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WARTIME RATIONING
AND
CONSUMPTION



LEAGUE OF NATIONS

GENEVA

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PREFACE

THIS STUDY is an expansion of the chapter on Consumption and Rationing contained in the *World Economic Survey, 1939/41*. Consumption control represents an important aspect of war economy and the present study is concerned mainly with the impact of war controls and rationing on consumption and standards of living in countries for which information is available.

The figures relate to the spring or early summer of 1942. All care has been taken to assure the accuracy of the figures. But the shifting scene in a world at war renders it difficult to do so with complete confidence, especially as rations are frequently changed from one month to another. Minor changes effected by prolonging the rationing period are particularly difficult to follow. Nevertheless, it is believed that the general picture presented is an accurate one.

A. LOVEDAY

*Director of the Economic,
Financial and Transit Department.*

Economic Intelligence Service,
League of Nations,
June 1942.

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Chapter I

CONSUMPTION CONTROL IN WAR ECONOMY

THE ULTIMATE OBJECT of war economy is to direct available resources to the production of such goods and the performance of such services as are necessary for the successful conduct of the war. Governments obtain the additional resources needed from the utilization of unused productive capacity, the consumption of domestic capital, the liquidation of foreign assets or borrowing abroad, and the diversion of productive factors from their normal peacetime use to war purposes.

One of the first problems in war economy is to check that increase in civilian consumption which is likely to result from further employment and the competitive demand for labour. But it is not sufficient merely to prevent civilian consumption from rising; a fully developed war economy implies a reduction of such consumption in order to liberate maximum resources for war purposes.

This object can be achieved by the curtailment of money demand by means of increased taxation or the deliberate promotion of savings; but it has been found necessary in almost all countries to buttress such measures by rationing and other restrictions on consumption, including, for instance, the complete stoppage of the imports and production of certain consumers' goods. The unspendable margin of income which results from these direct restrictions on the acquisition of goods goes to swell the volume of savings. In contrast to the ordinary process, under which an increase in the rate of savings requires only a temporary restriction of consumption and is followed by increased capacity for the production of consumers' goods, the restriction of consumption in a war economy is definitive.

The control of consumption is a necessary condition not only of the effective mobilization of resources for war purposes but also of the enforcement of price control, some form or degree of which all belligerent governments have in fact introduced for the purpose of

checking or preventing rises in the cost of production and the cost of living. No price controls can withstand, unaided, the pressure of an increasing demand on dwindling supplies. Such controls, indeed, by holding prices at an artificially low level, tend to stimulate demand; the stricter the price control, therefore, the more rigorous must be the restrictions on demand.

These restrictions serve a further very vital purpose. In the interest of the war effort—if for no other reason—it is essential to maintain the health, efficiency and morale of the civilian population at the highest level compatible with available resources. Rationing and other methods of consumption control are used to ensure an equitable distribution of limited—and in many countries, drastically curtailed—supplies of essential consumers' goods, such as foodstuffs, clothing and fuel.

Thus, while their ultimate object in belligerent countries is to contribute towards the maximization of the war effort, consumption controls serve several distinct immediate ends, and their actual forms and modes of operation differ from country to country and change with changes in the relative importance and urgency of those ends.

But, while price controls are not likely to prove effective for long if unaccompanied by quantitative controls over demand and supply, they continue to be required even after the imposition of such quantitative controls. Their main purpose is to enable the lower income groups to maintain consumption of essential goods on terms of equality with the higher income groups. They render the ration cards effective in spite of differences in income. They do not, however, serve the purpose of restricting consumption to the desired level, nor can they alone assure the desired distribution of goods. But they are an additional guarantee that the rationing system will be carried out.

I. METHODS OF CONSUMPTION CONTROL

Deliberate stimulation of savings and sharp increases in taxation, direct and indirect, normally precede rationing and represent the first stage in the process of curtailing consumers' demand. The sale of war bonds and saving certificates has been supplemented in certain countries by measures of compulsory saving. Thus, in the United Kingdom, when personal and earned income allowances for income tax purposes were reduced under the 1941/42 budget, it was provided that the additional amount of tax paid on account of these

reductions would be refunded to the taxpayer after the war. A somewhat similar system was later introduced in South Africa. New Zealand has issued compulsory loans to be taken up in proportion to income-tax payments. In Germany, a so-called "iron saving plan" has been adopted in order to absorb the surplus income of wage earners and the lower salaried classes. A somewhat similar savings plan has been instituted to absorb the purchasing power liberated owing to the impossibility of replacing machines and plant. Furthermore, consumers are encouraged to make instalment payments towards post-war title to dwelling-houses and deliveries of various durable consumers' goods, such as motor cars.

An increase in taxation—and more particularly direct taxation—is, however, the most familiar and the most widely adopted method of forcing down the money demand of consumers. But there is a point beyond which taxation cannot easily be extended. Furthermore, the time-lag between the receipt of income and the payment of most forms of taxation—a lag which has to be covered by Government borrowing—is a factor of importance in times of emergency. Sales taxes, however, withdraw purchasing power more rapidly than income taxes and have been extensively used both to check demand in general and to check demand for specific commodities subjected to specially high rates.

Another serious limitation to the effectiveness of taxation for the purpose of restricting consumption is the fact that persons in the higher income groups are left free to maintain consumption expenditure by means of disinvestment.¹ This difficulty may be largely met

¹ In order to close this final gap, plans have been suggested to ration directly the purchasing power in the hands of the consumers. According to such plans, the Government should limit the total sum of money which any individual, disregarding his income, should be permitted to spend on specified goods and services. In explaining why schemes of this nature, though frequently suggested, have not been adopted in practice, the following considerations should be mentioned. The alleged advantage of these plans over a system of taxation and forced borrowings is the fact that they would prevent the higher income groups from maintaining current consumption by means of disinvestment. If the system, however, includes perishable and durable goods on the same basis, persons in possession of large stocks of durable and semi-durable goods at the beginning of the rationing would be able to maintain current consumption by means of disinvesting these stocks. Moreover, general purchasing power rationing does not meet the problem of specific scarcities—caused by blockade, etc.—and would have to be supplemented by specific rationing of essential scarce goods—like sugar, gasoline, etc. Finally, the allocation of the purchasing power to different groups offers great difficulties in view, in particular, of the lower cash requirements of farmers and groups receiving a large portion of their income in kind. Discrimination between different categories, on the other hand, raises a number of delicate problems.

by so restricting supply that demand is rendered impotent or by limiting individual demand by the rationing of goods and services.

The most drastic measure of the first kind—and one which has been extensively applied where plant and machinery could easily be converted to war production—is the total prohibition of the manufacture of certain consumers' goods. Other measures commonly enforced include the compulsory restriction of the range of types and varieties produced, the limitation of output to a given percentage of pre-war output (as under the Limitation of Supply Order in the United Kingdom), the prohibition of the use of certain raw materials and the restriction of the quantities released for the manufacture of consumers' goods. The scale of such manufacture is also directly influenced by the withdrawal of labour from the consumers' goods industries.

The industries to which such restrictions on supplies tend to be applied first are those which compete most directly with war industries for plant, labour and materials—more especially the industries producing durable consumers' goods such as automobiles, refrigerators, etc. The importance of such industries in peace-time economy differs from country to country, but is naturally greatest in countries having the highest standard of living. In the United States, durable consumers' goods accounted for 12% of consumers' purchases in 1939 and 14% in 1941.

In the other belligerent countries, the production and consumption of durable consumers' goods are less important and constitute a much smaller part of total consumption than in the United States. Statistics of sales, which would allow an exact comparison with the figures for the U.S.A. mentioned above, are not available; consumer expenditure figures for the United Kingdom in 1937 suggest, however, that the sales of durable consumers' goods were less than 10% of total sales.

A comparison of the production and use of passenger cars before the outbreak of the war is of interest in this connection. Total output in 1937 as well as the number of persons, per car, are shown below:

	<i>Production (000's)</i>	<i>Number of persons per car produced</i>
U.S.A.	3,916	33
U.K.	379	126
Germany	269	258
Italy	61	710

In the United States, in view of the high contribution to the war effort which can be obtained by cutting down the output of durable consumers' goods, the bulk of the immediate sacrifice in consumption considered to be necessary will be of these goods.

But control of production will not alone suffice to prevent inflationary expenditure. It requires to be accompanied by measures directly limiting consumers' demand. There are always relatively large stocks of durable consumers' goods in the hands of the public, and for this reason it is difficult to ascertain individual needs over a short period of time and to apply an effective rationing system to them. Recourse has generally been had, therefore, either to indirect means of restricting demand or, when drastic curtailment was desired, to the total prohibition of purchases save under license. Among the indirect methods employed are sales taxes and the curtailment of consumers' credit. In the United States, where it is estimated that about 50% of the purchases of durable consumers' goods were on an instalment basis, restrictions on consumers' credit were introduced in September 1941.

The prohibition, plus licensing of purchase, is the most extreme form of rationing and differs in conception from the more liberal forms. It is based on the assumption that the majority of the population can and should do without the commodity in question and that no individual should be entitled to acquire it unless he can substantiate his claim. In food rationing and generally in clothes rationing, on the other hand, it is assumed that all individuals have a claim and that large classes of persons, if not all persons, have equal claims.

The diversion of non-durable and semi-durable consumers' goods to war purposes is limited by the fact that a large proportion of such goods is indispensable for maintaining the health and efficiency of the whole population. The extent to which food consumption, for instance, can be reduced without prejudice to health and efficiency is everywhere relatively small; even in the most advanced countries, large sections of the population suffered from malnutrition before the war. The problem of food rationing is accordingly a problem not so much of reducing consumption as of distributing short supplies in an equitable manner.

Clothing constitutes an intermediate group between durable goods and goods such as food, the demand for which arises to be met day by day. The margin between actual consumption and essential needs

is much wider than it is for foodstuffs, and drastic restrictions of quantity as well as of quality are more possible without interfering with health. The application of rationing presents various technical difficulties, however. There is a much wider range in the variety of human needs on account not only of differences of sex, age, climate, but also of occupation. Moreover, the semi-durable character of clothing which varies widely with the quality of the clothes, the wear and tear to which they are subjected, etc. makes it more difficult to determine needs in advance. The period of necessary replacement is also dependent on the actual stocks in the hands of the consumer. In spite of these difficulties, rationing of clothing has been adopted almost as widely as rationing of foodstuffs.

As pointed out above, rationing is but one of several measures of consumption control, and its effect on prices depends on the degree to which it is coordinated with other measures. Taken by itself, the rationing of any commodity, by limiting demand, makes it possible to maintain prices lower than would otherwise rule. The effect of specific rationing on the general price level depends on the use made of the purchasing power released through the forced saving on the rationed article. Unless that purchasing power is absorbed by the Government, it tends to increase the demand for unrationed goods. The deflationary effect on the rationed market may thus be offset by an inflationary effect on the unrationed.

The situation changes when all, or almost all, available goods are either directly or indirectly rationed. The result of such comprehensive rationing is in fact identical with rationing of expenditure—or consumable income—for, disregarding possible transactions on the black market, the sum which any individual can spend on consumption goods is determined by the rationing system. What the consumer cannot spend, he is either directly or indirectly forced to save. The anti-inflationary effects of the rationing of goods is thus dependent on the scope of the rationing system.

Another method by which consumers' demand—theoretically at least—can be restricted is that of allowing the ordinary market mechanism to function and the price of scarce goods to rise. It has, in fact, proved in almost all countries impossible to prevent a substantial rise in the general price level. The operation of the free price mechanism has, however, everywhere been checked and gradually

discarded in favour of a planned, controlled and rationed war economy.

II. METHODS OF DIRECT CONSUMERS' RATIONING

In the case of certain durable goods—subject to rationing, sales to consumers are made conditional upon special purchase permits granted on the basis of individual need. Under conditions of great scarcity such as exist in many of the German occupied territories, this system has been extended to cover a very wide variety of goods.

It is, however, still of far less practical importance than the system of card rationing, under which each individual is entitled to limited quantities of the rationed goods. The cards contain a certain number of coupons or points, which may be used within a specified rationing period, differing according to the character of the goods. No rationed article may be either bought or sold without the surrender of a specified number of coupons.

It is usual to distinguish between two types of card rationing: specific and point or group rationing. In the case of specific rationing, the consumer receives special coupons for each commodity—bread, sugar, petrol, etc. When the commodity is not uniform, specific rationing may prove impossible. Thus meats are sometimes rationed by value—prices being fixed. Such value rationing is one form of group rationing, but group rationing is not generally by value. Under the point system—which has been widely applied to clothing—for every article a coupon value is established, say 20 coupons for a woman's dress, 2 coupons for a pair of stockings, 1 for a handkerchief. Every consumer receives a ration card, containing a certain number of coupons, which he may spend during the rationing period, usually 1 year, on any of the articles included in the group. The number of coupons in the card and the coupon value of the various items determine the amount one may purchase. The coupon value may be determined by different criteria: for clothing, the quantity and, to some extent, the quality of the material the article contains, is usually adopted as a basis; the coupon value of various tinned foodstuffs, which in Great Britain have recently been combined into a group rationing scheme, was determined in the first instance according to their calorie content.

Specific rationing has the advantage of allowing for the closest

possible coordination of consumption and production. Consumption can be directed with a large degree of exactitude into the channels and kept within the limits determined by the current and expected supply; frictional losses in the adjustment of production to demand are largely obviated. Consumption can easily be adjusted to a changing supply situation by altering the rations, or by extending the ration period, the latter method being frequently adopted, especially to cope with temporary shortages.

Under specific rationing, which is mainly applied to foodstuffs, consumers are frequently restricted to one retailer. This procedure facilitates distribution but makes the system even more rigid.

The point system is designed to give as great a freedom of choice as possible to the individual consumer. Such freedom is required because the number of different articles, for instance of clothing, is too great to allow of specific rationing and because the requirements vary from individual to individual and from time to time. In consequence of this variation in time, the ration card is generally valid for a year or more instead of the week or month of the food card.

Both forms of rationing introduce an independent stream of purchasing power, the demand of the consumer being limited not only by his money income but also by his quota of coupons or points. The restrictive effects of rationing become apparent only when coupon or point income is lower than money income, though its effects on distribution are general.

The success of any card rationing system is measured by the degree to which the new purchasing power represented by the ration card effectively replaces money in determining the retail distribution of goods.

Various factors determine the chances of success. Experience has shown that it is impossible to employ the card rationing system when the supply is erratic or very small in relation to demand. In such cases, recourse must be had to special sales permits, as in the case of durable goods. The sales permit system is, however, cumbersome and has proved difficult to employ successfully in the case of non-durable goods. When the total rations of such goods are too small to satisfy the real need of the population, the whole system is likely to be threatened. The black market will thrive and further decrease supplies on the legal market. Thus, the success of rationing depends in the last

analysis on the ability of the authorities to maintain supplies at or above a level which is acceptable to the population.

The distribution of income is also likely to affect the chances of rationing proving successful. If money incomes are very unevenly distributed, and more especially, if the money incomes of the lower income groups are too small to purchase the full rations, the incentives to create a black market in coupons are so great that such trade can scarcely be prevented. Governments have had recourse to such measures as the free distribution of essential goods, subsidies to producers, and rebates to consumers, with a view to ensuring an adequate minimum diet to the lowest income groups. The effect of these measures is, of course, enhanced if the excess purchasing power of the higher income groups is fully absorbed by taxes and loans. It tends, on the other hand, to be neutralized by inflation. An effective price control is indeed an essential condition of rationing.

Apart from these general conditions, the success of rationing depends largely on the technique employed. Two aspects of rationing technique may be considered here. In the first place, it is desirable that rations should meet as closely as possible the needs of various categories of consumers. The closer they approach actual needs, the less is the incentive to illicit trade. Most of the present rationing systems—particularly of food, but also of clothing, fuel, etc.—are therefore differential, distinguishing between groups of consumers according to age, sex, health and occupation. Complete differentiation according to individual need is not feasible, but it is significant that the trend in most systems is towards a constantly greater differentiation between consumer categories and a widening—by means of the point system—of the groups of commodities within which the consumer is left a free choice.

On the other hand the tendency to increase the number of articles included in any group covered by the point rationing system, involves certain dangers. The larger the number of commodities in any group, the greater the probability that they will not be required by all ration-card holders; the greater, therefore, the risk of the sale of coupons. This risk is enhanced by the fact that, when the coupons cover a large number of alternative commodities, there is likely to be a ready market for them.

