrinking steadily, until in 1955 both countries produced practically the same output of the basic commodities under consideration.

What do these results imply with regard to the difference in British and German imports? As we saw above, the difference in industrial production would fail to account for the whole of the difference in imports of industrial materials if domestic production of raw materials in Britain did not stand in the same proportion to industrial output as it did in Germany. Although the particular method of valuing the quantities of raw materials which was adopted may appear both crude and not really applicable,[30] the results should nevertheless give a rough indication of the position. If we divide the total output of raw materials in each country (Table 9) by the corresponding figure for industrial production (Table 7), we obtain the following results (in per cent):

	Germany	United Kingdom
1950	12.4	8.3
1951	11.6	8.6
1952	11.4	8.7
1953	9.8	8.4
1954	9.5	7.8
1955	9.3	7.5

[30] Ideally, both industrial output and raw material production should be valued with an identical set of prices in the two countries. In fact, we are dealing with

This set of figures makes it clear that in Germany the output of raw materials is higher relative to industrial production than it is in Britain; in other words, Germany manages with lower imports of industrial materials because she produces *relatively* more raw materials at home. A fairly simple procedure enables one to estimate how much of the unexplained part of the difference in imports is due to Germany's relatively higher output of raw materials.[31] Such estimates suggest that, apart from 1950, between one-fifth and one-third of the difference in imports of industrial materials not due to the differences in industrial production can be explained by Britain's relatively smaller output of raw materials.[32]

Domestic production of raw materials in the two countries therefore takes us only some of the way in our examination of factors other than relative industrial production which may determine the dependence of Britain and Germany on imported industrial materials. However, before we turn to the last factor, the structure of industry, there are some further aspects of domestic production of raw materials which deserve our attention. Having estimated the domestic output of raw materials in the two countries, we can now derive the value of total supplies of industrial materials (or the value of total input of materials taken by industry, disregarding stock changes) by adding to these output figures the corresponding data of imports of industrial materials. If we then divide domestic raw material output into these totals, we obtain a quantitative measure of the two countries' dependence on imported supplies of industrial materials. The resultant proportions are shown in columns 4 and 8 of Table 10. Over the period as a whole, Germany is estimated to have produced domestically between 30 and 40 per cent of her total consumption of industrial materials, importing the re-

two industrial outputs valued with different domestic prices (though the difference has been taken into account in a rough and ready fashion) and two sets of production figures for raw materials valued at average import values which may be subject to a fair degree of distortion.

[31] Cf. note to Table 11, p. 61.

[32] The figures are: 1950—64 per cent; 1951—23 per cent; 1952—26 per cent; 1953—16 per cent; 1954—31 per cent; and 1955—33 per cent.

TABLE 10

Domestic Production and Imports of Industrial Materials

	GERMANY millions of dollars at 1950 prices				UNITED KINGDOM millions of dollars at 1950 prices			
	Domestic production (1)	Imports (2)	Total (3)	Production Total (per cent) (4)	Domestic production (5)	Imports (6)	Total (7)	Production Total (per cent) (8)
1950	894	1,344	2,238	40.0	1,119	3,356	4,475	25.0
Indices	100	100	100		100	100	100	
1951	986	1,271	2,257	43.8	1,200	3,866	5,066	23.7
Indices	110	95	101		107	115	113	
1952	1,024	1,448	2,472	41.5	1,166	3,505	4,671	24.9
Indices	115	108	111		104	105	104	
1953	981	1,767	2,748	36.1	1,195	3,766	4,961	24.1
Indices	109	131	123		107	112	111	
1954	1,050	2,196	3,246	32.3	1,204	3,932	5,136	23.5
Indices	117	163	144		108	117	115	
1955	1,200	2,685	3,885	30.9	1,228	4,307	5,535	22.2
Indices	134	200	174		110	128	124	

Source: As for Tables 7 and 9.

mainder. In the case of the United Kingdom, the proportion of home-produced raw materials relative to total consumption was somewhat lower—between 20 and 25 per cent—and therefore between 75 and 80 per cent of total industrial materials used by her industry had to be imported.[33]

We may briefly compare these figures with the corresponding data derived for food, although the basis of the calculation there was rather different.[34] It was then found that Germany produced almost 80 per cent of her food at home and only imported just over 20 per cent, whereas the United Kingdom produced roughly one-half of her total food consumption and imported the other half. Both countries, therefore, are more heavily dependent on imports of industrial materials than on food imports. This is not surprising, since apart from coal (and wood in the case of Germany) domestic production of raw materials is of little significance in either country in contrast to the substantial output of a number of agricultural commodities in both Britain and Germany. Moreover, we saw that there was relatively little change in the dependence on imported food between period one (1950-52) and period two (1953-55); as regards industrial materials, on the other hand, the dependence on imports has increased in both countries, especially in Western Germany. At the beginning of the decade, she produced more than 40 per cent of her industrial materials at home, but after 1952 the proportion of domestic output to total supplies of industrial materials declined quite rapidly, and stood at little over 30 per cent in 1955. A comparison of the indices in Table 10 with the index of industrial production (Table 7, p. 43) indicates that the basic reason for this lay in the

[33] It should be noted, though, that any important omissions in the estimate of total raw material production—cf. p. 48 above—would alter these proportions. Also, it should be remembered that, for a number of reasons, certain imports of industrial materials, such as coal imports, were excluded (cf. note 4, p. 34).

[34] In the case of food, we were able to compare imports, home production, and consumption at the same stage of processing. This is not possible in the case of industrial materials, and as a substantial proportion of these materials is imported in the form of semi-manufactures, with a considerably higher per unit value than the corresponding raw materials, the proportion of domestic output to total supplies shown above is likely to be a good deal lower than if domestic production and imports were compared at the same stage of processing. However, as the proportion of semi-manufactures in total imports of industrial materials were roughly the same in Britain and Germany, this factor will influence the results for both countries to a similar degree.

inability of domestic output of raw materials to keep in step with the expansion of industrial production,[35] with the consequence that imports of industrial materials grew faster than industrial production thus making up for the increased deficiency of domestically produced raw materials.[36] In the case of the United Kingdom, we can observe the same phenomenon, though on a reduced scale. Domestic production of raw materials failed to expand at the same rate as industrial production, and consequently imports of industrial materials increased slightly faster than industrial output.[36] As a result, the proportion of home production of raw materials to total supplies declined from about 25 to 22 per cent.

A high overall dependence on imported supplies of industrial materials does not, however, rule out the possibility that in some commodity groups the proportion of total availabilities supplied by domestic output may be very much larger than the average, and that in others it may be correspondingly smaller. The heavy preponderance of mineral fuels (and wood in the German case) in total raw material output led us in the above analysis to anticipate such divergencies from the average, and it is now time to have a look at the data themselves.[37]

Starting with fuels, one finds that over the period as a whole the proportion of home output to total supplies (domestic output and imports, all in terms of 1950 prices) was 87 per cent in the

[35] Hence the downward trend in the ratio of raw material output to industrial production in the figures on p. 53.

[36] On the comparison of raw material imports and industrial production, cf. also p. 45 above.

[37] It should again be remembered, however, that we are not comparing home production and imports at the same stage of processing. As the proportions of semi-manufactures in the imports of each group are not always the same throughout for the two countries (though they are similar in the case of *total* imports), the results may differ—not only absolutely, but also relatively—from those that would be obtained if we compared home output and imports at the same stage of processing. It should also be noted that there is an arbitrary element in the allocation of raw material groups to import groups arising out of the fact that many raw materials can be used for a number of purposes. Thus it could be argued that domestic production of wood should be related not only to wood imports (as has been done below) but to the sum of imports of wood and of pulp and paper. In our case, raw material groups have simply been allocated to the nearest import groups—e.g., wool to textile materials, wood to wood and timber, etc.

case of Germany and 67 per cent in the case of the United Kingdom. Imports therefore were only marginal for the German economy, but supplied as much as one-third of total British consumption,[38] which was substantially larger than German. As regards wood, Germany on the average produced 77 per cent of total supplies, but Britain only 16 per cent; in other words, home production and imports, respectively, played opposite roles in the two countries. In the remaining cases—metals, hides and skins, and wool—the proportions of home output to total supplies were quite small for both Germany and Britain, and the two countries were heavily dependent on imports. In Germany, only 15 per cent of metals, and in the United Kingdom, 8 per cent, were produced at home; in the case of hides and skins, the figures are slightly higher—29 per cent for Germany and 24 per cent for Britain; but as regards wool, the ratios of home output to total supplies of textile materials were the lowest of all—2 per cent for Germany and 6 per cent for the United Kingdom.[39] It is clear, therefore, that only as regards mineral fuels (and wood in the German case) does domestic production contribute a substantial proportion of total raw material consumption; in the remaining cases, imports supply much the larger share.

Finally, we may divide total supplies of industrial materials by the value of industrial output. The following figures emerge (in per cent):

[38] Although the omission of some items in the calculation of imports of industrial materials (cf. note 4, p. 34) matters little with regard to the totals, it does, of course, make quite a substantial difference in relation to the particular groups concerned. The most important case is that of imports of mineral fuels. As was explained above, neither imports of coal nor of petroleum products were included; if they had been, the proportion of domestic output to total supplies would have been a good deal lower than is suggested in the text. On the other hand, such an inclusion would justify taking the whole of domestic coal output into account, and not only that for industrial purposes, and to do so would substantially raise our ratio again. A rough calculation suggested that the inclusion of total imports of mineral fuels and of total domestic coal output would give us the following ratios of home output to total supplies: Germany—83 per cent; United Kingdom—70 per cent. If we considered net coal imports only—i.e., allowed for exports of coal (as would perhaps be justified in this particular case)—we would obtain the following figures: Germany—97 per cent; United Kingdom—73 per cent.

[39] Source for the proportions of domestic outputs of particular commodities to total supplies: value of domestic output from Table 9; value of imports from Table B, Appendix B.

	Germany	United Kingdom
1950	31.1	33.4
1951	26.5	36.5
1952	27.5	34.9
1953	27.5	34.0
1954	29.3	33.1
1955	30.1	33.7

If one abstracts from the possibility of errors, it is clearly evident from these data that the ratio of material input to output is lower in the case of German industry than it is in that of Britain. This is of course what we would expect from our considerations above. As we saw, the difference in domestic raw material supplies does not enable us to account for the whole of the unexplained part of the difference in imports. The differences in the raw material content of output are just another indication of this fact, for if domestic supplies of raw materials had supplied the whole of the missing link—if, in other words, the output of raw materials in the two countries had been such as just to compensate for the difference in imports[40]—then the material content of output would have been the same for both countries. The difference which in fact exists points to the presence of a structural factor, to which we must now direct our attention.

Effect of Differences in Industrial Structure

Here, however, we are very largely balked by the absence of suitable data. Although it is generally said—and this has been mentioned above—that in some industries, such as textiles and iron and steel, the ratio of material input to output is higher than in others, no precise information on these matters appears to be available. Detailed input-output tables would help a great deal, but at the time of writing these are only in preparation for our two countries. Strictly limited input-output data are available for the British economy for the year 1950, and from this the raw material input of six particular groups of industries can be derived.[41] This differs considerably as among industries—thus, in

[40] Not absolutely, of course, but relative to industrial production.
[41] Cf. table 18 in United Kingdom, Central Statistical Office, *National Income and Expenditure*, 1956. Raw material input is equal to purchases from agriculture, etc., mining and quarrying, and imports.

the textile and chemical industries the ratio of raw material input to output is returned at over 40 per cent, whereas in the manufacture of metals, engineering goods, and vehicles, the ratio of material input to output is only 15 per cent. A comparison of such figures with the relative size of these industries in Britain and Germany, however, gives no indication of the presence of a structural factor.[42] Evidently, the breakdown of industry in the British input-output table is far too rough for one to be able to come to any valid conclusions—quite apart from the danger of using data for one country only. We therefore have to admit failure as far as a *direct* estimate of the structural factor is concerned, and we have to be content with the pointer supplied by the unexplained part of the difference in imports. However, as the differences in industrial production and in raw material output explain the greater part of the difference in imports, the structural factor does not appear to be of very considerable quantitative significance. A final summary of our argument will make this clear.

Summary

It was stated in Chapter 1 that in the case of imports of industrial materials our investigation should be directed towards two questions: first, why were German imports of industrial materials in absolute amounts considerably less than corresponding British imports; second, why did German imports, on the other hand, *grow* much faster than British, so that over our period the difference between them narrowed a great deal? An approximate answer to both these questions is to be found in Table 11.

This table lists the main factors responsible for the difference in imports—relative industrial production, relative output of raw materials, and the comparative structure of industry (which includes other influences). Germany's smaller industrial output, as we already know, accounts for the largest part of the difference in imports of industrial materials—between three-fifths and four-fifths of this difference can be explained on those grounds. Germany's relatively larger output of raw materials, on the other

[42] The small difference which exists—6 per cent—in fact points the other way; i.e., German industry appears to be producing slightly more material-intensive products than Britain does.

TABLE 11

FACTORS RESPONSIBLE FOR THE DIFFERENCE IN IMPORTS OF
INDUSTRIAL MATERIALS

(in per cent)

	Difference in industrial production (1)	Difference in relative output of raw materials (2)	Difference in industrial structure and other (3)	TOTAL (4)
1950	74	17	9	100
1951	54	11	35	100
1952	61	10	29	100
1953	67	5	28	100
1954	78	7	15	100
1955	78	7	15	100

Source: Tables 7 and 9. The contributions of relative outputs of raw materials and of comparative industrial structures to the difference in imports were calculated in the following way. In the absence of differences in raw material outputs or in industrial structures, the ratio between imports of industrial materials would have been the same as that between relative industrial outputs. Because of differences in the domestic production of raw materials and the presence of a structural factor, the ratio between imports was in fact smaller than that between industrial outputs. If raw material production and industrial structures (i.e., the input-ouput ratios) are adjusted so as to form the same ratio as industrial production, imports of industrial materials have to be adjusted accordingly, and the proportion of the total change in imports due to either of the two factors taken by itself is the part of the unexplained portion of the difference in imports to which this factor supplies the answer. A simple example may make this clear. Assume that figures of domestic output of raw materials, imports, industrial inputs, and industrial production in Britain and Germany were as follows:

	Production of raw materials	Imports	Industrial inputs	Industrial production
Germany	10	10	20	40
United Kingdom	10	20	30	50
Ratio	100	50	66.7	80

If the ratio of relative output of raw materials had been the same as that of relative industrial production (which is the condition for the absence of a "raw material factor"), German production would have been 8 instead of 10, and the extra 2 would have to be imported. Likewise, if industrial structures had been the same, German inputs would have been 24 instead of 20, the extra 4 being purchased from abroad. These changes would have raised German imports to 16, and they would then form the same ratio as industrial production in the two countries; i.e., there would be no "unexplained" part left. The change in raw material output contributed 2, or 33.3 per cent, to this change in imports, and the change in structure contributed 4, or 66.7 per cent. The same result would obtain if we had decreased British imports by raising her domestic output of raw materials and lowering her input per unit of industrial output.

It should be noted, though, that as the item "industrial inputs" is obtained

hand, does not play a very important quantitative role; on the average, 10 per cent of the difference in imports can be traced back to this factor. The remaining proportion of the difference in imports—about 25 per cent—is due to Germany's lower input-output ratio, or the structural factor, as we have called it. This, of course, is the part of the explanation which cannot be furnished in detail; thus, we are unable to say whether the structural factor arises because of a different distribution of total German industry among component industries of varying material input-output ratios, or because German industry produces the same or similar outputs with smaller inputs of raw materials, or because of both. Moreover, the figures indicating the consequence of structural differences in column 3 of Table 11 are to some extent influenced by other factors, not all of which are related to industrial structures.[43]

Unless the various statistics, estimates, and calculations are grossly misleading, this would appear to be the position for our period as a whole. But what about the changes over the six years covered; particularly, why did German imports increase a good deal faster than British? The main reason has certainly been the faster growth of German output. The rapid expansion of German industry required large increases in raw material supplies, and as a result imports rose at a fast rate, whereas the much slower rise of industrial production in Britain led to correspondingly smaller increases in imports. But the difference in imports diminished more quickly than the relative growth of industrial production would warrant; that is to say, the factors other than industrial production making for lower German imports of industrial materials weakened over our period. This was partly the result of a failure of the domestic output of raw materials to keep

[43] Cf. note to Table 11.

Table 11 (continued)

by simply adding raw material output and imports together, the results may be influenced by other factors, such as different rates of stock accumulation in the two countries, or a difference in the share of semi-manufactures in total imports, or different ratios of exports of semi-manufactures to imports (cf. p. 46 above). Thus, the figures for 1950/51 are certainly subjected to a fairly wide margin of error (which can, however, be largely eliminated by forming the average of the two years) because of different stock changes in the two countries.

pace with industrial production. In both countries, as we saw, industrial production expanded faster than the domestic output of raw materials, but in Germany the difference between the relative rates of expansion was greater than in Britain. In other words, the ratio of raw material output to industrial production declined faster in Germany than it did in Britain. However, as absolutely this ratio was higher in the case of Germany than in the case of Britain, the two countries have become more alike in this respect, and therefore the influence of relative raw material supplies on the difference of imports of industrial materials has diminished. To put this rather more simply, in both countries consumption of raw materials rose faster than domestic output. But in Germany this divergence of rates of growth was greater, and therefore imports rose correspondingly faster, resulting in a narrowing of the difference between British and German imports of industrial materials.