In conclusion, it should be repeated that as rationing is an integral

part of war economy, its smooth operation depends on the degree to which it is coordinated with related policies, more especially the controls over production, supply, prices and income.

III. RATIONING AND THE RISE OF A CONSUMER'S ECONOMY

The restrictive aspect of rationing should not obscure the fact that rationing has brought about very significant changes in the methods of distribution. The increasing use of Government-imposed norms in the distribution of goods is a fact at least as important as the compression of levels of consumption, rendered necessary by wartime conditions and inevitable under any system of war economy. The principles applied by Governments are not arbitrary administrative rulings. So far as available supplies permit, food rations are based on objectively ascertainable physiological requirements towards the determination of which the League of Nations, especially in the field of nutrition, has largely contributed. Furthermore, certain rationing systems not only prevent individuals from purchasing more than their fair share of scarce supplies, but also provide that all, regardless of income, shall obtain their full rations. Such policies have been pushed furthest in the United Kingdom, but are also being applied in Sweden and Switzerland. In these countries, in the United States and elsewhere, measures designed to improve the nutrition of the lower income groups were more or less widely adopted before the war. The distribution systems now developing are thus more than a mere method of restricting individual consumption. They aim, in fact, at securing a minimum diet for the population as a whole and, in spite of the necessary limitations imposed by wartime scarcity, they contain the elements of a distributive system in which consumption is guided not so much by individual purchasing power as by human wants. This change in distributive methods is not merely a product of present wartime conditions—though it has been speeded up by the war and used as an instrument of war economy—but has roots stretching far into the history of the Western World. It is a further step towards the fulfilment of the concept of minimum living standards—a concept dimly recognized in the Poor Laws and progressively implemented by the successive social reforms of the past century. The general awareness of this issue—which the war, far from obscuring, has rendered more urgent than before—has found expression in many

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authoritative statements on post-war reconstruction, including the Atlantic Charter itself, in which freedom from want takes its place among the Four Freedoms. Thus, the study of wartime consumption and rationing is relevant to the problems of the future.

Chapter II

FOOD RATIONING AND CONSUMPTION

IN ORDER TO analyze the effects of consumption control on individual consumption and standards of living, it is useful to consider the chief groups of consumption goods and services separately. Food represents the greatest single expenditure group. It has also generally been rationed first. The present chapter is devoted to a survey of the food situation in the various countries for which information is available. These countries were of course not all participating actively in the war.

I. RATIONS OF "NORMAL CONSUMERS"

Information regarding actual food consumption during the war is inevitably confined almost exclusively to the laws and regulations governing the rationing of various foodstuffs. A study of the present food situation, therefore, must begin with a systematic compilation and analysis of data on food rations.

Such data, however, do not necessarily reflect accurately the food situation. Legal rations do not in all cases correspond to actual consumption. In some countries large consumer groups cannot afford to buy full rations, in others rationed articles are unobtainable. In some cases, again, additions to the rations may be purchased on the "black market." Though some of these factors may cancel out, it is perhaps wise to assume that legal rations tend to represent maximum rather than average consumption of the rationed articles.

Furthermore, owing to wartime difficulties of communication, the information obtainable is neither complete nor always trustworthy. It is in many cases out of date; for some countries—particularly in Eastern and Southeastern Europe—information is either lacking, fragmentary, or even contradictory.¹ Much of the information used

¹ The length of the rationing period provides one of the most common pitfalls. The extension of this period is often used as a convenient way of decreasing rations without changing the quantity specifications. While every effort has been made to take such changes into account, they may well have been overlooked in certain instances.

has been gathered from secondary sources of varying value, as it has in many cases been impossible to consult the original laws and regulations.

Table I summarizes recent available information. Rations are throughout converted into grammes per week, and the foodstuffs are arranged in eleven groups. While the grouping is based essentially on the nutritional characteristics of the various foods, it is in some cases determined by the nature of the rationing systems which do not permit the separation of the rations of connected items.

As information regarding the numerical strength of the various classes of consumers shown in the table is lacking, it is impossible to calculate average consumption per head. In the absence of such information attention is devoted in the present section to what is known as the "normal consumer."²

The chief features of Table I are brought out in Graph I which shows the rations of various foodstuffs for "normal consumers" by countries. To facilitate comparison, rations are expressed in calories.³ While calories are a convenient yardstick of quantitative comparison, they do not, of course, reflect the nutritional value (except as a source of energy) of the diet.

Bread, cereals and potatoes. The bulk of the body's energy requirements is supplied in Western countries by bread, cereals and potatoes which, within certain limits, are interchangeable. The dominating place of these foodstuffs in the diet is explained largely by their relative cheapness, while bread has the advantage of being a relatively

² The "normal consumer" is an administrative concept, which differs from country to country, and also in the same country as regards different foods. Children's rations (except for milk) tend to be lower than those of normal consumers. Rations for special categories of workers (men in the armed forces, seamen, "heavy" and "very heavy" workers) tend to be higher, in particular as regards bread, fats, and, occasionally, meat.

³ While the comparison of food rations on the basis of their calorie content (rather than on the basis of more conventional measures such as grammes, pounds or litres) is theoretically preferable, the process of conversion naturally introduces a margin of possible error. Rough conversions are undertaken here on the basis of broad categories of foodstuffs, the composition of which differs from country to country and from time to time. Attempts have been made to take into account the differences in the national composition of some food groups, but no allowance has been made for deterioration of quality (particularly the lower average fat content of meat, milk and cheese) during the war. The calories in this study are calories net. With such reservations as have been indicated above, the following factors of conversion have been used in expressing 1000 grammes in terms of calories: bread (and flour, in terms of bread: 1 kg of flour = 1.3 kgs of bread) 2600 calories; cereals, 3500 (in the case of Italy, 3800 owing to the high proportion of macaroni); potatoes, 800; sugar (and jam in terms of sugar), 3800; meat and meat products, 2600 (where separate figures are given for bacon, they are converted at the rate of 4500); fats 7500; milk 650; cheese 3000; eggs 75 a piece.

TAB
LEGAL FOOD RATIONS

(Grammes
Explanations: r: rationed, amount of ration not

Country	Consumer category	Date	Bread & flour	Cereals
United Kingdom:	Normal consumer	May 1942	Free	Free
	Children under 6 yrs.		Free	Free
	" 6-17 "		Free	Free
Italy:	Normal consumer ¹	April 1942	1,050	500-625 ¹
	Light worker		1,750	
	Heavy worker		2,450	630-755 ¹
	Very heavy worker		3,150	
Germany:	Normal consumer	April 1942	2,000	150
	Children under 3 yrs.		900	265
	" 3-6 "		1,200	265
	" 6-10 "		1,700	150
	" 10-14 "		2,600	150
	Young persons 14-20 "		2,600	150
	Night worker		2,600	150
	Heavy worker		3,400	150
Very heavy worker		4,400	150	
Belgium:	Normal consumer ^a	April 1942	1,570	70
	Light worker		2,020	70
	Heavy worker		2,470	70
	Very heavy worker		2,920	70
	Miners		3,820	70
Bulgaria:	Normal consumer	April 1942	2,100	250
			4,200	250
			5,250	250
Czechoslovakia:	Normal consumer	April 1942	2,000	125
	Children under 3 yrs.		900	125
	" 3-6 "		1,200	60
	" 6-10 "		1,700	60
	Young persons 10-20 "		2,600	125
	Heavy worker		3,400	125
	Very heavy worker		4,400	125
2) Slovakia	Normal consumer		1,670	
	Heavy worker		2,000	
	Very heavy worker		3,075	
Denmark:	Normal consumer	April 1942	2,280	235
	Children under 6 yrs.		1,190	235
	Heavy worker		2,980	235
	Very heavy worker		3,680	235
Finland:	Normal consumer	April 1942	1,750	"
	Children under 3 yrs.		1,050	
	" 3-7 "		1,400	
	Heavy worker		2,100-2,800	
	Very heavy worker		3,590	

LE I

ABOUT APRIL, 1942 ^aper Week ^b)

known; l.r.: locally rationed; blank: no information

Potatoes	Sugar	Jam, honey, etc.	Meat & meat ^c prod.	Fats ^d	Liquid milk (whole)	Cheese	Eggs (pieces)	Coffee, tea (<i>italics</i>), etc.
Free	225	105	sh. d.					
Free	225	105	1/2 ^t	225	1,420 ^e	85	1	55 ^h
Free	225	105	-/7	225	3,980	85	1	55
			1/2	225	1,990	85	1	55
250	115	k	100-200 ^l	95	r	60	1	nil
250	115		100-200	95	r	60	1	nil
250	115		100-200	95	r	60	1	nil
250	115		100-200	95	r	60	1	nil
2,500	225	150	300	205	nil ^l	50	0.5 ^m	80 ^e
2,500	225	180	150	125	5,250	50	0.5	nil
2,500	225	180	150	190	3,500	50	0.5	80
2,500	225	230	350	265	1,750	50	0.5	80
2,500	225	230	350	265	1,750	50	0.5	80
2,500	225	150	350	270	nil	50	0.5	80
2,500	225	150	450	225	nil	50	0.5	80
2,500	225	150	600	305	nil	50	0.5	80
2,500	225	150	850	575	nil	50	0.5	80
3,500 ^o	225	105	245	90	nil ^p		nil ^q	50 ^e
3,500	225	105	315	160	nil		nil	50
3,500	225	105	385	225	nil		nil	50
3,500	225	105	455	290	nil		nil	50
3,500	225	105	525	685	nil		nil	50
Free	Free	Free	r	250		100	Free	Free
Free	Free	Free					Free	Free
Free	Free	Free					Free	Free
2,000	250	205	300	165	1,750 ^a		0.5	100 ^e
2,000	250	235	150	125	3,500		0.5	100
2,000	250	235	150	125	3,500		0.5	100
2,000	250	235	350	200	3,500		0.5	100
2,000	250	205	350	200	3,500		0.5	100
2,000	250	205	600	260	1,750		0.5	100
2,000	250	205	850	530	1,750		0.5	100
Free	250		300	Free				
Free	375		450	Free				12+7
Free	375			Free				12+7
								12+7
Free	465		Free	315	Free	Free ^t	Free	30
Free	465		Free	315	Free	Free	Free	nil
Free	465		Free	315	Free	Free	Free	30
Free	465		Free	315	Free	Free	Free	30
l.r.	250	125	70	70	1,400	v	2	60 ^e
l.r.	250	125	70	70	3,500		2	60
l.r.	250	125	70	70	3,500		2	60
l.r.	315	125			1,400		2	60
l.r.	315	125			1,400		2	60

TABLE I
LEGAL FOOD RATIONS

(Grammes)

Explanations: r: rationed, amount of ration not

Country	Consumer category	Date	Bread & flour	Cereals
France:	Normal consumer	April 1942	1,925 ^w	nil
	Children under 3 yrs.		775	70
	" 3-6 "		1,475	45
	" 6-13 "		1,925	60
	Young persons 13-21 "		2,450	60
	People over 70		1,475	nil
	Heavy worker		2,450	nil
	Very heavy worker		2,450	nil
Greece:	Normal consumer	April 1942	1,000	
Hungary:	Normal consumer	April 1942	2,000	50
	Heavy worker		3,050	50
	Very heavy worker		4,450	50
Latvia: *	Normal consumer		1,700	150
	Children under 3 yrs.		775	275
	" 3-6 "		1,000	210
	Young persons 6-18 "		2,200	150
	Light worker		2,200	150
	Heavy worker		2,900	150
	Very heavy worker		3,700	150
Lithuania:	Normal consumer	February 1942	1,750	
Netherlands:	Normal consumer	April 1942	1,800	160
	Children under 4 yrs.		900	160
	" 4-14 "		1,800	160
	Young persons 14-21 "		2,200	160
	Heavy worker		3,360	160
	Very heavy worker		4,360	160
Norway:	Normal consumer	April 1942	1,645	100
	Children under 2 yrs.		910	100
	Light manual worker		2,535	100
	Heavy worker		3,000	100
	Very heavy worker		3,400	100
Poland: ^{cc} Incorporated Provinces: Poles	Normal consumer	December 1941		
	Children under 6 yrs.			
	" 6-14 "			
Government General: Poles	Normal consumer	October 1941	1,490	
	Children		1,040	
	Jews		580	
Rumania: ^{dd}	Normal consumer	January 1942	1,500 ^{ee}	
	Heavy worker		3,500	

TABLE I

LEGAL FOOD RATIONS

(Grammes)

Explanations: r: rationed, amount of ration not

Country	Consumer category	Date	Bread & flour	Cereals
Yugoslavia:				
1) Croatia	Normal consumer	January 1942	1,400	70
	Heavy worker		2,800	
2) Serbia ^{††}	Normal consumer	January 1942	1,800	
Ireland:	Normal consumer	April 1942	Free	Free
Spain:	Normal consumer	March 1942	560-1,050 ^{§§}	r
Sweden:	Normal consumer	April 1942	1,625	115
	Children under 6 yrs.		755	115
	Young persons 6-18 "		1,760	115
	Heavy worker		1,900	115
Switzerland:	Normal consumer	April 1942	Free	350 ^{mm}
	Children under 5 yrs.		Free	460
	Heavy worker		Free	350
Japan:	Normal consumer			2,310 ^{aa}
	Children under 4 yrs.			840
	" 5-9 "			1,400
	Heavy worker			3,990

^a Several countries not given in the table above, ration one or more commodities; namely (in grammes per week)

<i>Bread:</i>	Turkey (1,650)	Tangier (3,500)
<i>Rice:</i>	Morocco (60-100)	Tangier (250)
<i>Sugar:</i>	U.S.A. (225)	Canada (225)
	New-Zealand (340)	Algeria (125)
	Tunisia (150)	Morocco (125)
	Tangier (125)	

Meat: Morocco, parts of Tunisia.

Fats: Morocco, Algeria, Tunisia, Tangier.

An incomplete list of commodities locally or informally rationed is as follows:

Fish: Germany, Italy, Belgium, Finland, France.

Fruits: Germany, Czechoslovakia, Italy, Belgium, France.

Vegetables: Germany, Czechoslovakia, Italy, Belgium, France.

Chocolate: (to children) Germany, France, Sweden.

^b Weekly rations; calculated on basis of 4.3 weeks per month.

^c As purchased, including bone, waste, etc., excluding poultry and game, when not otherwise indicated.

^d Total fats: including butter, margarine, lard, vegetable oil, etc.

^e Substitute only.

UNITED KINGDOM

^f Meat (defined as beef, veal, mutton and pork) is rationed according to value. In the spring of 1942 it was estimated that sh 1/2 d bought at an average 450 grammes per week. In addition bacon was specifically rationed at 115 grammes a week. Total rationed meat thus amounts to about 550 grammes. It should be remarked, however, that some meat products (sausages in particular) were unrationed, and that certain quantities of meat products and fish were obtained under the point rationing system of canned goods.

^g From March 1942 dairymen were authorized to allow three (instead of previously two) pints a week to non-priority consumers, and from the last week of May sales were free.

(Continued)

ABOUT APRIL, 1942 ^a

per Week ^b

known; l.r.: locally rationed; blank: no information

Potatoes	Sugar	Jam, honey, etc.	Meat & meat ^c prod.	Fats ^d	Liquid milk (whole)	Cheese	Eggs (pieces)	Coffee, tea (italics), etc.
	125		300	125				
	75		200					
Free	340	Free	Free	Free	Free	Free	Free	15
r	250 ^{h h}		r	200				
Free	375		220 ^{l l}	250	Free	60	1.5	20 or 15
Free	375 ^{l l}		220	250	Free	60	1.5	
Free	375		220	250	Free	60	1.5	
Free	580 ^{k k}		440	375	Free	60	1.5	
Free	140		400	220		150	1.5	60
Free	175		100	150		75	1.5	30
Free	140		590	275		275	1.5	60
	150		r	r				
	150		r	r				
	150		r	r				
	150		r	r				

^h Tea only; coffee and cocoa not specifically rationed.

ITALY

^l Children are reported to receive in general normal adult rations.

^j Differing according to locality.

^k Jam rationed; persons under 18 years of age receive 125 grammes a week.

GERMANY

^l Skimmed milk locally rationed.

^m Rations change according to supply.

BELGIUM

ⁿ Children are reported to receive normal adult rations.

^o Rations reported to be frequently unavailable; in this case bread may be purchased: 500 grammes potatoes equalling 50 grammes of bread.

^p Milk reserved for children; rations reported to be the same as in Germany. Skimmed milk locally rationed.

^q Eggs reserved for small children and expectant mothers.