The other reason why the difference in imports has decreased more quickly than the difference in industrial production appears to be a weakening of the structural factor. It is true that the figures in column 3 do not reflect the influence of the structural factor alone; e.g., the sharp rise between 1950 and 1951 no doubt largely results from the divergence in stock changes mentioned before, and the downward trend since 1951 may not only be due to structural changes narrowly interpreted, but also to the relative rise of semi-manufactures in total German imports (which may have been the result of changes in commercial policies).[44] The abrupt decline between 1953 and 1954 was certainly to a large extent due to German imports of semi-manufactures increasing at a particularly high rate relative to the expansion of British imports of semi-manufactures. In general, however, different changes in the relative share of semi-manufactures in total British and German imports of industrial materials cannot supply the whole of the explanation for the downward trend in column 3, and therefore it looks as if structural differences have diminished over our period. This may have taken the form of a relatively faster expansion in Germany of industries using a high input of materials per unit of output, in comparison to the growth of the

[44] Cf. p. 40 and note to Table 11.

various industries in Britain, or the effects of the autarkic policies of the 1930's may have been diminishing as the freeing of trade allowed other more material-intensive processes to be utilized. Unfortunately, we have no data which would allow us to examine these various possibilities.

Pre-War Situation

As in the case of food, our examination has concentrated on the post-war period. Before we close our enquiry, however, we might briefly look into relative imports of raw materials during the preceding half-century. This not only should be of interest by itself, but may also throw some light on the structural factor, which could not be studied in detail. For this reason, the indices of imports of industrial materials at constant prices[45] have been compared with the indices of industrial production[46] in Britain and Germany. Such a comparison would in any case be advisable, as industrial production is—and no doubt was—the main determinant of imports of industrial materials.

Charts 2 and 3 present the indices of imports of industrial materials and of industrial production for Germany and Britain between 1913 and the present time. Although only the orders of magnitude should be considered, as comparisons over such long periods are open to well-known objections, some fairly definite conclusions emerge from these charts. Over this half-century, imports of industrial materials into both countries have grown a good deal less fast than the volume of industrial production. In the case of Britain, this has been a very steady development. During the inter-war period imports were on the average much the same as they had been in 1913, and only in the post-war years here considered were supplies of raw materials from abroad consistently above the 1913 level. Industrial production, on the other hand, was throughout the interval period higher than it had been in 1913 (apart from the year of the General Strike, 1926), and in the post-war years it exceeded the 1913 output by between two and three times. As a result of these changes, the gap between

[45] For statistical reasons, imports of industrial materials in the charts are defined rather more narrowly than was done for the purpose of our examination. Cf. p. 34 above and note to Charts 2 and 3.

[46] Excluding mining, food processing, and building. Cf. note to Charts 2 and 3.

CHART 2

British Industrial Production and Volume of Imports of Raw Materials,
1925-1955
(1913 = 100)
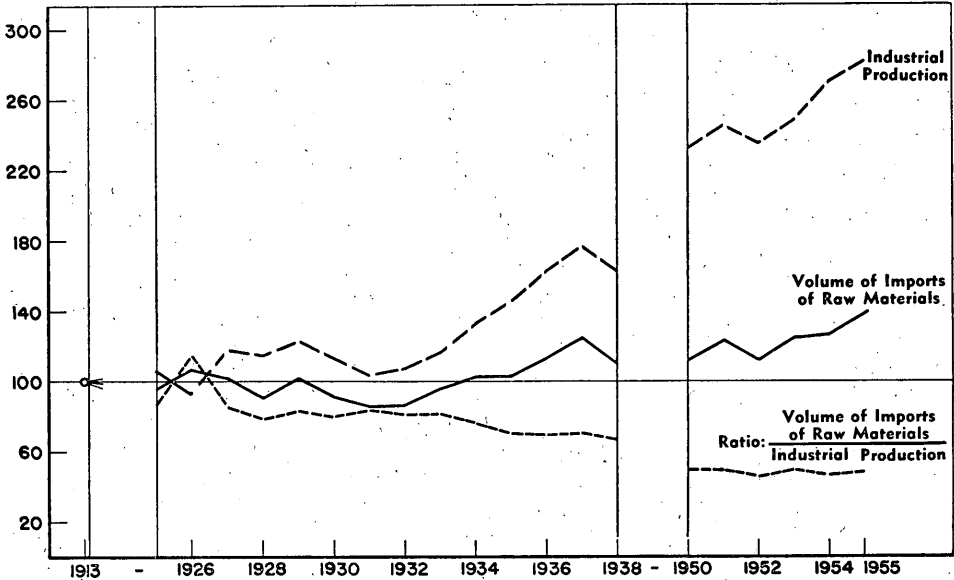
Source: Imports: Germany: Import volumes of raw materials (comprising Rohstoffe and Halbwaren) as those for food (cf. note to Chart 1 above). United Kingdom: Import volumes of raw materials (defined as class II of the old trade classification) as those for food (cf. note to Chart 1 above). From 1950 onwards, the index covers a slightly different set of commodities (classes B and C of the new classification), and refers to total imports. Neither of these changes is quantitatively important.

Industrial production: 1913-1938 from Organisation for European Economic Co-operation, *Industrial Statistics 1900-1955*, table 2. As the OEEC indices include mining and food-processing, these industries were taken out with the help of the table of weights on p. 152 of this publication, and the indices of the industries concerned (tables 3 and 5). 1938-1955: OEEC Statistical Bulletins, *General Statistics,* January 1957, p. 8, following the same method as for the inter-war period. These post-war indices are more up-to-date than those published in *Industrial Statistics.* None of the indices includes building.

industrial production and raw material imports widened at a fairly even rate throughout the period. The dotted line representing the ratio of the indices of imports of raw materials to industrial production forms a smooth trend line which declined slowly, until during the post-war years it lay about 50 per cent below

CHART 3

German Industrial Production and Volume of Imports of Raw Materials,
1925-1955
(1913 = 100)
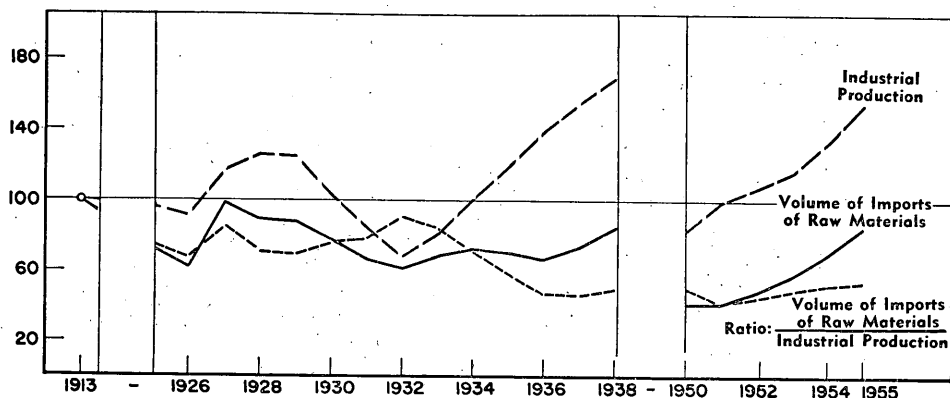
the 1913 level, indicating that by that time the volume of indus-
trial output was about twice as high, relative to 1913, as the
volume of imported raw materials.

In the case of Germany, the picture is less clear. Industrial
production fluctuated a great deal over our period (partly, of
course, as a result of territorial changes); it lay well above the
1913 output in the late 1920's, fell sharply with the onset of the
depression, and then increased equally rapidly until the outbreak
of war. The index for 1950 was well below the 1938 figure
(largely as a result of the smaller area), but, as we know already,
production expanded very rapidly in the Federal Republic, until
by 1955 Western Germany produced almost as much as the whole
of Germany did in 1938. Imports of industrial materials followed
these movements of output to some extent, but the relationship
was not a very close one. During the inter-war years, imports on
the average were about 25 per cent below the volume of 1913;
and, after falling further to only about 40 per cent of the 1913
figure in 1950 and 1951, they increased rapidly in the four suc-
ceeding years, until in 1955 they appear to have been only a little
below the 1913 level.

The ratio of the two indices, perhaps the most important vari-

able for our purposes, exhibits a downward trend as in the British case. It fluctuated considerably until the early 1930's, but then a more permanent change appears to have taken place, and as industrial production expanded rapidly, imports only followed suit to a very limited extent. As a result, the ratio of the two indices declined steadily to a level about half that of 1913, where it has more or less remained.

Ultimately, therefore, the changes in raw material imports relative to the changes in industrial production have been much the same in the two countries. Both in Britain and in Germany, the input of imported raw materials per unit of output appears currently to be only about half of what it was in 1913 (though absolutely, of course, this ratio is—and apparently has been—somewhat higher in Britain than in Germany).