BULGARIA

^r Two meatless days a week.

CZECHOSLOVAKIA (PROTECTORATE)

^s Fat content of liquid milk reduced from 3.6% to 2.5%.

DENMARK

^t Fat content of cheese legally restricted to 20%.

FINLAND

^u Cereals may be purchased instead of bread.

^v Included in fat ration.

FRANCE

^w Prefects may impose temporary reduction of rations.

HUNGARY

^x 80 grammes in rural areas, 260 in Budapest.

^y 3 meatless days a week.

"condensed" source of energy and—especially if made of whole meal—it is also a valuable source of vegetable proteins, mineral salts and some vitamins. Generally, consumption is greater in poor than in rich countries and in the lower than in the higher income groups. In fact this group of foodstuffs tends to maintain the calorie equilibrium of the average diet, compensating deficiencies caused by low consumption of other more expensive foods. In this sense, it acts as a "budget regulator."

In order to grasp the importance of a given bread-potato ration (as well as the significance of the absence of such rationing) it is well to consider the absolute and relative consumption of these foodstuffs in peacetime.⁴

A recent study published by the Food Research Institute of Stanford University gives rough estimates by countries of the amount of calories usually obtained from these foods and of their contribution to total calorie consumption for the years 1933-8. As pointed out by

LATVIA

^a Jam, cheese, eggs, and fish distributed from time to time according to available supplies.

NORWAY

^{aa} Meat too scarce for regular rationing, but small quantities are occasionally made available.

^{bb} Rations are frequently unobtainable.

POLAND

^{cc} Information on rationing in Poland is incomplete and frequently contradictory. The administrative division of the country together with the discrimination with regard to different racial and national consumer groups makes it difficult to obtain a picture of conditions; furthermore legal rations are often unobtainable. The figures given in the table relate to October and December 1941; later but partial reports indicate further decreases in rations, particularly for bread and meat. Thus, according to the "Polish Feature and News Service," Nr. 35, the bread rations for Poles in the "Government General" are now about 1,000 grammes per week and meat rations 80 grammes per week.

RUMANIA

^{dd} Bucharest only; local rationing in other towns.

^{ee} Maize and some Maize products are unrationed.

YUGOSLAVIA (SERBIA)

^{ff} Belgrade only; local rationing in other towns.

* SPAIN

^{gg} Rations vary inversely to income.

^{hh} Figures from 1941.

SWEDEN

ⁱⁱ Children under six years of age receive an extra ration of syrup in order to compensate for lower bread rations.

^{jj} Including lentils.

^{kk} Forest workers and miners only.

^{ll} Pure meat, excluding bones.

SWITZERLAND

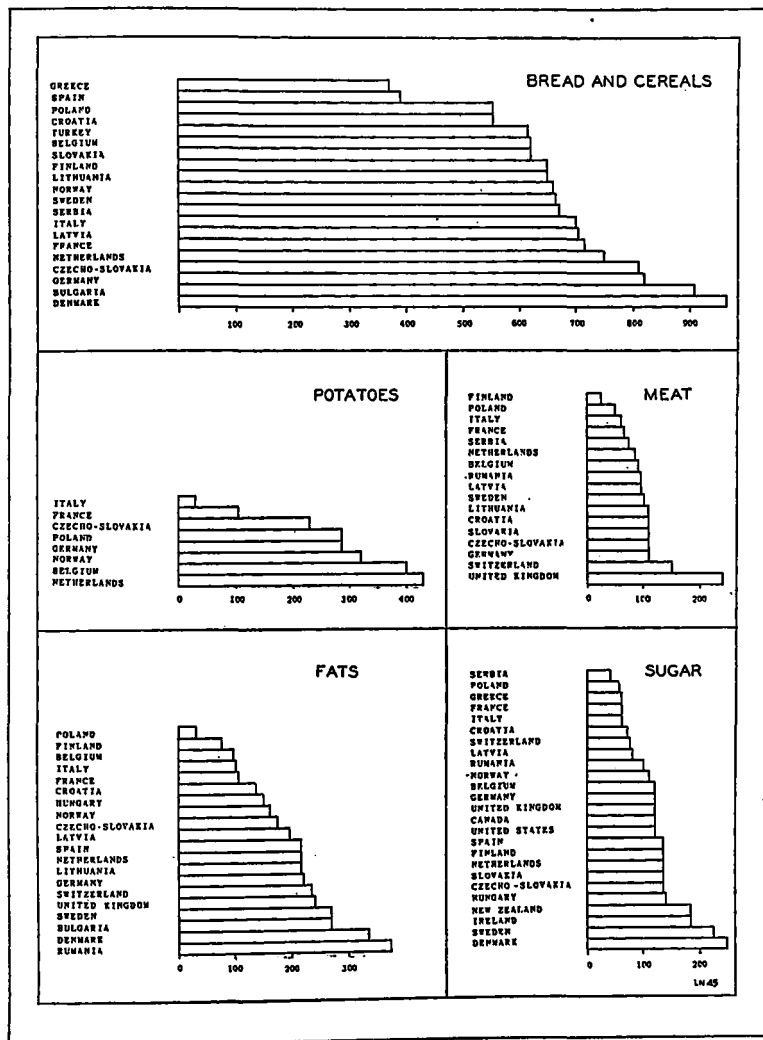
^{mm} Rice, macaroni, etc.; additional purchase of 120 grammes of flour a week are permitted.

JAPAN

ⁿⁿ Rice.

⁴ The "requirements" of bread and potatoes in wartime are of course affected also by the decrease in the consumption of other foods. This need, however, can be ascertained only on the basis of consumption as a whole. Cf. Section III below.

DIAGRAM I
RATIONS OF "NORMAL CONSUMERS" BY COMMODITY
GROUPS
(Calories per diem)



the author, the estimates are subject to a considerable margin of error. These figures are of course not strictly comparable with those of the rations shown in Table I. They are overall averages, whereas rations are tending to become more and more differentiated according to class of worker, etc. Moreover, the agriculturalist will in wartime always tend to consume rather more than the ration allowed even to heavy workers so that in countries with a high proportion of agricultural population the difference between consumption per head and normal consumers' rations will be greater than in more industrialized countries. Moreover, consumption per head will vary to some extent according to the age composition of the population. But in spite of these qualifications these figures give a background against which it becomes possible to obtain a general view of the effects of rationing in this basic food group.⁵ For this purpose, countries may conveniently be divided into three categories: (1) those which ration neither bread nor potatoes; (2) those which ration bread but not potatoes; (3) those which ration both.

The only European countries in the first group are the United Kingdom, Switzerland, Ireland and Portugal. The first two countries were characterized by high standards of living and relied relatively little on potatoes and cereals, which together supplied some 30–40 per cent. of total calories in the diet, or approximately 1000–1100 calories a day. Hence, there was ample room for the expansion of the consumption of these foods as other foods grew scarce, and this in fact has occurred.⁶

With the gradual tightening of the food conditions—particularly during the spring of 1942—the second group has become more and

⁵ M. K. Bennet, "Wheat in National Diets," *Wheat Studies*, Vol. XVIII, No. 2, Oct. 1941. The figures for *wheat flour disappearance* are estimates which, by excluding feeding stuffs, seed, etc. should represent an approximation to human consumption. The percentages of total calories supplied by the cereal-potato group of foodstuffs are obtained from "a broad survey and analysis of published statistical material bearing on national and family group nutrition." The estimates of the *absolute number* of calories from this group is obtained by applying these percentages to rough estimates of total food calorie disappearance. The latter estimates relate to groups of countries in which the calorie consumption is taken to be from 4000 to 2800 calories per adult male a day. For the purpose of the following study, figures are given per head instead of per consumption unit. These estimates are constructed for the purpose of broad international comparisons, and should not be directly compared with the more detailed figures of worker's household consumption given in Section III below.

⁶ By the end of 1941 consumption of bread in the United Kingdom is stated to have increased by 20%, or in about the same proportion as between 1915 and 1918. Higher consumption of bread has also been reported from Switzerland.

more restricted and often difficult to distinguish from the third group in view of "informal" or "local" rationing of potatoes enforced in a number of countries on the continent of Europe. Apart from some countries in Eastern Europe for which complete data are not available, the group is now confined to Sweden and Denmark.

PRE-WAR CONSUMPTION PER HEAD AND RATIONS OF
NORMAL CONSUMERS IN APRIL 1942 OF BREAD,
CEREALS AND POTATOES

(Calories per diem per head)

		1933-1938		1942
WHEAT FLOUR "DISAPPEAR- ANCE"		CEREAL- POTATO CONSUMPTION		BREAD AND CEREAL RATIONS
<i>Calories</i>		<i>Calories</i>	<i>As percentage of total food calories</i>	<i>Calories</i>
Denmark	450	1,360	40-50	970
Sweden	460	1,060	30-40	665

Source for 1933-8: "Wheat Studies."

In both Denmark and Sweden a potato consumption of only 400 calories a day would suffice to bring the ration figures up to the pre-war figure, and in view of the considerable production of potatoes in both countries, it would seem probable that the calorie consumption from this group of foodstuffs is being maintained, or even increased.

The third group includes Germany, most German-controlled areas and such countries as Italy and Spain where potato consumption is normally low.

In the countries for which potato rations are known it is possible to display the figures for peacetime consumption and for the wartime rations relating to this food group as a whole. For the reasons given above, the apparent falling-off in consumption according to this table is (except in the case of Belgium) somewhat greater than is suggested by the figures showing consumption per consumption unit contained in Table III. But the two tables are not in contradiction with one another and go to suggest that the decline in Germany—after the decrease in the bread rations and the introduction of potato rationing in April 1942—was somewhat less than 20%; the corresponding fig-

PRE-WAR CONSUMPTION PER HEAD AND RATIONS OF "NORMAL CONSUMER" OF CEREALS AND POTATOES AROUND APRIL 1942

(Calories per head per diem)

	1933-37			1942		
	WHEAT FLOUR DISAPPEARANCE	CEREAL POTATO CONSUMPTION		BREAD AND CEREAL RATIONS	POTATO RATIONS	TOTAL RATIONS
	Calories	Calories	Percentage of total food calories	Calories	Calories	Calories
	1	2	3	4	5	6
Germany	400	1,370	40-50	820	290	1,110
Belgium	960	1,680	50-60	620	400	1,020
Poland	430	2,150	70-80	560	280	840
Netherlands	860	1,620	40-50	750	430	1,180
Norway	530	1,340	40-50	610	320	980
Czechoslovakia (Protectorate)	670	1,710	50-60	810	230	1,040
France	1,220	1,650	50-60	715	105	820
Italy	1,180	1,800	60-70	665-730	30	695-760
Spain	1,040	1,800	60-70	400	—	—
Greece	1,040	1,790	60-70	500	—	—
Finland	380	1,330	40-50	590	—	—

Source for pre-war figures: "Wheat Studies."

ure in Poland and Italy was between 50 and 60%, in Norway and the Netherlands perhaps between 20 and 25%; the figures for Belgium and Czechoslovakia are more doubtful; but in both cases the situation was probably worse than in the Netherlands and worse than the legal, though not universally available, rations in Norway.

All available information points to the existence of a still more serious situation in Spain, and of famine in Greece. In neither of these countries can the loss in cereal consumption be anything like offset by an increase in the normally low potato consumption.

Sugar. Unfortunately it is not possible to give similar figures for the pre-war consumption of sugar. The difference in the size of the sugar rations, as will be seen from Diagram I, is remarkably large. Sugar, it must be remembered, is not an essential foodstuff, but is a highly concentrated source of calories, containing no other nutritive element. Before the outbreak of war the differences in the consumption per head were indeed greater than are the differences between the national rations. To some extent the rations reflect the pre-war situation. Thus there is little reason to believe that the consumption of sugar in Italy is less than it was before the war, it may, indeed, be slightly greater. In other cases, on the other hand, there has been a great enforced change in habits. The greatest reduction has probably taken place in France and Switzerland.

Meat. In spite of the importance of meat in national diets, it is difficult to obtain a reliable measure of either national consumption or rations. Meat covers a great many different items, and varying proportions of waste, bones, etc., make estimates of real consumption extremely hazardous.⁷ The absence of meat rationing does not necessarily imply that countries are able to maintain normal consumption, but may indicate a situation of such extreme scarcity that rationing cannot be successfully applied. Moreover, particularly in the case of meat, it is reported from occupied areas and unoccupied France that the legal rations are often unobtainable.

The highest meat rations are granted in the United Kingdom, followed by Switzerland. The rations in Sweden and Germany are about the same (110 calories per diem). The level of legal rations in Italy and the occupied areas is considerably lower, while the quantities

⁷ In Italy, Germany and the German-dominated areas, rations contain 20-30% waste and bone. In Sweden, they are in terms of pure meat; in the United Kingdom, they are rationed according to value. In the table, the factor of calorific conversion has been increased by 20% for Sweden.

available in Spain and Greece are stated to be tragically low and in some areas practically nil.

Fish, which owing to the uneven supply, is rarely formally rationed, was normally more important in the diet of Scandinavia and the United Kingdom than of most other European countries. It is believed that fish consumption has been relatively well maintained in Sweden, but catches have been reduced in most belligerent countries, and the customary high fish consumption in Norway has been drastically cut. The inclusion of fish would certainly modify the picture to an appreciable extent.⁸

Fats. In Western diets, from one-quarter to one-third of total calories is generally provided in the form of fats. While fats and carbohydrates are, within wide limits, nutritionally interchangeable as sources of body energy, a drastic decrease in the consumption of fat has a serious effect on health, and a deficiency of fat in the diet gives rise to a sensation of "hidden" hunger. As demonstrated during the first world war, a shortage of fat may have a serious effect on morale and efficiency. Moreover, fat is the most concentrated source of energy, and to make up for a decrease in fat consumption, more bulky foods have to be substituted. The continent of Europe is largely dependent on overseas imports of feeding stuffs for the production of animal fats. The stoppage of these imports explains why fats are the most generally and the most severely rationed of all foodstuffs.

The highest rations are found in Denmark, followed by the United Kingdom and Germany. Rations in the United Kingdom probably represent about 250 calories per diem, but are less than half this figure in the occupied areas and Italy.

Owing to the fact that rations relate to total fat (butter, margarine, lard, vegetable oils, etc.) while the composition of the fat group varies from country to country and from time to time, it is impossible to obtain comparable prewar *per capita* figures of national consumption of total fats.

Milk. Milk is still nominally unrationed in Denmark, Switzerland, the Balkans and Sweden. This, however, does not necessarily im-

⁸ The *per capita* consumption of fish before the war is indicated by the following figures (grammes a week):

United Kingdom	Germany	Italy	France	Czecho-Slovakia	Belgium	Denmark
410	230	110	150	100	160	300

Sources: League of Nations, "Final Report of the Mixed Committee on Nutrition"; "Statistisches Jahrbuch für das Deutsche Reich."

ply the absence of scarcities. In most other countries, including Germany and the majority of the occupied areas, normal consumers receive no whole milk; in the United Kingdom, they receive up to 3 pints of milk a week after the priority groups have received their full ration, but in May of this year consumers were temporarily allowed to exceed their ration. The table below shows rations for children only.

MILK RATIONS FOR CHILDREN IN CERTAIN COUNTRIES
IN 1942

(Grammes per diem)

	<i>Under 3 years</i>	<i>3-6</i>	<i>6-10</i>	<i>10-14</i>
United Kingdom	570	570	285	285
Germany	750	500	250	250
France	750	750	250	250
Netherlands	1,000	500	500	500
Norway	750	1,000	1,000	1,000

In considering these rations, it should be borne in mind that according to generally accepted nutritional standards, children's diets should include about a quart of milk (about 1000 grammes) a day. *Cheese.* Cheese is generally scarce; in many cases its fat content has been restricted by law, and in some countries—for example, Belgium and Poland—it cannot be obtained for normal consumers.

Eggs. Eggs are also scarce in most countries and consumption, as illustrated by the following figures for three countries, has been greatly reduced.

PRE-WAR CONSUMPTION PER HEAD AND RATIONS OF
"NORMAL CONSUMERS" OF EGGS ABOUT APRIL 1942

(Calories per diem per head)

	<i>Consumption per head 1933-37</i>	<i>Rations 1942</i>	<i>Rations as percentage of normal consumption</i>
United Kingdom	35	10	29
Germany	30	5	17
Switzerland	35	15	43

Coffee, tea, cocoa. Since imports from overseas have been practically cut off, the rations of coffee, tea, and cocoa are small or non-existent

on the continent of Europe. Tea is rationed in the United Kingdom and Ireland.

It is not the aim of the present study to describe the development of rationing country by country since the outbreak of the war, but it may be of interest to note the trend of rationing in different countries since it was first introduced.

The following diagram shows the changes by quarter in terms of calories per "normal consumer" per diem on a logarithmic scale. The figures on which the diagram is based relate to approximately the middle of each quarter. But as the object is to show the general trend only, no attempt has been made to indicate the turning points at their precise historical dates.

The diagram shows that with the progress of war, rations of most important foodstuffs have had to be decreased. In most European countries rations were first cut in the early winter or spring of 1941,⁹ while the German rations remained on the whole stationary until April 1942, when rations of bread, meat, sugar and fats were reduced. These restrictions were preceded or followed by restrictions in the German occupied areas.

II. DIFFERENTIATION OF RATIONS ACCORDING TO CATEGORIES OF CONSUMERS

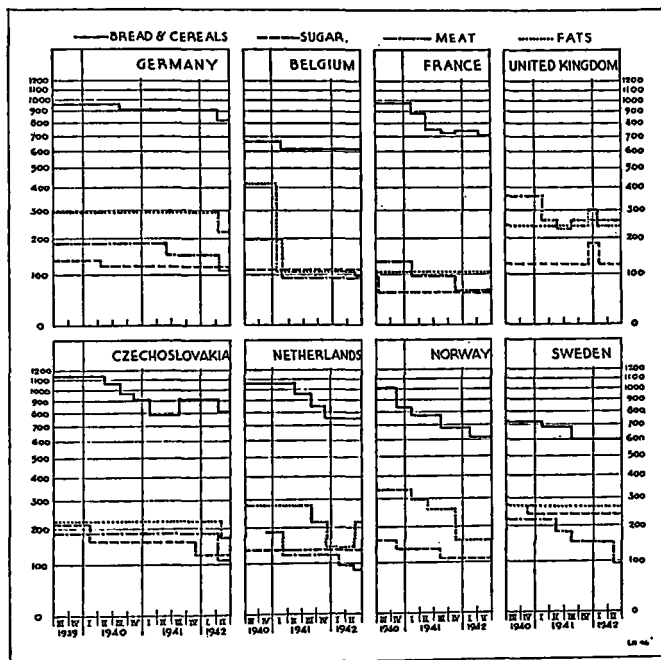
Although one of the chief purposes of rationing is to secure an equitable distribution of available supplies, most systems, while preventing the higher income groups from benefiting at the expense of the lower, do not take full account of the differences in the physiological requirements of different individuals and consumer categories. Rationing is, however, far more highly differentiated now than it was during the last world war, when—except for some "extra" rations to workers performing heavy work—almost all countries applying a system of rationing tended to distribute rationed goods equally per capita.¹⁰

In modern rationing systems, two main, though partially overlapping, methods are used to meet the varying needs of consumers. The first is a system of differentiating individual rations according to

⁹ For an analysis of food rations in the autumn of 1940 or early winter 1941 *cf.* the "World Economic Survey" 1939/41. Geneva 1941.

¹⁰ The larger "rations" allotted to farmers in Germany and some other countries are mainly explained by the difficulties of maintaining production if farmers were deprived of too large a share of the products of their labour.

DIAGRAM II

TREND OF FOOD RATIONS IN VARIOUS COUNTRIES
(Calories per normal consumer per diem)

age, sex and occupation—a development of the system of “extra” rations employed during the last war. Under the second method, basic rations are supplemented by communal or canteen feeding, free distribution of special foods, etc. Unfortunately, information regarding special rations is incomplete; but it is possible to illustrate the various forms this system takes.

Expectant or nursing mothers generally receive extra allowances, particularly of milk and milk products. With this exception, women are considered as “normal consumers” receiving a full “normal” ration. The energy requirements of women are, on an average, about 80 per cent. of those of adult males. Hence, women—even taking into

account the extra work falling upon them in time of war—appear to be relatively favoured, so far as calorie averages are concerned, as compared with men.

The situation with respect to children is different. They need a diet containing a higher proportion of proteins, vitamins and minerals—and accordingly of milk, fresh fruit and vegetables—than adults. As children require less energy foods, a physiologically differentiated system of rationing would give them lower rations of such foods as bread, cereals and, where rationed, potatoes. This is often done—in Germany, France, the Netherlands, Switzerland and Sweden, for instance; and indeed in most countries, children's rations more nearly fulfil calorie requirements than do those of adults.

In the table below, children's bread and cereal rations have been expressed as percentages of the ration of a "normal consumer" and compared with the League of Nations scale (for children of both sexes) of relative calorie needs.

	<i>League of Nations scale</i>	<i>Germany</i>	<i>France</i>	<i>Netherlands</i>	<i>Sweden</i>	<i>Norway</i>
Adult male	100	100	100	100	100	100
Children of						
0-1	28	57	45	55	51	59
1-2	33	57	45	55	51	59
3-4	40	71	79	55	51	100
5-6	48	71	79	100	51	100
7-8	56	86	104	100	107	100
9-10	64	86	104	100	107	100
10-11	72	127	104	100	107	100
12-13	80	127	104	100	107	100

Children's sugar rations appear quite generally to be the same as, or even higher than those of "normal consumers."¹¹ Fats are normally treated like other sources of calories. In Germany, the rations of children under 6 are lower than those of normal consumers, while in other countries available information suggests that children receive the ration of "normal consumers." Children, whose relative need for proteins is greater than that of adults, normally take a large proportion of them in the form of milk. As their milk rations are high, their meat rations in most countries are below those of adults. On the other hand, rations of cheese and eggs—where available—do not generally appear to be graded according to age.

¹¹ In Sweden, for instance, children below 6 receive an extra ration of syrup to make up for their smaller bread rations.

Milk rations are the most highly differentiated and milk is, from the point of view of nutrition, the most important of all foodstuffs, particularly for children. The "normal consumer" is rarely guaranteed a regular ration, and the available supply is reserved for expectant and nursing mothers, invalids and children.

On balance, therefore, children's rations (which should not, of course, be taken to represent actual consumption) are, in respect to calories, relatively larger than those of adult "normal consumers"¹² and are nutritionally better composed, containing a higher proportion of fats, cheese and eggs and a larger allowance of milk.¹³

The problem of special categories of workers, particularly heavy workers, is a thorny one. Heavy workers' requirements of energy foods are much higher than those of normal consumers. Moreover, "The particular needs of heavy workers . . . are for a very much higher supply of condensed foods, such as cheese, in one form or another. A man at the 6000 calories per diem level, if he is not to have an undue burden placed on his digestive apparatus . . . needs at least one-fifth of his energy in the form of fat."¹⁴ In other words, in order to be able to perform heavy work effectively, persons have to be supplied not only with additional calories, in the form of bread or bulky vegetables, but also with a higher amount and proportion of concentrated foods, chiefly fats, cheese, bacon and meat. These foods, however, are just those which are generally the most severely rationed to the civilian population. In the United Kingdom—except for extra allowances of cheese to miners, farm hands, etc.—the problem has not been attacked through the method of extra rations, but through the extension of municipal and canteen feeding, which is discussed below. In Germany and the occupied areas on the other hand, there is a high degree of differentiation between the rations of various occupational groups.

¹² Cf. in particular Section III below.

¹³ The striking effects of rationing on consumption in different age groups in Belgium is brought out by Dr. E. T. Bigwood in an article on the "Food Situation in Belgium" (*"Belgium"* Vol. II, No. 16, 1941), New York. For children up to three, there is hardly any deficit owing to the relatively large milk rations, but the deficit increases rapidly with age. Dr. Bigwood estimates that the following "percentages of body requirements" are supplied by the rations: Adults in general ("normal consumers") 40%; pregnant women and nursing mothers, 40-50%; children 3-6, 80%; children 6-14, 50-80%; adolescents, less than 40%. Some heavy workers get extra rations but these "are not nearly sufficient to cover their high requirements."

¹⁴ Prof. A. W. Hill, *Parliamentary Debates*, Vol. 374, No. 103, 2nd Oct. 1941. London, 1941, p. 765.

Most of those countries make a distinction between "heavy" and "very heavy" workers. The foods for which extra rations are granted are bread and cereals, meat and fats. While in Germany the caloric content of the rations of these foods for a normal consumer is a little less than 1200 calories a day, for heavy and very heavy workers it is about 1900 and 2650 calories respectively—60 and 120% more. Corresponding figures for Italy are 40 and 100%; for Belgium 60 and 100%; for France 35 and 50%.

The composition of the extra rations is indicated by Table II showing the rations of bread, meat and fats for *heavy* and *very heavy* workers as a percentage of the rations of "normal consumers."

It is striking that so large a part of the extra calories is supplied by bread, though in Germany "heavy" and, especially "very heavy" workers receive generous rations of meat and fats.

As indicated above, an alternative to differential individual rations is the system of canteen and municipal feeding superimposed on a system of basic individual rations. While Germany has depended chiefly on the former system, the United Kingdom is developing the latter more and more.

According to the Minister of Agriculture, the basic rations in the United Kingdom are intended to cover "the average need of the average family." The supplementary rations are determined by the needs of specific groups.¹⁵ A combination of policies has been adopted, but they are in a stage of rapid development and it is still too early to attempt a final evaluation of the system as a whole.

Before the war, the "milk in schools" scheme provided milk to almost 3,000,000 children in the United Kingdom either free or at a reduced price. Children of pre-school age as well as nursing or expectant mothers received milk on the same basis through maternity and child welfare clinics. Several other voluntary and municipal schemes were also operating. These services have been greatly extended. In October 1941, about 60 per cent. of the school-children received milk under the scheme and plans to increase the quota to 100 per cent. were under consideration. Children under 5 years of age and expectant and nursing mothers can obtain 1 pint a day at 2d. a pint—or free, in the case of the lowest income groups.

It was estimated that in November 1941 some 12,000,000 priority consumers received 40 per cent. of the national supply of liquid

¹⁵ Cf. the "Economist," *Differential Rationing*, Oct. 25, 1941.

TABLE II

RATIONS FOR DIFFERENT CATEGORIES OF WORKERS AS PERCENTAGE OF NORMAL CONSUMER'S RATIONS

	BREAD AND FLOUR			MEAT AND MEAT PRODUCTS			FATS		
	<i>Light worker</i>	<i>Heavy worker</i>	<i>Very heavy worker</i>	<i>Light worker</i>	<i>Heavy worker</i>	<i>Very heavy worker</i>	<i>Light worker</i>	<i>Heavy worker</i>	<i>Very heavy worker</i>
Italy	166	230	300	100	100	100	100	100	100
Germany	130	170	220	155	205	290	109	148	280
Belgium	129	157	186	129	157	186	178	250	322
Bulgaria	—	200	250	—	—	—	—	—	—
Czechoslovakia:									
(1) Protectorate	—	170	220	—	205	290	—	158	321
(2) Slovakia	—	120	184	—	150	—	—	100	100
Denmark	—	130	161	—	—	—	—	—	—
Finland	120	160	205	—	—	—	—	—	—
France	—	127	127	—	158	217	—	170	240
Hungary	—	153	223	—	—	—	—	179	—
Latvia	129	171	218	150	200	290	106	144	272
Netherlands	—	187	242	—	167	278	—	150	300
Norway	154	182	207	—	—	—	100	133	167
Rumania	—	233	—	—	—	—	—	—	—
Yugoslavia:									
(1) Croatia	—	200	—	—	—	—	—	—	—
Sweden	—	117	—	—	200	—	—	150	—
Switzerland	—	—	—	—	148	—	—	125	—

milk; the supply available for the "normal" consumers fluctuates with seasonal changes in supply; during the winter and spring, normal consumers were limited to 2 and later 3 pints weekly; during the summer these restrictions have been abandoned. In the spring of 1941 some two and a half million persons benefited from the distribution scheme to pre-school children and mothers.

The priority system for milk has been extended to include oranges and eggs, and from December 1941 the Government has arranged for free distribution of fruit juices and cod liver oil compounds to children born after Jan. 1, 1940.

In addition to the free or preferential distribution of individual foods, whole meals are being provided to special categories of people in addition to their individual rations. This system began with school lunches. In the autumn of 1941 about 300,000 children in secondary and elementary schools received such meals, but a very far-reaching extension was under way. In addition, to take care of the needs of workers and meet the special problems of the shelter population, canteen services have been organized and are being rapidly expanded. The aim is "to secure that workers should take at least one full meal in the day at their work."¹⁶ In the spring of 1942 these canteens provided about 40 million meals a week, apart from hot drinks. Special efforts were made to provide such services for miners.

At that time, 1,320 "British Restaurants," catering to special areas, had been opened, serving 350,000 meals a day. Taking into account the ordinary restaurants, tea shops and cafes, it was estimated in the autumn of 1941 that about 12 million meals a day were being served outside the home in addition to the basic rations, a figure that has been substantially increased. The composition of the canteen meals did not in the beginning always correspond to the special needs of the workers for which they catered. To remedy the situation, canteens and catering establishments have since been classified into priority groups according to whether they serve a) heavy workers, b) other workers or c) the rest of the population. The first group is entitled to receive for each meal twice as much meat and three times as much sugar as the third, and the second group 50% more meat and twice as much sugar. It was anticipated that allocations of bacon and ham, cooking fats and possibly eggs would be increased.

¹⁶ Cf. *Parliamentary Debates*, Vol. 374, No. 103, Oct. 2, 1941, pp. 770-773.

Although the system of canteen feeding has been most widely developed in the United Kingdom, it is being used also on the continent of Europe. A difference, however, should be noted in the purpose and application of the system. In Great Britain it is designed to supplement the basic rations according to specific nutritional needs although the latter, together with bread, are sufficient to cover ordinary energy requirements. The system makes for flexibility of distribution. In Germany, workers appear to have to surrender coupons in order to obtain meals at the factory canteens; and in German-occupied areas canteen feeding has been introduced, according to such reports as are available, because the total food supply has been so drastically cut that ordinary rations are insufficient to maintain working capacity.

III. WORKER'S FAMILY CONSUMPTION

The scope of rationing differs from country to country and with it the impact of rationing on food habits. Legal rations satisfy the needs of different consumer categories in varying degrees, and in order to obtain a complete picture of the effects of rationing, it would be necessary to consider first the rations of each of these categories and, secondly, their peace time consumption. Unfortunately, information on food budgets in peace time relates almost exclusively to "typical" working class families. Comparisons must therefore be confined to working class families, whose consumption may differ considerably from the average national consumption.

The significance of such comparisons, however, is greater than might be expected. Apart from the agricultural population, which is generally better fed than the rest, industrial workers are numerically the most important class and tend to reflect average consumption at any rate in urban areas. Moreover, as experience showed during the last war, the food situation among the industrial workers is of quite vital importance. In Germany, for instance, during the hard winters of 1917 and 1918, it was less the decrease in average food consumption than the heavy drop in that of the industrial workers that was of decisive importance.

The peace-time family budget enquiries were intended to cover "typical" families, but in reality fell short of this aim. The families included were mainly those of the skilled, better-paid workers. Owing to the varying size of the basic unit of comparison—the family

—all modern enquiries express family consumption in terms of the equivalent of an “adult male,” or more simply a “consumption unit.”¹⁷ In undertaking a comparison between peace- and war-time conditions, therefore, it is necessary to find some equivalent to the peace-time consumption unit. This raises a number of highly technical problems of which—in the absence of comparable family budget enquiries during wartime—no wholly satisfactory solution is possible.¹⁸

Perhaps the most satisfactory method is to construct a hypothetical family. This raises the question how such a family should be composed. It has been suggested that the solution would be to use for each country a family of the same size and composition as that of the original peace-time enquiry. This, however, would vitiate international comparability owing to differences in family composition. For present purposes it seems preferable to employ a uniform family corresponding as closely as possible to the concept of a “typical” family underlying most family budget enquiries. The family here chosen consists of husband, wife and three children aged 3, 6, and 9. Husband and wife are assumed to be “normal consumers.”

Subject to these reservations, Table III shows: (1) peace-time consumption per consumption unit for working class families, (2) rations of “normal consumers” and (3) figures per consumption unit for a typical “normal consumer” family.

The first step in judging the effects of rationing is to ascertain, in terms of calories, what proportions of food normally consumed are now subject to rationing. In order to do this the peace-time diets have been arranged in two groups—the one of rationed, the other of unrationed foods—and both converted into calories. Diagram III shows the percentages of normal calorie consumption now rationed in various countries.