As to the reasons for these important changes, not a great deal can be said without a fairly detailed enquiry. One possibility which suggests itself—that an increased supply of raw materials from domestic sources led to the relative decline in imports—can be ruled out on both factual and logical grounds.[47] Rather, the main answer is probably that industry in both countries is steadily undergoing a change towards lower input-output ratios; i.e., the material content of output is generally declining.[48] The gradual nature of the fall of the ratio in the British case makes this a particularly plausible hypothesis for Britain; in the case of Germany, the fairly rapid decline in the ratio of imports to output after 1931 coincides too closely with the beginning of Germany's policy of autarky for one to avoid the assumption of an additional causal relationship. Finally, it may be noted that in post-war Germany the ratio of imports to output has not risen significantly

[47] In order to compensate for a relative decline of imports of raw materials of the order of 50 per cent, domestic supplies would now have to be at least as large as imported supplies. As we saw above (p. 53), this is by no means the case. Apart from that consideration, the factual evidence is not likely to support the thesis of a substantial expansion of domestic raw material supplies in the two countries, although the division of Germany may well have led to a relative increase in domestic raw material supplies in the Federal Republic.

[48] Cf. C. T. Saunders, "Consumption of Raw materials in the United Kingdom: 1851-1950," *Journal of the Royal Statistical Society*, Series A, Part I, 1952, for a much more detailed examination into the British case which came to this conclusion. Cf. also Sir Donald MacDougall, *The World Dollar Problem*, London and New York, 1957.

above the level reached in the late 1930's; this may mean that the effects of Germany's policy of autarky are still being felt, and that the structural factor (which, as we saw, accounts for about 25 per cent of the difference in current imports) is a legacy from that particular period of German commercial policy.

IV. CONCLUSION

We have reached the end of our enquiry, and it remains only to summarize the argument and to add a word about future developments. We started from the fact that during the period 1950-1955 German imports were considerably less than British, although at first thought one would have expected a similar degree of dependence upon imported supplies. At the same time, German imports expanded at a very much faster rate than British and, as a result, the difference between them narrowed a good deal. Two main groups of products were considered—food and industrial materials, comprising together almost 90 per cent of total imports in the two countries. In the case of food, we found that about two-thirds of the difference in imports was due to Germany's higher production, and about one-third to her lower consumption. In the case of industrial materials, the lower level of German industrial output appeared to account for the greater part of the difference in imports (and the faster growth of German output was the main reason for the more rapid expansion of imports in that group), and relative domestic raw material supplies and industrial structures also helped to keep German imports at a relatively low level.

Ultimately, much of the explanation for Germany's lower imports seems to lie in the difference in past commercial policies pursued by the two countries. This factor is certainly relevant in the case of food imports, as both Germany's higher production and her lower consumption would seem to be deeply influenced by the long-standing policy of protection. But the difference in imports of industrial materials may also to some extent be due to the same reason. As we just saw, the structural factor may well be the result of the autarkic policy pursued in Germany in the 1930's; more important, the absolutely smaller size of German industry—which, as explained above, accounts for the greater part of the difference in imports of industrial materials—must to some extent result from the fact that a much larger proportion of the labour force is engaged elsewhere and is therefore not available as industrial labour. This, of course, is the consequence

of the artificial twist which the German economy received from the policy of agricultural protection.

But what about the future? Will Germany's imports continue to rise faster than Britain's, until ultimately she imports as much as, or even more than, Britain does? It is evident that this is a question of the probable rates of expansion of a number of key variables, such as population, industrial production, and national income, as well as of future changes in commercial policies. The faster rise of population in Western Germany during the last few years—which no doubt contributed substantially to the high rate of economic expansion—has been chiefly the result of the influx of refugees from Eastern Germany; the natural increase, on the other hand, appears to have been slightly less than that in Britain. As the influx of refugees is bound to slow down sooner or later, population growth should in future be more or less the same as that in Britain. This will mean that German industry will no longer be able to draw on relatively substantial increases in the labour supply; and this will no doubt affect the growth of the economy and tend to narrow the difference in rates of expansion as between Germany and Britain. On the other hand, German industry and the German economy in general may well continue to accumulate capital at a higher rate (relative to output) than Britain does.[1] In the past few years, substantially greater additions to capital equipment have undoubtedly contributed a great deal to Germany's faster growth and, insofar as this factor remains operative, German expansion will remain at a higher rate than growth of output in Britain.

If, therefore, the population increase in Germany drops to the level of that in Britain, but investment continues to be higher, we should expect to witness a narrowing, but not a disappearance, of the difference in the rates of growth of industrial output and national income.

How would such trends affect imports? Let us first deal with industrial materials. Unless there is a major increase in the rate

[1] The influence of German rearmament upon the quantity of resources available for investment purposes constitutes one of the biggest question marks in this context. At present it does not appear likely that Germany will undertake defence expenditure on a scale comparable to that in Britain; moreover, the means employed are less likely to affect investment activity.

of expansion of domestic raw material supplies in Germany, or a decrease in Britain, we should expect German imports of industrial materials to continue to grow faster than British. As there are no obvious reasons for assuming that such changes in the rate of growth of raw material output will occur, the difference between British and German purchases of commodities in this group will probably continue to diminish, and it might disappear altogether, though this does not appear likely to happen in the near future.[2]

In the case of food imports, the prospects at first sight seem to be rather different. It may be argued that German production has been expanding vigorously, and that, in the absence of a renewed large-scale influx of refugees, there is no reason why it should not continue to supply much the larger part of domestic requirements. In Britain, agricultural output has recently been rising more slowly, and hence there may appear to be no grounds for assuming that the present position of about 50 per cent of total food supplies being imported will be changed.[3] However, an argument along these lines overlooks what was said above with regard to the relative degree of protection recently enjoyed by agriculture in Britain and Germany. It was pointed out on page 11 that during the period under consideration agricultural policies appear to have kept the prices received by farmers in both countries about 30 per cent above world market prices. Although these estimates must be subject to a fair margin of error, they raise a large and important issue.

It was argued above that agricultural protection gave the German economy an artificial twist, making the share of national resources and of national output claimed by agriculture larger than it would have been in the absence of protective policies. In Britain, no such distortion of the economic structure was likely to arise as long as trade remained free. Since 1940, however, agri-

[2] In 1956, for which only incomplete data were available at the time of writing, German imports of industrial materials apparently continued to grow more rapidly than British imports, which were more or less constant. It appears, though, that relative rates of growth of imports have been much the same as, if not less than, those of industrial production.

[3] The data for 1956 indicate that in both countries imports of food expanded, though German imports rose a good deal more than British.

culture has enjoyed a good deal of government support,[4] and the use of resources by agriculture, as well as agriculture's contribution to national income, has consequently been higher than it would have been otherwise. Thus the initiation of protection in Britain has already led to a greater similarity of the two economies. If we assume that the "degree of protection" will continue to be more or less the same in Britain as it is in Germany, the question arises whether in consequence the economic structures of the two countries will become more and more similar, with consequent effects upon present differences in dependence upon food imports. In other words, the pursuit of different commercial policies in the past was cited above as the main reason for present differences in imports; as commercial policies are now much more similar, can we expect the difference in imports to diminish progressively and perhaps even to disappear?

Any answer to this question must of necessity remain largely speculative, and the author is not prepared to anticipate the future. It is fairly obvious that the time required for a change of this nature would not be a matter of just a few years; in the short run, such factors as the immobility of resources, especially of labour, may hinder the necessary adjustments, but, given sufficient time, a development of this kind cannot be ruled out. The assumption that the degree of protection enjoyed by agriculture in Britain and Germany will continue to be similar may of course not be fulfilled; in fact, at the time of writing there are indications that protection is being increased in Western Germany,[5] whereas in Britain the tendency is, if anything, to move the other way.[6] If future support policies should indeed diverge in the manner indicated, any tendency towards a greater similarity in economic structure would in consequence be weakened.[7]

So far, our discussion about future trends in British and

4 Cf. above, p. 28.

5 For details, cf. e.g. Organisation for European Economic Co-operation, *Agricultural Policies in Europe and North America*, First Report of the Ministerial Committee for Agriculture and Food, May 1956, ch. 5.

6 For recent developments in British agricultural policy, cf. *The Economist, passim*.

7 It is possible, though, that as a result of the greater efficiency of British agriculture, a somewhat smaller degree of support will be sufficient to bring about a similar dependence upon imports.

German imports has assumed that, apart from possible changes in the extent of agricultural protection, commercial policies will remain more or less unchanged; with the Common Market treaty signed and ratified and the Free Trade Area under active discussion, this is (one hopes) not a justified assumption. Yet the freeing of intra-European trade may be less important for the import dependence of Britain and Germany as considered in this study than it might at first appear.[8] Raw materials, apart from a few exceptions, already enter both countries free of duty, and the same holds for a not inconsiderable part of semi-manufactures.[9] Increasing specialisation in the field of semi-manufactures may indeed result from the creation of a European market, and this would raise the import dependence of both countries. The greatest change, however, is perhaps to be expected in the field of finished manufactures, so far a very unimportant part of total imports, which for this reason was not examined in this study. Substantial changes would also occur if the trade in foodstuffs were genuinely freed, but at present it looks as if agriculture were going to be the only European industry which will continue to enjoy a protected existence even in intra-European trade. It has been said elsewhere—and our study lends support to this contention—that agriculture is the sector in which free trade would bring the greatest economic gain, but it is very much to be doubted that the economist's reasoning will overcome the social and political arguments against freer trade which most European farmers, and certainly those of Germany and Britain, can muster in their support.