An almost complete system of calorie rationing (90 per cent. or

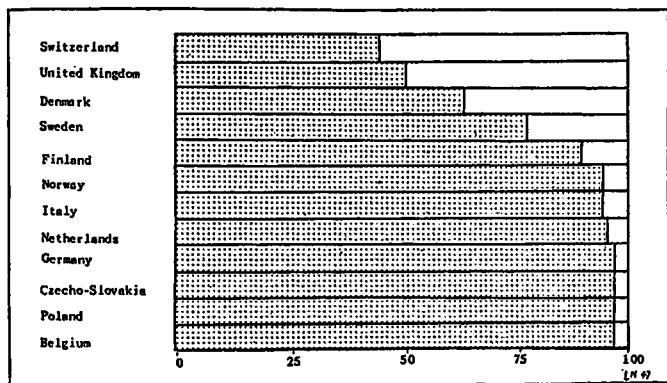
¹⁷ In practice, the consumption unit is obtained by multiplying each member of the family by a conversion factor varying according to sex and age. The family consumption is divided by the total number of units obtained. The scales of conversions in general use are based on relative calorie requirements; they differ somewhat in the various enquiries. Below, the data are as far as possible converted into a common unit according to the scale proposed by the League of Nations, and differ slightly from these given in the original sources. Most of the figures given below have been calculated by the International Labour Office.

¹⁸ The only official family budget enquiries currently undertaken are in Sweden.

more) obtains in Germany, the occupied areas of Europe (except Denmark) and in Italy. The scope of rationing is somewhat less wide in Sweden (75 per cent.) and Denmark (65 per cent.) and relatively moderate in the United Kingdom (50 per cent.) and Switzerland (45 per cent.).¹⁰

DIAGRAM III

PERCENTAGE OF CALORIES IN THE PRE-WAR BUDGETS
DERIVED FROM FOODS RATIONED IN APRIL 1942



When a large proportion of the calorie requirements is unrationed, these unrationed foods can of course, if available, be used to make up shortages of rationed foods. The greater the tightness of the food situation in general, the higher is likely to be the proportion of calorie requirements subject to rationing.

The next question is how the rations (plus, if possible, available unrationed foods) compare with normal consumption.

A survey of peace-time budgets shows that 90% or more of total calories are obtained from bread, cereals, potatoes, milk, meat, sugar and fats. The bulky nature of other cheap sources of energy—chiefly root crops—prevents their being used to any considerable

¹⁰ It has unfortunately been impossible to include in this diagram all rationed countries, France in particular. It appears permissible to conclude on the basis of such material as is presented in section I above, that its situation closely resembles that of Italy.

TABLE III

COMPARISON OF FOOD CONSUMPTION (IN KGS. PER YEAR) PER CONSUMPTION UNIT IN THE INTER-WAR PERIOD AND PER "NORMAL CONSUMERS" AND PER CONSUMPTION UNIT ABOUT APRIL 1942^a

	UNITED KINGDOM			ITALY			GERMANY			BELGIUM		
	1937/38	1942		1929 ^b	1942		1927/28	1942		1928/29	1942	
	C.U.	N.C.	C.U.	C.U.	N.C.	C.U.	C.U.	N.C.	C.U.	C.U.	N.C.	C.U.
Bread & Flour	127.9 ^b	free	free	184.6	54.6	82.2	139.2	104.0	122.1	209.5	81.6	122.9
Cereals	22.0 ^b	"	"	58.0	26.0-32.5	39.2-48.9	7.5	7.8	15.3	4.4	3.6	5.5
Potatoes	107.6 ^b	"	"		13.0	19.6	162.7	130.0	195.8	220.2	182.0	274.1
Sugar, Jam, etc.	41.4 ^b	14.6	21.9	5.1	6.0	12.0	18.8	15.6	23.0	19.5	14.6	21.9
Meat & Meat Products	78sh. ^b	60sh. 8d. [£]	73sh. 1d. [£]	12.3	5.2-10.4	7.8-15.6	49.0	15.6	19.6	49.9	12.7	19.2
Fish	(18.8) ^c			12.3			7.0			8.9		
Fats	23.4 ^b	11.7	17.6	14.7	4.9	7.4	23.5	10.7	15.5	27.8	4.7	7.1
Whole Milk	112.2 ^b	73.8	200.3	28.8			156.8	nil	164.5	145.1	nil	164.5
Skimmed Milk	(18.8) ^{c,d}						1.8					
Cream	—			—			—			—		
Cheese	5.5 ^{b,e}	4.4	6.6	3.7	3.1	4.7	5.1	2.6	3.9	5.3		
Eggs	12.2 ^b	2.6	3.9	7.7	2.6	3.9	8.1	1.3	2.6	9.6	nil	
Fresh Vegetables	(55.5) ^c			55.1			35.5			45.0		
Fresh Fruits	30.6 ^f			7.3			30.2			13.5		

	DENMARK			NETHERLANDS			NORWAY			POLAND		
	1931	1942		1935/36	1942		1927/28	1942		1929	1942	
	C.U.	N.C.	C.U.	C.U.	N.C.	C.U.	C.U.	N.C.	C.U.	C.U.	N.C.	C.U.
Bread & Flour	110.8	118.6	144.4	169.1	93.6	126.9	152.5	85.5	128.8	217.0	77.5	102.7
Cereals	5.5	12.2	18.4	6.0	8.3	12.5	5.5	5.2	7.8	10.6		
Potatoes	92.6	free		169.9	195.0	262.3	93.5	145.6	219.3	202.1	130.0	195.8
Sugar, Jam, etc.	35.0	24.2	36.4	23.8	16.3	24.7	27.0	10.4	15.6	20.5	5.2	7.8
Meat & Meat Products	51.6	free		32.6	11.7	15.9	43.1			46.8	6.8	10.4
Fish	8.7			6.1			49.3			4.6		
Fats	30.1	16.4	24.7	24.8	10.4	14.1	28.6	7.8	11.8	5.7	1.6	2.3
Whole Milk	94.4			173.2	nil	219.4	161.0	nil	328.9	77.5		
Skimmed Milk	11.2			25.6			44.9			5.8		
Cream	5.1			0.7			8.1			1.8		
Cheese	5.7			5.5	6.5	9.8	8.6	2.6	3.9	1.8		
Eggs	11.4			8.3			7.2			2.9		
Fresh Vegetables	92.6			64.0			15.6			57.7		
Fresh Fruits				38.3			14.0			6.4		

	CZECHOSLOVAKIA Protectorate of Bohemia & Moravia			FINLAND			SWEDEN			SWITZERLAND		
	1929/30	1942		1928	1942		1933	1942		1936/37	1942	
	C.U.	N.C.	C.U.	C.U.	N.C.	C.U.	C.U.	N.C.	C.U.	C.U.	N.C.	C.U.
Bread & Flour	153.3	104.0	122.1	141.7	91.0	120.6	126.3	84.5	102.1	103.0	free	
Cereals	7.2	6.5	7.7	16.7			6.9	6.0	9.0	120.0	13.0	21.9
Potatoes	100.5	104.0	156.6	114.7			114.9	free		65.6	free	
Sugar, Jam, etc.	29.3	18.5	28.5	29.9	16.4	24.6	41.6	19.5	29.4	31.0	7.3	11.5
Meat & Meat Products	40.1	15.6	19.6	34.8	3.6	5.5	49.3	11.4	17.2	35.5	20.8	26.6
Fish	—			16.0			18.1			—		
Fats	19.8	8.6	12.2	20.4	3.6	5.5	24.8	13.0	19.6	18.9	11.4	16.1
Whole Milk	154.5	91.0	219.3	309.8	72.8	175.4	243.5	free		270.0		
Skimmed Milk	—			21.7			8.0			—		
Cream	—			5.3			6.8			—		
Cheese	3.7			1.1			6.8	3.1	4.7	6.6	7.8	10.8
Eggs	8.5	2.6	3.9	3.2			11.9	3.9	5.9	8.8	3.9	5.9
Fresh Vegetables	37.8			1.6			14.6			66.7		
Fresh Fruits	33.1			—			33.7			83.9		

^a Inter-war figures from the "International Survey of Recent Family Living Studies" International Labour Review, 1939, Vol. XXXIX, pp. 814 ff. except where otherwise indicated. The scale adopted in converting "family members" into "consumption units" is that of the League of Nations, except in the case of Italy.

UNITED KINGDOM

^b Figures from the 1937/38 family budget enquiry (Ministry of Labour Gazette, December 1940), converted into quantities per consumption unit.

^c Figures from E. M. H. Lloyd: "Food Supply and Consumption at Different Income Levels" Journ. of the Proceed. of the Agricult. Econ. Soc. Report of the Conference held in London, December 1935. Original figures for 1934 relate to per capita consumption of families with a weekly food expenditure of 10 sh. These are converted into rough figures per consumption unit.

^d Condensed milk.

^e Excluding boxed cheese.

^f Apples, Oranges, Bananas.

^g Beef, Mutton, Veal and Pork. The corresponding quantity of meat consumed in 1937/38 was, on the basis of the official budget enquiry, quoted above, 34.9 kgs. per year per consumption unit; the yearly consumption of ham, bacon, etc., amounts to 10.9 kgs. per c.u. Pigmeat, excluding bacon is included in the meat ration, while bacon is rationed separately at 4 ounces per week (6 kgs. per n.c. = 9 kgs. per c.u. yearly).

ITALY

^b Inter-War Period Figures from: A. Niceforo and G. Galeotti: "Primi risultati dell' inchiesta alimentare condotta in varie provincie d'Italia" Quaderni della nutrizione, May 1934, Vol. I, Nr. I.

extent to make up for deficiencies in calorie requirements.²⁰ But even allowing for a greatly increased consumption of such unrationed commodities, it is reasonable to assume that when all the cheap staple foods are rationed, the total calorie intake is also restricted and that the sum of the rationed goods approximates the upper limit of actual consumption, granted they are obtained.

The figures below relate to those countries having "total" rationing in the sense described above for which it has been possible to make estimates of the calorie value of the rations:

	ESTIMATED PERCENTAGE OF PRE-WAR CONSUMPTION RATIONED IN APRIL 1942	RATIONS IN CALORIES PER DIEM	
		<i>Per "normal consumer"</i>	<i>Per consump- tion unit</i>
Germany	97	1,625	2,510
Netherlands	96	1,705	2,745
Czecho-Slovakia	97	1,685	2,390
Belgium †	97	1,355	2,135
France	95	1,075	1,830
Finland	90	1,070	1,615
Italy	95	1,000	1,510
Poland	97	975	1,370
Norway	95	1,270	2,500

† It has been assumed that half of the legal potato ration is actually available and that the remainder is made up by bread (50 grammes of bread = 500 grammes of potatoes). Cf. footnote 2 (Belgium) Table I.

The consumption of calories per consumption unit should be compared with "normal" daily requirements per adult male varying between 2400 and 3000 calories,²¹ and also—where possible—with

²⁰ As regards other free foods—fruits, green vegetables, fish, game and fowl—their price per calorie is too high to permit of their being used to any large extent as sources of energy (as opposed to sources of vitamins and minerals) in workers' budgets, even if they were (as they are not) available in greatly increased quantities.

²¹ Normal calorie requirements are not minimum standards of subsistence, but rather optimum standards. Large sections of consumers in the Western World existed on budgets containing 2000 or less calories per consumption unit a day. (Cf. in particular International Labour Office, "Workers Nutrition and Social Policy", Appendix V). Budgets for unemployed workers contained as little as 1700-1800 calories a day per consumption unit. The standard assumes a temperate climate—requirements are lower in warm climates—and an average body weight of 70 kgs.—requirements are roughly proportionate to body-weight. The average weight is less in Italy, Spain and France than in the United Kingdom, North America and Scandinavia. The standard varies

ordinary peace-time consumption. The highest legal rations per consumption unit of the countries in that group are found in the Netherlands, Germany, Norway and Czecho-Slovakia (Protectorate of Bohemia and Moravia); peace-time consumption in these countries was roughly 3150, 2865, 3175 and 3050 calories per consumption unit respectively.²²

In interpreting these figures, however, it should be recalled that legal rations are frequently not obtainable in the occupied areas, and that in Germany skim milk, though sometimes locally rationed, can be obtained in addition to the rations included above. The relative position of Germany, therefore, is likely to be more favourable than indicated by these figures.

The value of the Belgian rations per consumption unit is roughly 2140 calories.²³ Compared with the unusually high peace-time consumption (about 3500 calories), the percentage decrease would amount to some 40%. Daily rations in France and Italy, 1830 and 1510 calories per consumption unit respectively, are much lower; but it should be remembered that normal calorie requirements in these countries are smaller than in the colder countries of Northern and Central Europe. Reliable peace-time estimates are lacking, but an estimate of 2570 calories per consumption unit for the town of Salerno may be mentioned by way of example.²⁴ On the basis of this figure—which may be too low—the reduction in calorie intake in Italy would amount to roughly 40%. The reduction in France, where peace-time consumption is higher, is probably about the same. Rations in Finland (1615 calories per diem) represent a decline of roughly 45% from a peace-time consumption of 3075 calories.²⁵ It

again with the amount of work performed. It increases with the general increase in war-time activity, but is lower in countries where unemployment is high. It is somewhat misleading, therefore, to apply a common "standard" to countries with widely differing climates and conditions of work and to peoples of different average stature.

²² The figures for the Netherlands and Norway have been calculated by this Department on the basis of data from family budgets; the other two have been taken from the International Labour Office: "An International Survey of Recent Family Living Studies," *The International Labour Review*, Vol. XXXIX, No. 6, June 1939, p. 842.

²³ Dr. E. J. Bigwood, loc. cit., estimates that the adult rations cover about 40% of normal body requirements (3000 calories); this estimate would thus give about 1200 calories per adult a day, which is slightly lower than the estimate shown in the above table. Other official estimates give figures of 1250 to 1300 calories per diem.

²⁴ Cf. International Labour Office, "Workers Nutrition and Social Policy," p. 68. Figures in this study appear to be calories gross which have been here converted into calories net so as to permit comparison with the above estimates.

²⁵ Figures calculated on the basis of family budget data.

is impossible to arrive at a reliable estimate for Poland as a whole. In the "Government General" however, rations would appear to provide less than 1400 calories per diem, not one-half of normal requirements.

The figures below show the calorie value of rations in countries which leave some important foodstuffs unrationed:

	ESTIMATED PERCENTAGE OF PRE-WAR CONSUMP- TION RATIONED IN APRIL 1942	RATIONS IN CALORIES PER DIEM	
		<i>Per "normal consumer"</i>	<i>Per consump- tion unit</i>
United Kingdom	57	805	1,325
Denmark	64	1,550	2,090
Sweden	77	1,280	1,840
Switzerland	45	715	1,030

To estimate total consumption in these countries is more difficult; but some tentative conclusions can nevertheless be made.

In Denmark meat, milk and cheese are free, in addition to potatoes, fruit and vegetables. The rations are the most liberal in Europe and to the extent that the workers still possess the necessary purchasing power, the diet provides more than sufficient calories—3000 a day. In Sweden milk is unrationed and the normally high milk consumption has increased on the average for the whole country by 18%. Potatoes, fruit and vegetables are also free. The rations allow some 1840 calories per consumption unit a day. The peace-time consumption of unrationed foods was about 760 calories. If this is assumed to have remained unchanged, total daily consumption works out at about 2600 calories. Potato and milk consumption, however, has increased. According to figures published by the Swedish Institute for Business Research, consumption in calories during 1941 decreased by 10% (from 3300 to 3000 calories net). It was anticipated that consumption in 1942 would range between 2700 and 3000 calories net. In Switzerland bread and potatoes are free and there is no reason to assume that any serious deterioration in calorie consumption has occurred.