[8] Viz., at given levels of income and output, the two countries' dependence on food and raw material imports may not change much, as a result of the freeing of intra-European trade. Insofar as the setting-up of the Common Market stimulates growth, it may, of course, lead to larger imports of raw materials and (to a lesser extent) food.

[9] Cf. p. 40 above.
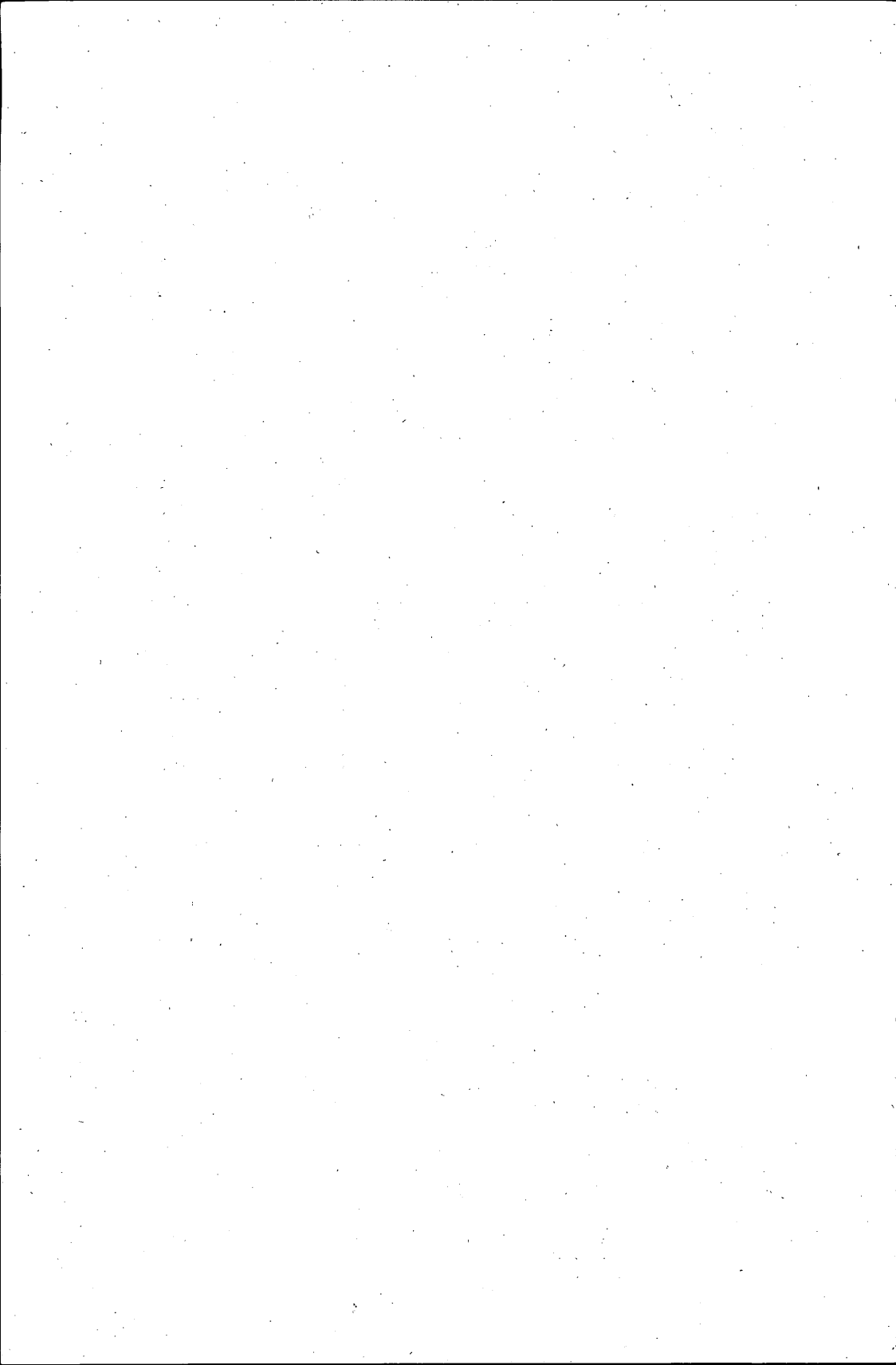
PROCEDURE FOR DETERMINING OVERALL DEPENDENCE ON
FOOD IMPORTS

Table 4 (p. 15) provides us with the information necessary
to obtain each country's import dependence with regard to any
particular item of food, and it also permits us to derive the
immediate reasons for any difference in dependence on overseas
supplies—a difference in production and/or consumption. In
order to find the overall dependence on imports, however, and
the reasons for any difference in this dependence as between the
two countries, we have to weight the physical quantities in Table
4 with the respective prices of the commodities concerned. Two
different sets of prices could have been used for this purpose:
world market prices, represented, roughly speaking, by average
import values; and internal prices. With the exception of two
cases noted below, the former of these alternatives was chosen,
for the following reasons. First, in practice this was much the
easiest method, because such values are calculated without diffi-
culty from data readily available, whereas representative internal
prices—which in practice would mean prices paid to agricultural
producers—are much more difficult to obtain.[1] In addition, aver-
age import values happen to be a good deal more comparable to
the groupings in Table 4 than the available producers' prices are.
Second, the primary purpose of the whole exercise was to find
the reasons for the difference in imports; therefore, it seemed
preferable to weight total supply and its external and internal
components with external rather than internal prices.

Thus, average import values were obtained for each commodity,
and the mean of the figures for the two countries (usually, but
not always, close together)[2] was then applied to the figures in

[1] Especially in the British case, because of the complicated system of deficiency
payments.
[2] In period 1, import prices paid by Germany were on the whole slightly
higher than those paid by Britain; in period 2, prices were much the same. The
reasons for the disparity in period 1 are not clear, except that British import
prices may have failed to reflect the upward trend in world prices to the full
extent because at that time a large part of the food imported by Britain was
still being supplied under long-term purchasing agreements.

Table 4. The import statistics for calculating the average import values were taken from the Organisation for European Economic Co-operation Statistical Bulletins, *Foreign Trade*, Series III— except for the 1950 figures for the United Kingdom, which were obtained from the *Annual Statement of the Trade of the United Kingdom*.[3] There was a slight but hardly important difference in the time covered by average import values and the data in Table 4. Thus, average import values referring to calendar years 1950-52 were applied to physical quantities for 1950/51-1952/53, and likewise for period 2.

Apart from the following commodities, the choice of import group which corresponds to any particular item in Table 4 is obvious (the numbers refer to the Standard International Trade Classification):

Bread grain Wheat (041) and Rye (045 01)

Coarse grain Barley (043), Maize (044), and "Other Cereals" (045), except Rye (045 01).

Vegetables Vegetables, fresh, etc. (054), except Potatoes (054 01).

Meat Meat, fresh, etc. (011).

No representative average import values are available for liquid milk and potatoes. In the case of the former, imports are negligible; while in that of the latter, imports, in addition to being marginal, mainly take the form of early potatoes (certainly in the case of the United Kingdom), whose price is very much higher than the average. The weights used therefore are the averages of the prices paid to farmers; they were taken from Economic Commission for Europe and Food and Agriculture Organisation, *Prices of Agricultural Products and Fertilizers 1954/55*, Annex.[4]

The results of this application of prices to the figures in Table 4 are shown in Table A, and these results are summarized and commented upon in the text. There is one item in Table A which

[3] As British trade in 1950 classified according to the Standard International Trade Classification is available in terms of values but not in terms of quantities, the ordinary classification was adapted to the SITC for this purpose. This proved to be quite easy, apart from one or two cases.

[4] Milk and potato prices in the second period refer to 1953/54 and 1954/55 only.