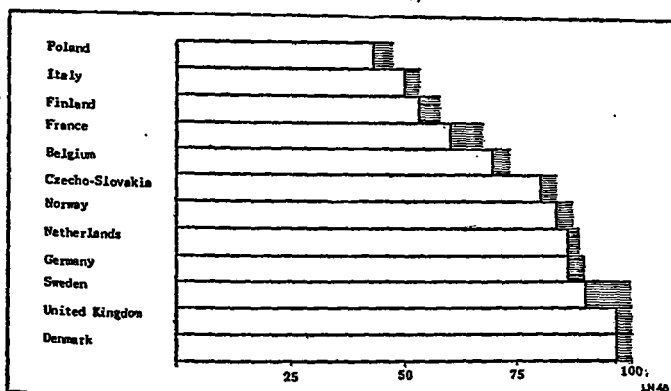
In the United Kingdom, the rationed portion of the diet yields some 1325 calories. The peace-time consumption of unrationed foods amounted to about 1580 calories. If this had remained un-

changed total consumption would amount to about 2900 calories. In fact, the consumption of bread has gone up by some 20%,²⁶ while consumption of fruit has decreased. The 12,000,000 full meals a day served by canteens, restaurants, etc., outside of the ration, also form an important part of the normal consumers' diet. It is not known how many calories these contain; but it is reasonable to assume that a full meal contains a third of the daily calorie requirements or 1000 calories. On this basis the meals outside the rations provide on an average about 270 calories per head, or about 400 calories per consumption unit a day; total calories per consumption unit would thus amount to about 3300 calories a day, slightly more than the peacetime figure of 3200.

The above analysis relates to working-class consumption. The following diagram is intended to show the relative position of workers families in various countries.

DIAGRAM IV

ESTIMATED DAILY CALORIE INTAKE PER CONSUMPTION
UNIT OF WORKER'S FAMILIES IN VARIOUS
COUNTRIES
(3000 calories = 100)



The shaded areas in the diagram indicate approximately the probable margin of error in each case. Normal energy requirements (3000 calories) are taken as equal to 100. In order to be strictly

²⁶ Part of the increase is absorbed by canteens, restaurants, etc., and it is impossible to say how much should be attributed to household consumption proper.

comparable, the figures for countries other than the United Kingdom should have been increased to allow for the extra rations of "heavy" and "very heavy" workers, but as this was not possible, canteen feeding has been omitted for the United Kingdom for the purpose of this diagram. Average national consumption may, of course, differ considerably from these estimates.

In most countries heavy workers and others receive supplementary rations; the national average is in these cases, of course, higher than the figures for "normal consumers." The difference between rations calculated on the basis of the head of the family being a normal consumer, a heavy worker or a very heavy worker is shown below. The rations for a family, the head of which is not living at home is also included.

COMPARISON OF RATIONS OF FAMILIES OF VARIOUS
CATEGORIES OF WORKERS

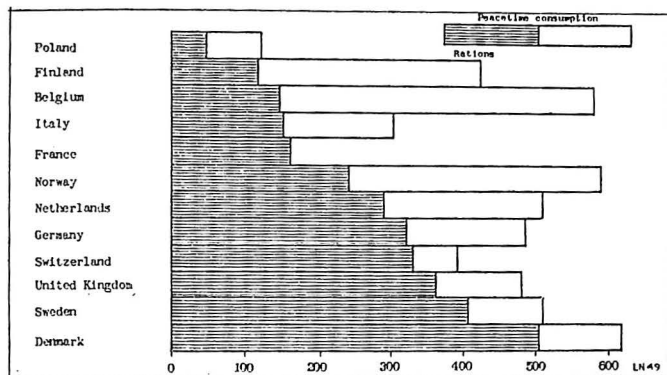
(Calories per diem of a normal consumer's family = 100)

	FAMILIES OF		
	<i>Man away from home</i>	<i>Heavy worker</i>	<i>Very heavy worker</i>
United Kingdom	117		
Germany	115	110	120
Italy	115	112	117
Denmark		113	124
Belgium	120	107	111
France	118	105	107
Netherlands	116	110	121
Norway	121	107	109
Poland	112		
Czecho-Slovakia		110	119
Finland	114		
Sweden	113	107	
Switzerland	114	106	

As stated above, the bulk of the body's energy requirements is supplied by carbohydrates and fats, which as a source of energy are theoretically interchangeable. In point of fact, in most western countries, fat consumption cannot be much reduced without serious effects. Fat purchased as such, however, represents only a part of the total fat consumption—much is consumed in the form of milk, cheese, meat, bacon, etc. Most of these secondary sources have been rationed and the total decrease in fat consumption is generally

greater than the comparison between peace-time and war-time consumption of fats "purchased as such," made in the following diagram, would suggest.

DIAGRAM V
 RATIONS AND PEACE-TIME CONSUMPTION OF FATS
 PURCHASED AS SUCH
 (Calories per diem per consumption unit)



Fat consumption varied in peace-time from one country to another. The highest war-time consumption in Europe is found in Denmark, the United Kingdom and Sweden, followed by Germany, the Netherlands and Czecho-Slovakia. Although the decrease in consumption may give rise to dissatisfaction, there is no evidence to suggest that the rations are physiologically insufficient in any of these countries. The rations in other countries are well below what is required for comfort. Fats, being the most highly condensed source of energy, are in special demand by heavy workers. Substantial additional rations to such workers are in force in Sweden, the Netherlands, Germany, and many other countries. In the United Kingdom some vegetable fats are unrationed.

Although a sufficiency of energy-yielding fats and carbohydrates is a prerequisite of sound diets and necessary to prevent starvation or malnutrition, it is not a guarantee against malnutrition. In order to maintain health and efficiency, diets must contain a certain amount of proteins, minerals, and vitamins. Available information

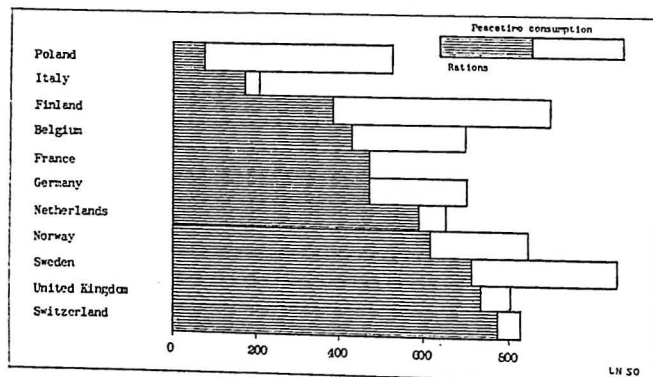
does not allow of a full analysis of diets in this respect and it is possible only to indicate some of the chief features in the situation.

Proteins, the main body building constituent in the diet, are obtained from both vegetables and animal foods. Vegetable proteins are contained in bread, cereals, and certain vegetables such as peas and beans, etc. Their adequacy is thus largely dependent on the quality of the chief staple foods consumed. When potatoes and other root crops are widely substituted for bread, as in Poland, deficiencies are likely to arise.

The sources of animal proteins are meat, fish, cheese, milk and eggs. All of these except fish are strictly rationed and milk is generally restricted to the use of women and children. Data on the rationing of cheese and eggs are incomplete; no reliable figures are available regarding fish consumption. The following diagram therefore cannot do more than afford a very rough picture of approximate magnitudes.

DIAGRAM VI

RATIONS AND PEACE-TIME CONSUMPTION OF THE CHIEF FOODS YIELDING ANIMAL PROTEIN—MEAT, MILK, CHEESE, AND EGGS
(Calories per diem per consumption unit)



The consumption of foods yielding animal proteins remains relatively high in Denmark, Sweden and Switzerland, owing mainly to the continued high consumption of milk. The situation in the United

Kingdom, where milk consumption in peace-time was low, appears satisfactory. In Germany, the Netherlands, Finland and Czecho-Slovakia, absolute consumption is roughly the same, and in each case considerably below pre-war standards. Belgium and Norway follow at a very low level, while consumption in Italy and Poland is so far reduced as to be almost negligible.

The question whether or not these rations are physiologically adequate is controversial. Large populations exist on almost completely vegetarian diets, and there is a lack of agreement as to what constitutes optimum allowances.²⁷ The Health Organization of the League of Nations states: "In practice, the protein intake for all adults should not fall below 1 gramme of protein per kilogram of body weight. The protein should be derived from a variety of sources, and it is desirable that a part of the protein should be of animal origin."²⁸ This means that one-tenth of the normal calorie requirements (3000 calories) should be in the form of protein.

The total protein consumption appears to be up to or even above the League standard in the United Kingdom, Denmark, Sweden, Germany, Czecho-Slovakia, the Netherlands and Switzerland. The consumption in France, Belgium, Norway and Italy is roughly at the minimum level of actually demonstrated need (44.4 grammes of protein per diem per man of 70 kgs. body weight); in Poland it would appear to be below that level. The same, or a still more serious situation would seem to exist in Yugoslavia, Greece and Spain.

Analysis of the content of diets in mineral, salts and vitamins presents grave difficulties. These protective elements are present in minute and varying quantities in individual foods, and averages based on food groups mean little or nothing. Moreover, fresh fruits and vegetables are one of the richest sources of salts and vitamins and these are not rationed. Of the various mineral elements which are considered essential to the normal structure and functioning of the body, special importance is attached to calcium, phosphorous and iron.²⁹ The richest sources of calcium and phosphorous are

²⁷ *Essentials of Nutrition*. Sherman & Lanford, New York, 1941, p. 103. "All of the generally accepted dietary standards for protein lean toward liberality as contrasted with actually demonstrated need."

²⁸ Report on the Physiological Bases of Nutrition, Technical Commission appointed by the Health Committee, League of Nations, *Quarterly Bulletin of Health Organization*. Vol. VI, No. 3, September 1936.

²⁹ In the case of calcium the margin between minimum and optimum intake is particularly wide. Calcium is one of the elements which is normally deficient in most diets.

milk, cheese, eggs, fruit and green vegetables. In countries, such as Denmark, Sweden, Switzerland and the United Kingdom that have maintained the consumption of milk and fresh vegetables at satisfactory levels, the danger of deficiencies is relatively small. On the continent of Europe, the dwindling milk consumption would appear to result in serious deficiencies of minerals, especially calcium, for there is no evidence to show that milk is replaced by a corresponding increase in the consumption of green vegetables. But as the minimum milling proportions for flour have been increased in most countries, a greater proportion of the original mineral content of the cereals is retained.³⁰

The situation with respect to iron would appear analogous, but deficiencies are easier to detect and remedy and thus constitute a lesser danger to the health of the populations.

The situation with regard to the main vitamins may be very briefly summarized as follows:

Ascorbic acid, or vitamin C, is derived mainly from fruits and vegetables, and partly from milk. The consumption of vegetables, except potatoes, which are a good source of vitamin C, has been affected in most countries by transport difficulties and in certain countries has diminished. While almost everywhere great efforts have been made to increase the number of gardens and the vegetables produced, these have not necessarily benefited the densely populated urban areas or the countries producing them. Imports into many countries of citrus fruits and into Denmark and Norway of vegetables have fallen heavily. As before the war most diets were deficient in this vitamin, the situation must be considered as serious except where special measures to overcome shortages have been taken. In the United Kingdom, neither milk nor vegetable consumption has been seriously impaired and oranges and fruit juices are distributed to infants and nursing mothers; in Germany ascorbic acid has been distributed to certain categories of children in big towns, and potato consumption has generally increased. The situation appears to be relatively satisfactory also in Sweden, Denmark and Switzerland. No generalized conclusions are possible for France, where conditions vary greatly according to locality, or for Italy—both countries normally consume large quantities of

³⁰ Most countries impose a minimum extraction percentage of 85, as compared with a normal rate of 70-75. Cf. "Wheat Studies," Vol. XVIII, No. 4, December 1941, p. 166.

green vegetables. All information points to serious shortages in Norway, Belgium, the Netherlands and Poland.

Thiamin (vitamin B₁) is essential to growth and the maintenance of appetite and affects the metabolism of the body. It is common in both animal and vegetable foods. Whole bread and cereals are a relatively rich source of this vitamin, but bread made of white flour is not nearly so rich. The increase of milling percentages, therefore, tends to increase the supply in most countries. In the United Kingdom before the compulsory introduction of whole wheat, bread enriched with vitamin B₁ was used. Information available concerning deficiencies of riboflavin, nicotinic acid, and other water soluble vitamins of the B group is unfortunately scant.

Vitamin A is important for growth and for the maintenance of health, particularly of the skin and respiratory system. Bread, most muscle meat and fats (other than butter) and potatoes are poor or negligible sources of this factor. In countries, therefore, which rely chiefly on these staples, there is a risk of severe shortages, unless the consumption of vegetables and dairy products can be maintained. Carrots, as well as green vegetables, are rich sources. In the United Kingdom, margarine is fortified by the addition of vitamin A (and D) up to the standard of best summer butter, and in view of the maintained consumption of dairy products and vegetables, there is no reason to suspect that deficiencies are greater now than they were before the war. Conditions appear to be more or less satisfactory in Sweden, Denmark, Switzerland and the Netherlands, and less favourable, though probably not critical in Germany. The deficiencies are most serious in certain occupied areas as a result in particular of the low consumption of dairy products and milk and the scarcity of many fruits and vegetables.

Vitamin D is important in preventing rickets and forming sound bones and teeth by assuring the utilization of dietary calcium and phosphorous. It may be formed by the body under the influence of the ultra-violet rays in sunshine and deficiencies are particularly likely to arise in countries with long sunless winters. The richest sources of D vitamins are milk and butter, liver, eggs and fish-liver oils—foods which are practically everywhere scarce or severely rationed. Deficiencies can therefore be assumed to exist in practically all countries where the rations of these foods are short, except in so

far as special counter-measures have been taken. In the United Kingdom and Sweden vitamin D is added to margarine; and in Germany synthetic vitamin D is supplied free of charge to infants.

The foregoing discussion of the food consumption of "typical" working class families does not furnish a clear-cut picture of the present food situation. In a general way, however, it permits of a rough classification of countries with respect to the relative level of under-nourishment and malnutrition.

Sweden, Switzerland, Denmark, the United Kingdom and Portugal show no sign of any serious decrease in either the level of consumption or the nutritional composition of the diet. The consumption of sugar, meat, eggs and fats has decreased, making for a greater monotony of diet, but the diet still contains a sufficiency of calories and by and large also of "protective" foods—potatoes, leafy vegetables, milk and whole or fortified bread. In the United Kingdom the average diet would even appear to be better composed than before the war. It is "perhaps as nutritionally competent as the average diet in the United States, which has a variety and diversity in foodstuffs unknown in Great Britain."³¹

In Germany the level of food consumption was apparently maintained until April 1942, when decreases in the rations of bread, fat and meat, together with rationing of potatoes—the last unrationed staple food—caused a situation which suggests that at least certain sections of the population may be slightly though not critically short of energy building foods. The composition of the diet, however, has progressively deteriorated. The diet is somewhat short in animal proteins and fats, and probably also of calcium, phosphorous and in particular vitamins A and D. There are considerable differences among the occupied areas. The Netherlands and Czecho-Slovakia (the Protectorate of Bohemia and Moravia) have a calorie intake somewhat, though probably not critically, lower than in Germany, and the dietetic deficiencies noted for Germany are likely to be graver.

Both undernourishment and malnutrition are prevalent in Italy, France, Belgium, Norway and Finland and Spain. The situation in these countries appears indeed to be even more serious than the figures above indicate, for legal rations are not regularly available. Foods of animal origin (and particularly milk) have been either drastically

³¹ A. L. Taylor, "Why Enrichment of Flour?" *Wheat Studies of the Food Research Institute*, Vol. XVIII, No. 3, Nov. 1941, pp. 89-90.

curtailed or have disappeared from the ordinary diets. There are deficiencies not only in calories, but in fats, animal proteins, minerals and vitamins; deficiencies in the two last categories of food are not likely to be made up by increased consumption of fruits and vegetables, the cream of the crop frequently being exported to Germany.

The Government General of Poland, Greece, and it would appear parts of Yugoslavia, especially Serbia into which there has been a considerable migration, are more or less in a state of or bordering on famine. Reports indicate that available food is insufficient not only to maintain health and efficiency but for large categories of the population to maintain life itself.

IV. FOOD CONSUMPTION AND INCOME

Rationing naturally tends to equalize consumption of different groups in the population, and in addition to changes in average consumption significant changes have occurred during the war in the distribution of food. It is unfortunately impossible to express these changes in precise statistical terms, but Diagram VII below has been inserted to illustrate some general trends in countries for which data are available. It shows, by countries and commodities, peace-time consumption of various income groups compared with war-time rations, in both cases per consumption unit.³²

Consumption of bread, cereals and potatoes, the main stay in the poor man's budget, has decreased relatively less than that of food-stuffs of animal origin. In Germany, for instance, bread rations are now practically the same as in the lower income groups before the war, and are higher than that of the higher income groups. Consumption of sugar generally increased sharply with income, and in Sweden, for instance, the rations now allow a somewhat higher consumption among the lower and a slightly smaller consumption among the higher income groups than before the war. In this case, the relative decrease is larger for those with higher income. The same situation holds true for meat, the percentage decrease in meat consumption increasing

³² The comparison is subject to important reservations. The methods by which income groups have been established differ from country to country and are rarely representative of the real income distribution. The consumption units used here are those used in the original enquiries and are not always strictly comparable with each other. They differ from those given above. Moreover, no allowance has been made for the extra rations of heavy and very heavy workers. As these can generally be assumed to belong to the lower income groups, the diagram tends to give too low war-time figures for the lower income groups.