TABLE A

Food: Production, Net Imports, and Availabilities, by Value

(millions of dollars)

| | Harvest Years 1950/51-1952/53 | | | | | |
| | Production | | Net Imports | | Availabilities | |
	Germany	United Kingdom	Germany	United Kingdom	Germany	United Kingdom
Bread grain	310.5	118.0	219.7	397.8	522.5	522.1
Coarse grain	—37.6	—77.5	145.0	218.3	91.3	147.9
Potatoes	272.3	158.0	7.4	2.6	272.3	160.6
Sugar, raw	128.1	88.5	66.8	201.2	185.9	268.3
Vegetables	329.8	344.9	49.3	91.5	379.1	436.4
Fruit and nuts	396.0	142.1	146.4	252.5	542.4	394.7
Meat	827.3	616.2	43.4	495.5	870.7	1,100.6
Eggs	178.2	316.6	69.2	90.7	247.4	411.2
Butter	232.6	12.3	17.0	221.3	249.6	237.3
Cheese	124.7	30.2	22.0	89.0	146.7	117.0
Liquid milk for consumption as such	466.3	592.8	—	—	466.3	592.8
Rice	—	—	14.7	11.6	14.7	11.6
Coffee	—	—	44.3	38.9	44.3	38.9
Tea	—	—	2.2	215.6	2.2	215.6
Tobacco	34.6	—	59.2	127.1	93.8	127.1
Feed	—15.8	—63.2	15.8	63.2	—	—
Total	3,247.0	2,278.9	922.4	2,516.8	4,129.2	4,782.1

(Harvest years 1953/54-1955/56 on following page)

TABLE A, *continued*

FOOD: PRODUCTION, NET IMPORTS, AND AVAILABILITIES, BY VALUE

(millions of dollars)

	Harvest Years 1953/54-1955/56					
	Production		Net Imports		Availabilities	
	Germany	United Kingdom	Germany	United Kingdom	Germany	United Kingdom
Bread grain	295.8	71.3	194.8	362.5	476.2	451.7
Coarse grain	—35.7	—104.3	127.7	221.6	91.9	123.9
Potatoes	259.0	146.3	7.6	9.8	266.6	156.1
Sugar, raw	129.3	69.2	25.2	182.1	148.7	256.4
Vegetables	333.7	370.0	63.5	92.5	397.2	462.5
Fruit and nuts	418.8	133.7	245.8	289.0	664.6	431.3
Meat	1,043.3	822.6	66.4	620.7	1,109.7	1,443.3
Eggs	219.4	385.4	123.0	75.2	342.4	470.2
Butter	271.6	22.0	17.0	244.6	288.6	271.6
Cheese	139.7	44.1	30.7	70.4	170.4	119.0
Liquid milk for consumption as such	515.7	622.5	—	—	515.7	622.5
Rice	—	—	15.5	13.0	15.5	13.0
Coffee	—	—	130.1	32.5	130.1	32.5
Tea	—	—	7.0	302.3	7.0	302.3
Tobacco	33.2	—	85.8	166.1	119.1	166.1
Feed	—38.1	—128.2	38.1	128.2	—	—
Total	3,585.7	2,454.6	1,178.2	2,810.5	4,743.7	5,322.4

for obvious reasons was not included in Table 4—imports of feed (other than grain). In order to find more correct estimates of net output and import dependence, this is subtracted from total output, but added to total imports.[5]

There are a number of reasons why the figures obtained in Table A will differ from the import, production, and consumption statistics to be found elsewhere. The factors to be outlined below do not invalidate the data for the purpose of a two-country comparison; indeed, some divergences from the usual figures are bound to arise if valid comparisons are to be based on the statistics, but the nature of such divergences should nevertheless be pointed out. Some of the points have already been mentioned. Usually, domestic output and consumption are weighted with internal and not import prices, and hence some differences in the total value of production and consumption are bound to arise. Also, although Table A includes most foodstuffs, there are a number of exceptions, fish and cocoa (including its products) being the most outstanding. Also, the quantities we are dealing with refer to food partly as it is being produced, partly (as in the cases of meat, cheese, and butter) at a more advanced stage of processing. This means that the production figures imply a somewhat wider definition of agricultural output than is usual; more particularly, dairying and slaughtering are included. Likewise, food imports consist in reality of commodities at different stages of processing; e.g., meat can be imported in the form of live animals or carcass meat or bacon and tinned meat, and grain can be purchased as such or in the form of flour, etc. On the average, actual imports are processed to a greater extent than our data would suggest, and therefore the imports here calculated are smaller in value than as recorded in the trade statistics, quite apart from the difference in coverage (compare Table A with Table 3). Finally, the figures for consumption in Table A also refer to food at a relatively early stage of processing and must therefore be distinguished from actual food consumption, which includes processing and distribution.

[5] The Standard International Trade Classification group is 081.

PROCEDURE FOR DERIVING DATA ON VALUE OF INDUSTRIAL
PRODUCTION AND IMPORTS OF INDUSTRIAL MATERIALS IN
CONSTANT PRICES

This appendix will explain the derivation of the figures shown
in Table 7, and will also provide detailed figures of imports of
industrial materials at constant prices. Table 7 contains two sets
of basic data: the value of industrial output in Britain and Ger-
many during 1950-1955 at constant (1950) prices, and imports
of industrial materials, also at 1950 prices.

1. Industrial Production

The value of industrial production during 1950-1955 was
arrived at in two stages; first, the value of industrial output was
calculated for the year 1950, and the resultant figures were then
extended by means of indices over the remaining years. We begin,
therefore, with the estimate of relative industrial output in 1950.

Germany: The output of industry (equal to its contribution
to total gross national product), including handicrafts as well as
gas and electricity production (*Energiewirtschaft*), but exclud-
ing mining and building was $7.89 billion (at the current ex-
change rate).[1] This figure is gross of depreciation and at factor
cost. It includes food-processing and similar industries which were
taken out by means of an adjustment factor based on the weight
of these industries in the index of total industrial production (ex-
cluding mining and building).[2] Industrial output was thus re-

---

[1] Cf. *Wirtschaft und Statistik*, March 1957, p. 134. (This issue contains the
first results of a new calculation of German national income.)

[2] Cf. Die Industrie der Bundesrepublik Deutschland, Sonderheft 8, *Neuberech-
nung des Index der Industriellen Nettoproduktion*, Bonn, 1955, p. 9. This method of
adjusting the value of output is not entirely satisfactory, as it assumes—not neces-
sarily correctly—that the ratio of net output of the food-processing industries, in
the national income sense, relative to total industrial output similarly defined is the
same as that of "value-added" in food-processing relative to "value-added" in
total industry, on which the weights in the index of industrial production are
based. Also, the index of industrial production does not cover handicrafts, as
explained below, and the proportion of food-processing trades in total handicrafts
is slightly different, though this does not make any substantial quantitative dif-
ference.

duced to $6.43 billion. Finally, the output of the building sector was added,[3] and we thus obtained a figure for total German output, as defined in this study, of $7.60 billion.

United Kingdom: In 1950, industrial output gross of depreciation and at factor cost was $14.87 billion (also at the current exchange rate).[4] This included gas, electricity, and water as well as building, but excluded mining. The only adjustment required, therefore, was the elimination of the food-processing industry, tobacco manufacture, etc. This was done as in the German case,[5] and a figure of $13.38 billion emerged as a result.

We have thus estimated the 1950 German and British industrial outputs (similarly defined) at $7.60 and $13.38 billion, respectively. These dollar figures, however, were arrived at by using the official exchange rates, and the comparison would be valid only if the price level of industrial output were similar in the two countries. Some information on relative prices of industrial products can be obtained from the study by the Organisation for European Economic Co-operation of comparative national products and the purchasing power of currencies.[6] This suggests that in 1950 German prices of industrial products were a little higher than British, though there were one or two exceptions— notably, building costs. The calculation of an average was rendered difficult because suitable weights were not available, but an inspection of the data suggested that a purchasing power parity rate of 12.5 marks per £ (i.e., an over-valuation of the deutschmark of 6 per cent) would be a reasonable guess. The German output figure was correspondingly adjusted. Therefore,

[3] Cf. *Wirtschaft und Statistik, loc.cit.*

[4] Cf. *National Income and Expenditure*, 1956, table 10.

[5] I.e., the proportion of total industrial output originating in the food-processing industries was obtained from the weighting of the index of industrial production (extended from the base year 1948 to 1950). For the shortcomings of this method, cf. note 2 on p. 80. The data were taken from the *Annual Abstract of Statistics*, 1956, Table 148.

[6] M. Gilbert and I. B. Kravis, *An International Comparison of National Products and the Purchasing Power of Currencies, op.cit.*, table 14. The figures relate to final expenditures and therefore include distributive margins; also, only a part of industrial output is directly covered, since in the case of some sectors, such as the government, purchases of industrial products are not separately shown. Finally, single products are weighted according to expenditure and not production, as we require.

the final estimates of 1950 outputs, in rounded numbers, were $7.2 and $13.4 billion, respectively.

The second stage of the calculation of the value of industrial production during 1950-1955 was the preparation of similar indices for the two countries. In the case of Germany, this presented major difficulties, since the existing index of industrial production does not cover handicrafts, with the result that in some trades, such as building, only a small part of output is covered. Separate indices for handicrafts and building can, however, be derived from statistics of the national product at constant prices,[7] and it is therefore possible to calculate a composite index which should have the same coverage as the estimates of output derived above for 1950 (and as the British index of industrial production).

In order to obtain the weights for this new index, the relative outputs of industry, handicrafts, and building had to be estimated for the year 1950. The basis for such estimates was provided in the form of the old statistics of the German national product, which give separate figures for these three sectors.[8] However, some adjustments were required. Mining and food-processing had to be subtracted from the output of industry. This was done in the same way as in the corresponding case above;[9] i.e., an adjustment factor was obtained from the weights of the mining and food-processing industries in the index of industrial production. Similarly, food-processing trades had to be taken out of the total output figures of handicrafts, which was done with the help of turnover statistics.[10] The figure for building could stand as published. The following weights resulted: industry—76.8; building—14.9; handicrafts—8.3.