DIAGRAM VII

COMPARISON OF PEACE-TIME CONSUMPTION OF CERTAIN FOODS BY INCOME GROUPS AND WAR-TIME RATIONS

APRIL 1942

(Calories per consumption unit per diem)

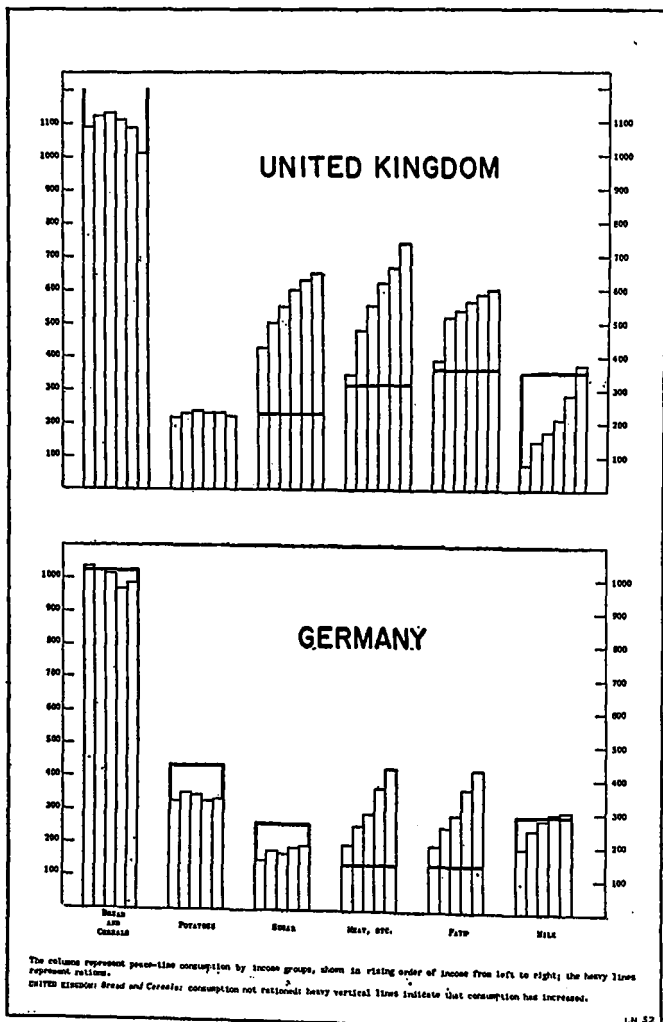
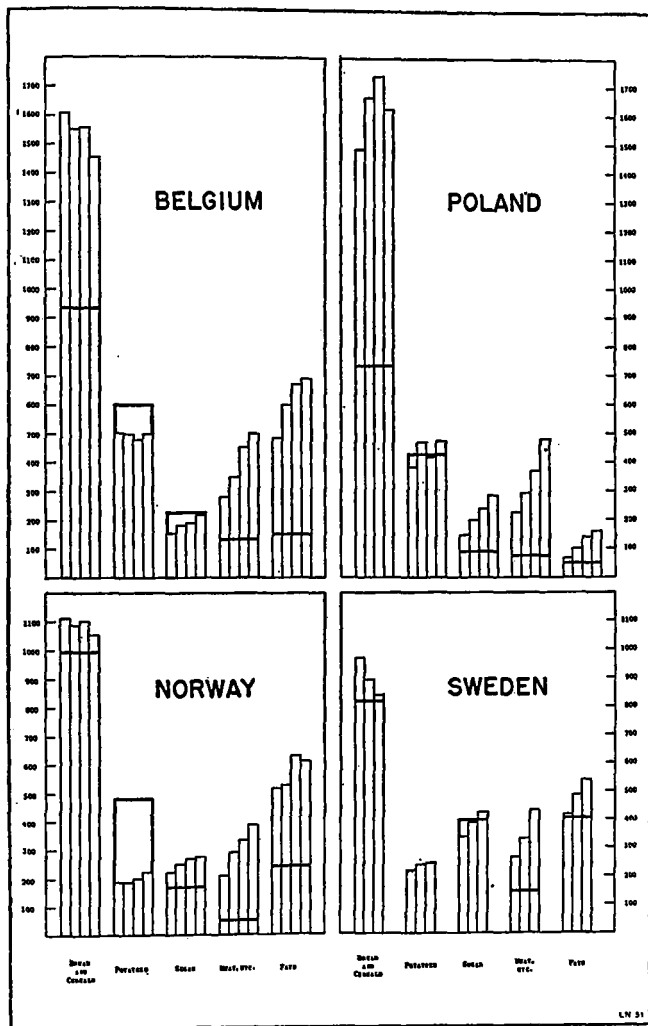


DIAGRAM VII—Continued

COMPARISON OF PEACE-TIME CONSUMPTION OF CERTAIN
FOODS BY INCOME GROUPS AND WAR-TIME RATIORS

APRIL 1942

(Calories per consumption unit per diem)



very steeply with income. While in the case of sugar, the consumption in Belgium, Poland and Germany, particularly of the lower income groups has risen above the peace-time averages, meat consumption is everywhere much lower. The same holds true of fats. The case of milk is a special one. Both in Germany and especially in the United Kingdom, the lower income groups are enjoying a higher milk consumption than before the war, while the higher income groups have had to curtail their consumption somewhat. The situation in the German occupied areas is, of course, much less favourable.

While rationing has tended, in general, to compress the level of consumption, the deterioration in the composition of the diet is relatively greater in the higher income groups than in the lower. In fact, particularly in the United Kingdom, the diet of the lower income groups would even appear to contain more protective foods than before the war.

The limitation of the quantities of many foods that can be purchased by each consumer gives rise to a further important question. Can the poor afford to buy their full rations? In Italy and many of the occupied areas, wages have increased less than cost of living, and large sections of the people are reported to be unable to buy the rations to which they are formally entitled. This enables the authorities—if trading in coupons on the black market is prevented—to keep nominal rations higher than if they were fully utilized or to build up reserve stocks.

In fact, however, it has been difficult or even impossible to prevent the rise of black markets, as shown in particular by the preoccupation of the authorities with this problem and the heavy punishment meted out to persons convicted of illegal trade. In fact, there are only two effective remedies (1) to legalize the exchange of coupons, or (2) to provide the lower income groups with the means to purchase the full rations.

Methods of the first kind are applied, to some extent, in all rationing schemes, for members of the same family group are permitted to exchange or pool coupons or rations. Switzerland permits the use of loose coupons for purchases. With these partial exceptions, however, the second system is more generally applied. In the case of the United Kingdom, the National Milk scheme, the free distribution of fruit juices, school lunches, etc., have been mentioned, but this policy goes much further. The Ministry of Food has virtual monopoly powers

over the distribution of all imported and most home produced foods. It can fix the price of foods to the consumer according to considerations of social policy, and when it has been deemed desirable to stabilize or decrease prices, this has been done, the difference between the cost of production and/or imports being met by the Treasury in the form of subsidies or by profits earned from the sale of less essential foods. Food subsidies during 1940-41 amounted to £80 millions and rose to £109 millions in 1941-42 in addition to subsidies for sea transport of £20 millions. Similar policies—although on a less extensive scale—have been adopted in Germany and Sweden. In the latter country, the state subsidizes the production of certain goods in order to keep down the cost of living, and gives special rebates to the lowest income groups on the purchase of milk, fats and butter.

V. TYPES OF FOOD RATIONING

In most European countries food rationing is today more comprehensive, and above all, more differentiated than during the first world war. It would be premature to attempt a definite evaluation of the system now evolving, but some significant features are even now discernible.

The development of rationing in Germany has been conditioned by the fact that neither the Reich, nor the German-occupied area as a whole, is self-sufficient in foodstuffs in peace-time. So far as one can judge, considerably more than 90 per cent. of national consumption, measured in calories, is rationed in the area as a whole. Indeed in Germany itself, since the spring of 1942, when potato consumption became the subject of rationing, the individual cannot legally obtain any important additions to the rations. Freedom of consumers' choice has been almost completely eliminated by the application of specific rationing to almost all foods. The system has thus become not only total but rigid.

The very rigidity of the system however, necessitates a high degree of differentiation as between consumer categories; for as pointed out above, food requirements differ greatly according to age, sex, occupation, health, climate, etc.

Consumers are classified on the basis of occupation into normal consumers, night workers, heavy workers, very heavy workers and agricultural workers. All except the last receive in addition to extra meat, substantial graded additions of bread and fats, calculated to

satisfy the extra calorie requirements of manual workers. These extra rations do not materially affect the consumption of protective foods and consequently the nutritive value of the diets.

Further differentiation is made on the basis of age, sex and health. Children, nursing and expectant mothers, and invalids, while receiving the normal or lower rations of the chief energy yielding foods, received proportionately larger rations of protective foods, particularly milk, thus enjoying a diet nutritionally better composed than the rest of the population.

However far the German system has differentiated rations according to commodities and consumer categories, it is unavoidable that there should remain rather wide variations in individual requirements within each category. The rations of the main protective foods—meat, eggs, milk, butter, etc.—are so low that there is little reason to expect that rationing tends to excessive consumption or waste within any special category, but this is not equally true with regard to the chief energy foods, in particular bread and potatoes. Owing to the wider range of individual needs for calories, bread and potato rations should be fixed rather above the average requirements in each group in order to avoid hardships to those whose requirements are higher. Hence, the relatively liberal bread rations, and up to the spring of 1942 the free supply of potatoes, led, no doubt, to somewhat wasteful consumption in the lower requirement groups.

Such irregularities and waste are inherent in any system of rationing and can be mitigated but never wholly eliminated by differential rations. Rationing systems can only deal with broad groups of consumers, administrative difficulties precluding any differentiation according to individual needs.

The evolution of the system of food distribution within each of the occupied areas appears to have been determined partly by available local supplies, and partly by other considerations, chief among these being the importance of securing from these countries the maximum contribution to the German war economy.³³ Economic efficiency has accordingly become a primary criterion in systems which divert food

³³ The new German Minister for Food, Herbert Backe, states in the *Völkische Beobachter* (quoted in *Neue Zürcher Zeitung*, April 5, 1942): "Some of the areas occupied by us have a highly developed industry which is of great importance to our armed forces. Many of these areas were previously not self-sufficient in food. We supplied these areas, therefore, with additional food, particularly cereals, in order to put their economy at the service of our armaments."

to workers in "essential" industries and occupations, from women, children, old people, workers engaged in non-essential activities and the unemployed.³⁴

The British system of rationing differs in many respects from the German, the most fundamental difference being that the chief carbohydrate foods—bread, potatoes and vegetables—are unrationed, and that in consequence, the calories in the diet can be adapted to the particular needs of each individual consumer. The level of consumption is not fixed, but fluctuates according to demand. The demand for bread and potatoes is highly inelastic, and there is consequently little risk that consumption will rise above actual requirements.

Rationing, in the United Kingdom, therefore, is concerned mainly with protein foods, milk and fats. It determines, not the total level of consumption, but the composition of the diet with respect to nutritive elements. As pointed out above, the need for calories varies more than that for protective foods, and this circumstance explains the uniform and almost undifferentiated system of basic, individual rations. Meat, bacon, cheese, fats, sugar and jam are specifically rationed in definite quantities, and rations are considered adequate to satisfy average physiological needs of proteins and fats.

Special needs are met by various schemes superimposed on this basic system, the most important of which are the following:

- (1) *Rationing of establishments.* The wide extent of restaurant and canteen feeding has been pointed out above. The establishments are rationed in much the same way as ordinary consumers, but restaurant meals are supplementary to the consumer's individual ration. Canteens catering to heavy and normal workers receive larger allocations of rationed articles (in particular meat, sugar and fats) than restaurants catering to the public in general. By such means the administrative and other difficulties of highly differentiated individual rations are avoided and due flexibility in the allocation of different kinds of foodstuffs is retained. The composition of meals can be varied according to the supply available without impairing their nutritional value.
- (2) *Distribution schemes.* Ordinary consumers receive no fixed rations but only what remains after the priority groups have received

³⁴ A circular relating to Poland and issued by Governor Frank in Jan. 1940 states: "In the matter of supplies to the population, care must be taken above all to ensure that workers employed in vitally necessary enterprises and in war industries shall maintain their productive capacity (*Leistungsfähigkeit*). During periods of shortages of food the rest must be restricted to a minimum."

their full quota. Steps have been taken to ensure that regardless of income, all persons in the priority groups actually receive the quantities to which they are entitled. The most valuable protective foods, milk, eggs and certain fruits, are covered by these schemes, the object of which is to satisfy the special needs of children, expectant and nursing mothers, sick people and invalids.

(3) *Point rationing*. This system, though not as yet of great practical importance in food rationing, represents an interesting technical innovation by permitting the distribution of goods, the supply of which taken by itself is too small, or too erratic, to permit of regular rationing. Each consumer receives a card containing a number of points which are given a value in relation to certain specified goods—at present, tinned meat, beans and fish. These goods are in the nature of desirable, though not essential, additions to the average diet. Through the double mechanism of point and price changes, demand can be steered in the desired direction, new goods introduced and total quantities distributed according to changes in the supply situation.

To sum up, the most outstanding characteristic of the British system is its high degree of flexibility, as opposed to the rigidity of the German system. Its function is not to regiment the total level of consumption, which is largely determined by individual demand for the unrationed foods serving as budget regulators, but to secure to the whole population the elements necessary to a sound diet.

Chapter III

RATIONING OF GOODS OTHER THAN FOOD

AS STATED in Chapter I, the degree of restriction on consumption and the methods of distribution of consumers' goods differ from one group of commodities to another. It is therefore convenient to consider these groups separately.

I. CLOTHING

Clothes rationing is at present almost as generally enforced as food rationing. Owing to the variety of needs, recourse has been had generally to group rationing based on the "point system." Each rationed article is valued at so many "points." A certain number of coupons (points) is issued by the Government to each individual, who is left a free choice of articles within his "point income." In other words, total demand is limited, while freedom of consumer's choice is maintained.

In Germany and occupied Europe, however, the scope of the group rationing has been progressively narrowed by a system of special purchasing permits (*Bezugsscheine*). Certain scarce goods (shoes and items containing a high proportion of wool, linen or cotton) cannot be obtained on the cards but the consumer has to prove his need of the article in question.

Under the point system the number of coupons does not, by itself, indicate the purchasing power of the total card; that is determined by the point or coupon value assigned to each article. Little significance should therefore be attached to the fact that in some countries the number of points is much higher than in others. A higher total number may allow of greater freedom of choice; but even this does not necessarily follow.

Clothes rationing in the United Kingdom began in June 1941. The original rationing period was 12 months, but was later extended to 14 months. The number of points during the second rationing period is 60 for all categories of consumers,¹ but extra rations have been

¹ From June 1942 the number of points was decreased to 57.

granted to special groups: expectant mothers, children and workers. The scheme covers all clothing except protective garments, hats, clothes for children under 4 years of age, second-hand clothing, household linen, furnishing fabrics, and blackout materials. A similar system—but excluding shoes—was introduced in Ireland in June 1942.

Rationing was introduced in New Zealand in May 1942; the rationing period was fixed at 12 months, each consumer being given 32 points. The rations include shoes and household linen.

In Australia, pending the introduction of a general rationing system, sales of clothing material, clothing and all other woven or knit goods were reduced in May 1942 by 25% in value from the average weekly sales in 1941.²

Rationing of clothes was imposed in Italy in January 1942, the rationing period being 18 months and the number of points 120 for men and 110 for women and children; extra rations were granted to workers in occupations in which clothes were exceptionally liable to get dirty or worn. The scheme covers shoes and wearing apparel containing wool, cotton or linen, but excludes apparel of silk and artificial fibre.

Germany rationed clothes in November 1939. The present or third rationing period (ending December 31, 1942) is 16 months; all consumers receive 120 points, but the number of points for a second or third child has been increased. The cards cover all articles which are not subject to special purchasing permits, as are overcoats, shoes and working clothes; napkins, towels and table linen can be obtained either on the cards or by special permits. During the winter 1941/42, Germany applied a system of what may be termed negative rationing inasmuch as the population was obliged to give up heavy woollens, ski boots, blankets and furs already in their possession. It is estimated that 32,000,000 pieces of woollen clothing and 533,000 fur coats were collected.