[7] Cf. *Statistisches Jahrbuch*, 1956, p. 520. These figures are based on the old estimates of the German national product, as the new estimates are so far available only in terms of current prices.

[8] Cf. *Statistisches Jahrbuch*, 1956, p. 516. The difference between the old and the new estimates of national income is that the new figures put the 1950 income from 4 to 8 per cent (depending on which definition is being used) higher than the old statistics did. However, this does not necessarily mean that the relationships between the sectors relevant for our purposes, which is our concern here, differ as between the two sets of data. The accuracy of the old figures in this respect cannot as yet be assessed.

[9] Cf. p. 80.

[10] Cf. *Statistisches Jahrbuch*, 1956, p. 230.

Finally, the index numbers for the six-year period. As the usual indices of industrial production include mining and food-processing, these industries had to be taken out, which did not present any great difficulty.[11] The indices for handicrafts and building, as mentioned above, were obtained from national product statistics, and no adjustments were required.

In the case of the United Kingdom, the indices of industrial production required to extend the estimate of industrial output in 1950 were very much easier to obtain, as the index as published includes all industrial activities as well as building. The only adjustment required was the elimination of mining and food-processing.[12] The index of industrial production thus defined is shown in Table 7.

2. Imports at Constant Prices

Imports in terms of 1950 prices were obtained by applying to imports in current prices average value indices of British imports. No average value indices for German imports classified according to the Standard International Trade Classification are available. As reference to Table 5 will show, the ratios of imports of industrial materials at current prices are almost identical with those of imports at constant prices as shown in Table B. This indicates that the movement of German import prices was very similar to that of British prices; hence there seems to be no objection to the use of British average value indices in deflating both countries' imports to the 1950 price level.[13] British average value indices for a detailed breakdown of trade were obtained from the Board of Trade Statistics Division.

[11] Cf. *Neuberechnung des Index der Industriellen Nettoproduktion, op.cit.*, pp. 9 and 17.

[12] Based on data published in the *Annual Abstract of Statistics*, 1956, table 148.

[13] Comparisons of the movement of total German imports of industrial materials at constant prices, as shown in Table B, with the changes of import volumes according to the usual German classification (Rohstoffe and Halbwaren) are possible only to a limited extent, since the coverage is different, but broadly similar results emerge.

TABLE B

IMPORTS OF INDUSTRIAL MATERIALS, CLASSIFIED INTO MAJOR COMMODITY GROUPS, 1950 PRICES

(millions of dollars at 1950 prices)

		Oils & greases	Rubber	Wood & timber	Pulp & paper	Textile materials	Ores & metals	Crude petroleum	Chemicals	Other	TOTAL
1950	Germany	222.9	56.8	49.5	43.8	516.0	187.9	40.8	46.2	179.9	1,343.8
	United Kingdom	354.6	144.3	284.0	201.4	1,095.2	595.4	207.9	141.9	331.6	3,356.4
	Germany/United Kingdom	62.8	39.3	17.4	21.8	47.1	31.6	19.6	32.6	54.3	40.0
1951	Germany	216.1	58.2	55.9	60.0	373.3	238.3	69.6	53.6	146.1	1,271.1
	United Kingdom	356.5	204.5	437.0	267.1	1,014.5	629.0	368.3	231.1	358.2	3,866.2
	Germany/United Kingdom	60.6	28.5	12.8	22.5	36.8	37.9	18.9	23.3	40.7	32.9
1952	Germany	162.5	63.6	85.3	49.0	424.2	339.9	73.2	60.7	189.5	1,447.9
	United Kingdom	324.2	123.5	273.3	200.3	888.9	791.8	495.6	146.2	261.0	3,504.8
	Germany/United Kingdom	50.1	51.5	31.2	24.4	47.7	42.9	14.8	41.5	72.6	41.2
1953	Germany	228.9	80.2	92.1	64.3	528.6	385.0	93.0	70.5	224.6	1,767.2
	United Kingdom	312.4	149.8	342.6	220.2	1,073.5	680.0	530.5	143.8	313.0	3,765.8
	Germany/United Kingdom	73.2	53.6	26.9	29.2	49.2	56.6	17.5	49.1	71.8	46.9
1954	Germany	267.6	97.7	128.9	88.5	581.5	541.8	120.1	102.8	267.6	2,196.5
	United Kingdom	306.9	172.6	379.4	290.4	1,006.0	683.7	570.0	186.0	337.3	3,932.3
	Germany/United Kingdom	87.2	56.7	34.0	30.5	57.9	79.3	21.1	55.2	79.3	55.9
1955	Germany	287.3	113.6	165.1	108.3	658.6	762.6	141.2	122.8	325.4	2,684.9
	United Kingdom	299.3	208.6	443.2	346.9	990.0	903.1	576.6	202.8	336.9	4,307.4
	Germany/United Kingdom	96.0	54.4	37.3	31.3	66.5	84.5	24.5	60.4	96.5	62.4
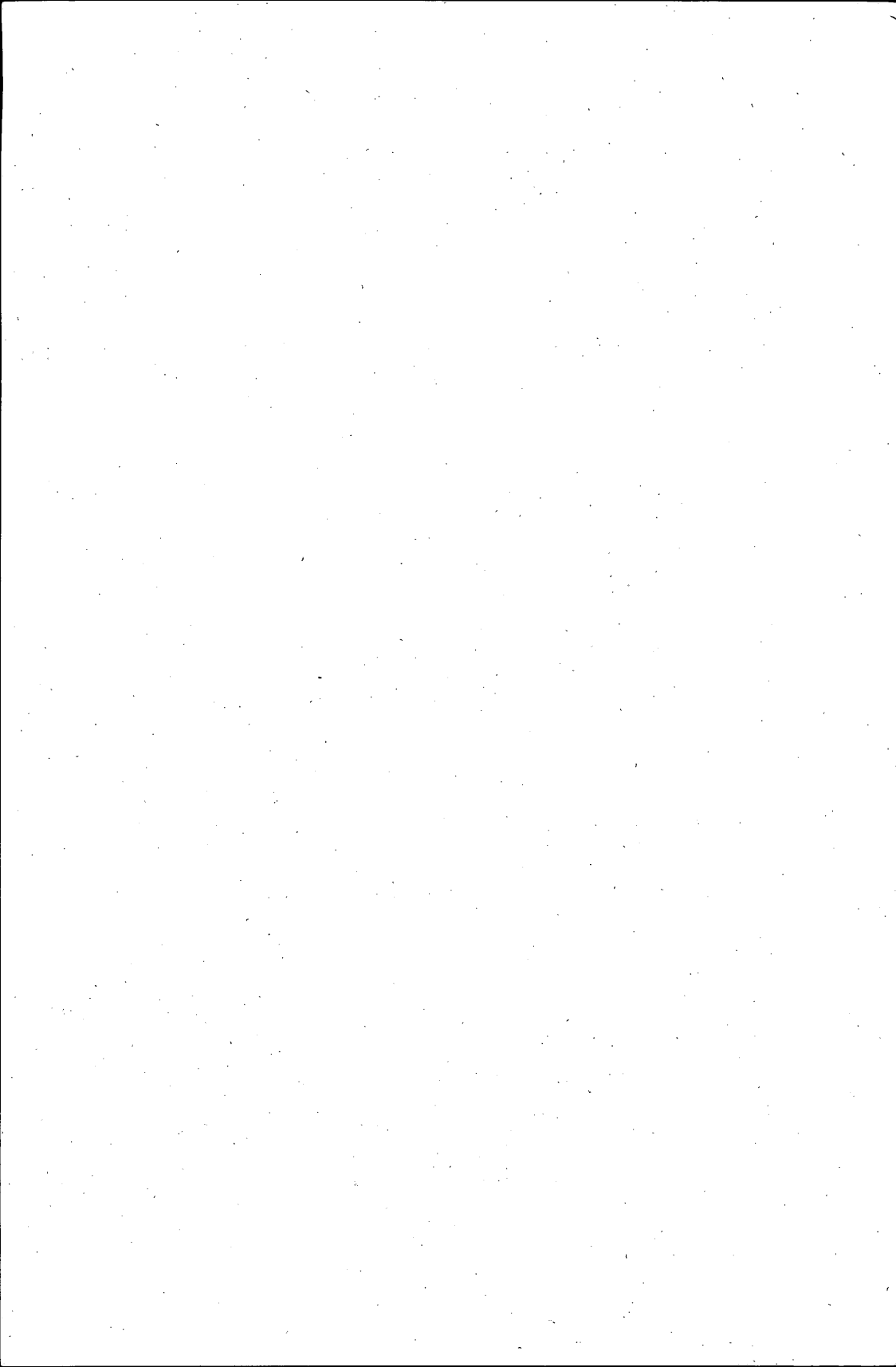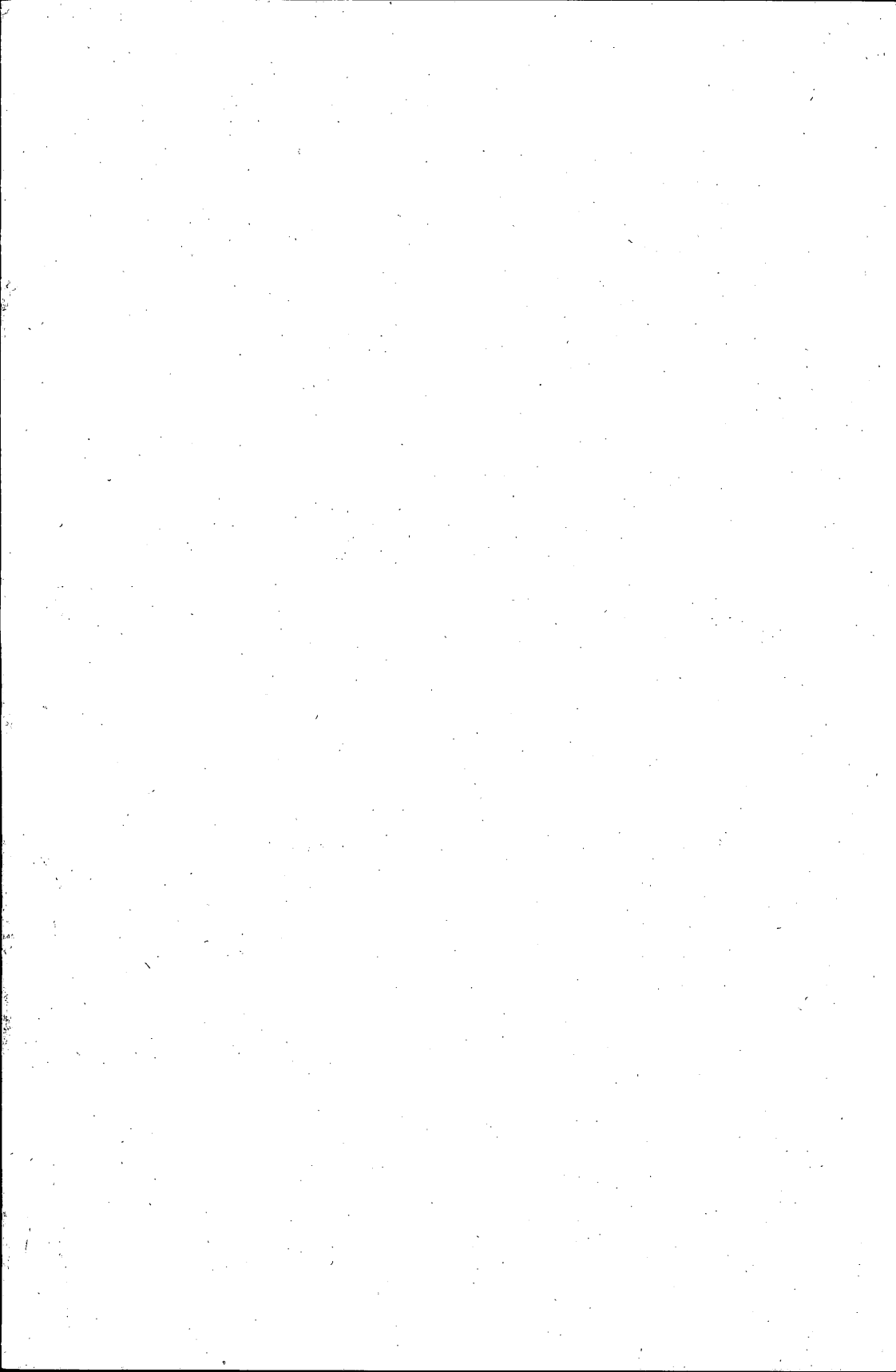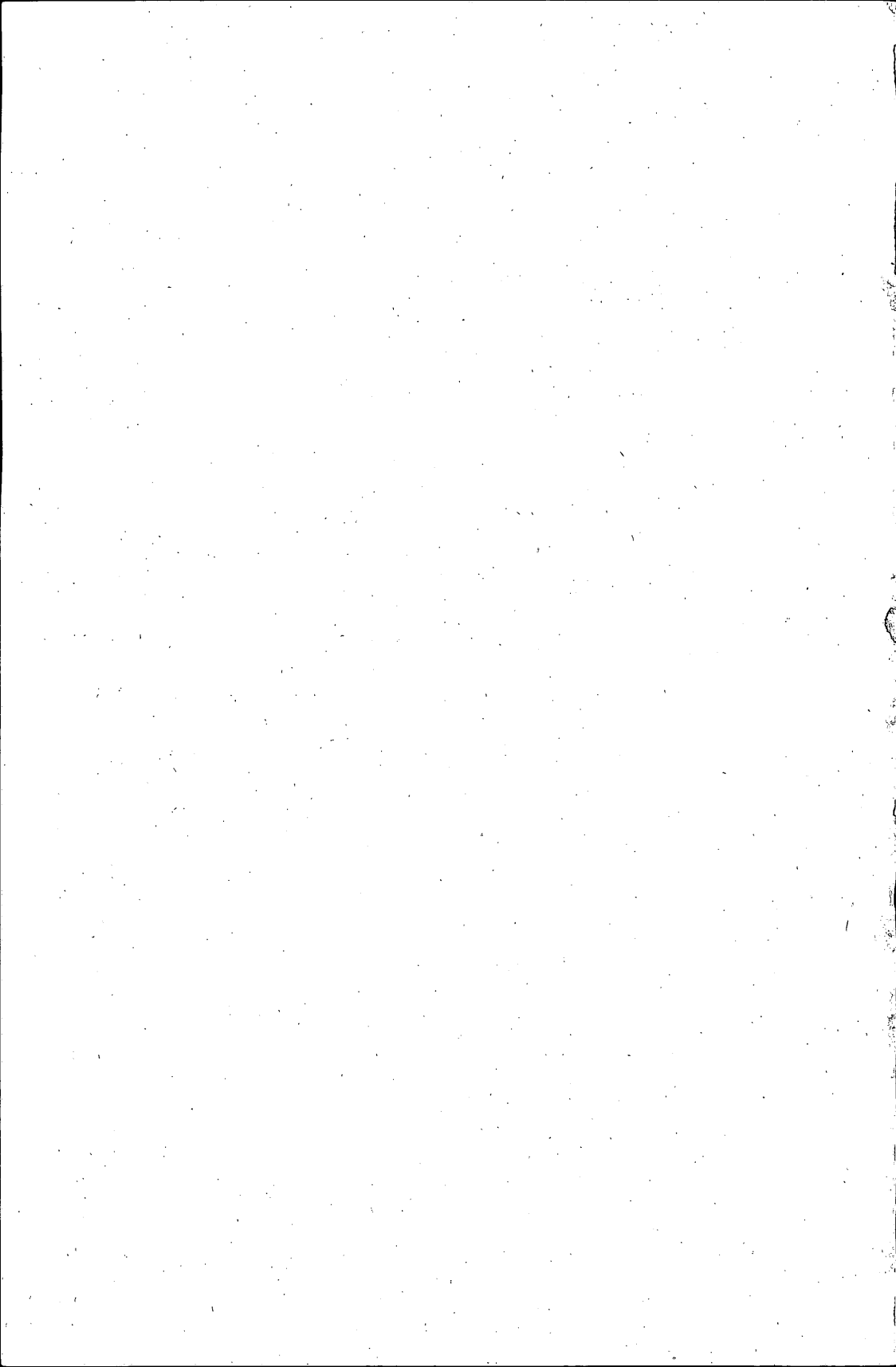
RECENT PUBLICATIONS OF
INTERNATIONAL FINANCE SECTION

The International Finance Section publishes from time to time papers in three series, which should be ordered directly from the Section. The STUDIES are distributed without charge to persons abroad, but there is a fee of $0.25 in coin or stamps to cover postage and handling costs for United States residents. The ESSAYS and the SPECIAL PAPERS are distributed without charge by the Section to all interested persons, and standing requests to receive new numbers as they are published will be honored. Numbers in these three series still in print are as follows.

SPECIAL PAPERS IN INTERNATIONAL ECONOMICS

A Survey of International Trade Theory. By Gottfried Haberler. (September 1955)

PRINCETON STUDIES IN INTERNATIONAL FINANCE

The First Three Years of the Schuman Plan. By Derek Curtis Bok. (December 1955)

Negotiations for Benelux: An Annotated Chronicle, 1943-1956. By James E. Meade. (March 1957)

The Import Dependence of Britain and Western Germany: A Comparative Study. By H. H. Liesner. (December 1957)

ESSAYS IN INTERNATIONAL FINANCE

The Bank for International Settlements, 1930-1955. By Roger Auboin. (May 1955)

International Cost-Sharing Arrangements. By Thomas C. Schelling. (September 1955)

The Changing Pattern of International Investment in Selected Sterling Countries. By A. R. Conan. (December 1956)

The International Status of the Dollar. By Fred H. Klopstock. (May 1957)

Twenty-five cents