Rationing has been gradually imposed in all the occupied areas. In principle, the German system has been adopted, but it appears that the point system has a considerably narrower scope than in Germany proper, and that, according to the degree of scarcity, the rigid purchasing permits system has assumed a more dominant position. In

² In announcing these restrictions, the Prime Minister said that the 25% reduction might be increased to 30, 40 or even 50% in the next few weeks. He added that the printing of ration books was already proceeding.

France, a comprehensive buying permit system is enforced, and only smaller items are rationed on a point basis. Shoes and heavy clothing, however, are difficult to obtain even with a purchasing permit. The Netherlands introduced a point rationing system shortly after the occupation, but the system of purchasing permits has gradually been extended to include shoes and heavy clothing such as overcoats and men's suits. In Norway, on the other hand, rationing went into effect in September 1940, and was originally on the basis of purchasing permits obtained from the post offices. This system was later superseded by a severe point rationing. Requisitioning of woollen coats and blankets by the Germans has been repeatedly reported. Rationing along these same lines is reported from Denmark, Belgium, Hungary, Poland and the Balkan States. It has been introduced also in Spain and Japan.

Sweden introduced rationing in January 1942, the rationing period being 18 months; men receive 120, women 110, and children 100 points each. Extra allowances are granted to workers in occupations in which clothes are exceptionally liable to get dirty or worn. The scheme covers goods containing wool, cotton and linen (including household furnishings); shoes and clothing made of silk and artificial fibres are unrationed. Switzerland rationed clothing in November 1940, the rationing period being one year. The scheme covers apparel made of wool, cotton, linen and hemp; articles made of silk and artificial fibre are exempt. Rationing of shoes began in December 1940.

Owing to the complexity of the rationing schemes in force, differences in scope and the varying degree to which the system of purchasing permits is applied, the data on rationing do not afford the necessary basis of comparison either between the level of consumption in different countries or between pre-war and war levels. Some independent estimates of clothing consumption, however, are available for the United Kingdom and Germany, which may be considered as broadly indicative of the magnitude of the reductions imposed by rationing. In Germany, civilian purchases of clothing during the first half of 1941 are stated to have declined by some 50% in volume and by 25-30% in value as compared with the pre-war level.³ In the United Kingdom, average daily sales of clothing during the last six months of 1941 decreased by 18% in value as compared with the same period

³ H. W. Singer, "The German War Economy in the Light of Economic Periodicals, IV." *Economic Journal*, Vol. LI No. 204.

of the previous year; which, taking into account the rise in prices, may perhaps have represented a decrease of some 30% in volume.

In spite of the many reservations necessary when comparing the present levels of consumption in different countries, the table below has been calculated in order to illustrate roughly the relative levels of the rations in the United Kingdom, Germany and Italy. It gives the percentage of the yearly total number of points needed to purchase certain representative articles of clothing.

RELATIVE POINT VALUES OF REPRESENTATIVE ITEMS
OF CLOTHING

(Total point values in each country for a period of 12 months = 100)

	Rationing Period; Beginning	MEN			WOMEN					
		Wool- len over- coat	Suit	Pair of Cotton shirt	Pair of shoes	Wool- len coat	Wool- len dress	Cotton dress	Pair of wool- len stock- ings	Pair of shoes
U.K.	1.VI.42	35	51	10	14	35	22	14	4	10
Germany *	1.IX.41	132	89	33		132	67	50	7	
Italy	1.XI.41	67	63	8	50-63		31	15	2	46-58

Even when full allowance is made for differences in date and in the scope of rationing, the table suggests that clothes rationing is very considerably more severe in Germany and Italy than in the United Kingdom. The need for warm clothes in Italy, however, is of course much less than in either of the other two more northerly countries. The scope of rationing in Sweden and Switzerland is narrower than in Germany and the United Kingdom, and direct comparisons are therefore impossible. On the basis of available data, however, it is safe to conclude that rations are throughout higher than in Germany, while it is certain that they are lower in the German-occupied countries, with the possible exception of Denmark, than in Germany. Indeed, clothing, particularly shoes and woollen goods, are frequently reported as practically unobtainable in Poland and the Balkans, particularly in Greece.

Group rationing in general, and clothes rationing in particular, give

* Heavy clothing and shoes are regularly obtainable only through special purchasing permits. The figures in the above table are ratings relating to the summer of 1941 when these articles were temporarily obtainable on the rationing cards.

rise to certain theoretical and practical problems which require to be briefly considered.

The stock of clothing in the hands of consumers provides the source of supply of the second-hand trade. In Great Britain, since the summer of 1941, the sale of second-hand clothing above a prescribed price has only been allowed against the surrender of points; moreover, clothes are not rated as second-hand unless they have been in the possession of someone other than the retailer. In Germany, the second-hand trade is subject to strict price control. On the introduction of rationing in the Netherlands in the autumn of 1941, people were permitted for a time to deliver used woollen clothing to special agencies, which allowed them one-third of the normal point value of the clothes. The clothes were then distributed free on surrender of one-half their normal point value, to needy families.

The quantitative limitation on purchases has led practically everywhere to an increased demand for goods of high quality. As these generally require a greater outlay of scarce materials, labour and other factors of production needed for the war effort, different methods have been employed to counteract this tendency. Both in Germany and the United Kingdom, the "price" in "points" has been increased for woollen goods, while it has been decreased for the cheaper qualities and goods made of substitute or domestic materials. Indeed, the pricing in points has tended more and more to be based on considerations of real cost. In Germany, this policy has been reinforced by regulations prohibiting any increase in the proportion of high quality goods produced.

The same purpose is served by standardization. As a first step, Governments limit styles, either "freezing" prevailing fashions or insisting on some changes to economize material. Such measures have been adopted not only in Germany, the United Kingdom and most European countries, but also in the United States. A further step is to prescribe the quality of clothing material produced. In the United Kingdom, standardized materials, "utility" cloth, have been introduced, and it was reported in the spring of 1942 that the trade is gradually concentrating on the manufacture of this material. In Germany, working clothes have become standardized in design, quality and price. In Denmark, both working clothes and men's suits were standardized at the beginning of 1942; suits contain 10% domestic wool, 5% artificial fibre and for the rest, shoddy.

Clothing requirements vary according to differences in the stocks in the hand of consumers at the beginning of the rationing period, and to differences in climate, occupation, sex, age, etc. This leads to a number of difficulties and, in order to prevent waste and hardship, the need has been felt, as in the case of food, for a differential system of rationing.

A complete system of differentiation is almost impossible to devise or administer, but some progress has been made by means of three methods. The first is to leave certain essential articles of clothing not universally required, for example, workman's overalls, outside the ration. Thus, as shown above, in Great Britain, protective clothing has not been rationed. A second method is to assign low point values to this type of clothing; the extent to which this method is actually employed cannot be determined on the basis of available information. A third method, as already noted, is to vary the total number of points issued. In some countries, the number of points issued to men, women and children is somewhat different. Expectant mothers, children and adolescents frequently receive extra points. Reports from practically all countries that apply clothes rationing, however, indicate that the problems of trade in "points" and black markets is serious. This is natural, and perhaps inevitable at first, as clothes are semi-durable and certain persons have considerable accumulations of old clothes on which they can rely; others have insufficient incomes for the purchase of their rations.

II. HOUSING AND HOUSEHOLD ESSENTIALS

The erection of residential buildings has generally been either restricted or stopped altogether. There has not yet been time for this to have any appreciable effect on the total supply of housing. Local shortages have been caused as a result of the destruction of houses through aerial bombardment or the influx of civilians into particular areas. So far, however, these local shortages have been met by voluntary or obligatory billeting in public institutions, schools or private homes, and their economic effects counteracted by rent control.

As explained in Chapter I, durable consumer's goods like refrigerators, vacuum cleaners, washing machines, heating apparatus and various electrical and mechanical appliances, have not proved amenable to general rationing. The life of these goods is long and there is no method of estimating demand or needs over a short period. An even

more weighty reason against rationing is that these goods compete directly with war production. In consequence, their production has been severely restricted or stopped. The distribution to the individual consumer of such limited supplies as may be allowed is generally effected by means of special permits to purchase.

A different problem is presented by household essentials currently consumed, and in particular fuel and light. The demand for coal for industrial purposes has generally increased, while imports have been drastically reduced. In countries normally self-sufficient, even in coal exporting countries, internal transportation difficulties have caused local shortages necessitating a limitation of private consumption. This has been the case in practically all European countries.

The problem of distribution, however, is a complicated one, and no just system is possible on the basis of simple *per capita* rationing, owing to differences in climate, size of the house, etc. General measures to cut down consumption were first widely adopted: for instance, the supply of hot water was limited to certain days a week or month; a permissible maximum temperature for homes was imposed, and the heating season limited by law. Later, consumers were permitted a certain quota of their consumption during a specified base period. In cases of even more severe shortage, resort was had to direct rationing. Thus, in Belgium the coal ration is determined by the size of family, the *per capita* allocation decreasing with the size of the family. Germany has introduced a complicated point system dividing the country into climatic zones, consideration being given to the total number of persons and rooms per household. Even in England, which normally has a large export surplus of coal, there have been scarcities.

Gas and electricity scarcities have naturally arisen, owing to the coal shortages. Where a "black-out" is not imposed, the use of electric current for street and window lighting is generally restricted. In Switzerland, public lighting was cut by 50% in November 1941, and the lighting of show windows after 7 P. M. and the use of luminous signs forbidden. Restrictions have likewise been imposed on the domestic use of electricity in that country. It may not be used for heating purposes and households are obliged to cut normal consumption by a third. In France, strict maximum limits to the use of electricity are imposed. Rations of electric current were under consideration in Sweden at the moment of writing.⁵

⁵ May 1942.

Other household goods in common use generally subject to rationing are soap, and other washing and cleaning materials. Soap rations are often almost negligible; in Finland, for instance, the ration is 25 grammes per head for 3 months. In the United Kingdom, soap rationing was introduced in February 1942 with the aim of reducing total consumption by 20%. The weekly allowance to each individual is 115 grammes of household soap, 85 grammes of toilet soap, 85 grammes of flakes or chips or 170 to 340 grammes (depending on quality) of soft soap powder. Shaving, liquid, scouring, shampoo and dental soaps are exempted. Special arrangements are in force for laundries, restaurants, factories, etc. In Sweden, a point rationing system was introduced in May 1940 under which infants receive double rations and children of from 1 to 7 years, as well as certain categories of workers, 50% extra rations.

III. MISCELLANEOUS NECESSITIES AND SERVICES

Motor spirit is scarce everywhere in Europe, and civilian consumption has in most continental countries, and also in Ireland, been restricted to physicians and other persons performing essential public or social services. In the United Kingdom, which was the last belligerent country in Europe to introduce a basic civilian ration, this was to be stopped by the end of June 1942. Since the entry of the United States into the war, local scarcities have arisen in many countries outside Europe, and rationing has or is about to be introduced in parts of the United States, in Canada and other parts of the British Commonwealth. In the United States, the production of passenger automobiles has been stopped, and existing stocks severely rationed to meet the needs of certain priority groups. The occupation by Japan of the chief rubber producing areas of the world has led to a serious rubber shortage and tires have become severely rationed even in areas where motor traffic was not already curtailed by lack of fuel. Thus the greatest consumer of tires, the United States, has stopped the sale of tires to all civilian consumers other than doctors and other specified priority groups. Local rationing boards control the sale to priority users.

The war has also imposed limitations on railway travel. The war effort itself causes a heavy strain on the railroads, while the necessity of economizing fuel and equipment has, in some areas, required a severe curtailment of ordinary train services. At the same time,

the cessation of motor travel has tended to increase civilian demand for railway transportation. Apart from exhortations, direct measures have in some cases been taken in order to restrict passenger travel. In Sweden railway tickets are subject to a special 10% tax, except for commuters. In Germany and the occupied areas, the purchase of long-distance railway tickets has been made subject to special authorization, which is granted sparingly, and only for travel considered to be in the public interest.

IV. NON-ESSENTIALS

In considering the rationing of non-essentials, it is useful to distinguish between semi-luxuries (or semi-necessities), the demand for which is highly inelastic, and luxuries with a more elastic demand.

A number of articles of common consumption—tobacco, alcoholic beverages, coffee, etc.—while not essential in the sense of being indispensable to the health of the population are nevertheless widely considered essential to well-being. The consumption of such articles has in no case been stopped altogether, though certain of them, in particular coffee and tea—have, owing to the cessation of imports, disappeared from the market in many countries on the continent of Europe.

For several reasons, it is difficult or impossible to apply a straight rationing scheme on a *per capita* basis to this class of goods, as needs vary from one individual to another. In view of inelastic demand for them, and their non-essential character, these commodities have long been a favorite object of indirect taxation. In practically all countries, increased sales and excise taxes have been imposed on spirits, beer and tobacco. In view, however, of the reduced possibilities of expenditure in other directions—largely an effect of rationing—even drastic increases in taxation have not been sufficient so to curtail demand as to obviate shortages, even where, as in the case of tobacco in Germany and the United Kingdom, the amount manufactured is greater than in peacetime. It has become necessary, therefore, to supplement taxation by various measures of direct, though often informal, rationing.

A typical example is tobacco. When scarcities first arose, retailers in most countries were put on a quota and made responsible for the distribution to their customers. In Germany, where consumption of

cigarettes had increased from 33.600 millions in 1933 to 78.800 millions in 1940, the surtax on tobacco was increased from 20 to 50% and ration cards introduced in the autumn of 1941. Men were restricted to 6 cigarettes (or one cigar) a day and women over 21 to three every other day. In France, women were deprived of cigarettes and men limited to two packages of twenty every ten days. This system, however, is still in an experimental stage, and has not proved satisfactory. In Sweden tobacco is rationed alternatively to additional rations of coffee.

Rationing of spirits does not appear to have been applied, and reliance is placed almost wholly on drastically increased taxation. In the case of beer, however, it is reported that it can be obtained in Germany and Belgium only on the surrender of bread coupons. Wine is rationed in France.

Rationing of amusements—such as cinemas, theatres, races, etc.—is impossible, but increased amusement taxes have been imposed. In the United Kingdom, sports events—in particular horse and dog racing, but also “spectacular boxing”—have been curtailed. Similarly, limits have been imposed on the amounts which may be spent in luxury restaurants on meals.

Chapter IV

GENERAL ESTIMATES OF CONSUMERS' EXPENDITURE

WE TURN NOW to a brief consideration of the effect which the war-time restrictions on private spending have had on the aggregate volume of consumption in various countries. Unfortunately, the data in this field are fragmentary and few. While the individual restrictions can be readily recorded and described, since they must needs be announced to the public in the form of decrees, ordinances and regulations, their general effect on the volume of consumption can only be ascertained by means of elaborate studies concerning national income and outlay, which in the majority of cases are no longer available. This is true more particularly of the Axis Powers and occupied Europe.

In the United Kingdom, however, the Government has recently published a wealth of information that was not available even in peace-time.¹ From this it appears that the real volume of consumption in the United Kingdom in the year 1941 was probably between 15% and 20% lower than in 1938.² The margin of uncertainty in this estimate necessarily arises from the difficulty of making allowance for the rise in prices and for the shifts in the composition of consumers' outlay that have taken place since 1938. The consumption expenditure, on which the estimate is based, is shown below, and is compared with Government expenditure on goods and services in 1938, 1940 and 1941.

The percentages shown in the fourth line of the table represent approximately the proportion of resources absorbed by personal expenditure on consumption—a proportion that is seen to have declined very considerably.

¹ "An Analysis of the Sources of War Finance and an Estimate of the National Income and Expenditure in 1938, 1940 and 1941," *Cmd. 6347*, published in April 1942. A similar document containing national income and expenditure estimates for 1938 and 1940, was published in April 1941 (*Cmd. 6261*).

² *Cmd. 6347*, p. 5.

WARTIME RATIONING AND CONSUMPTION

	1938	1940	1941
	£(000,000's)		
(1) Personal expenditure on consumption at market prices ^a	3,584	3,871	3,863
(2) Government expenditure on goods and services at market prices ^b	833	3,056	4,182
(3) Total	4,417	6,927	8,045
(4) (1) as % of (3)	81	56	48

^a Adjusted for Government subsidies (*plus*) and indirect taxes on consumption (*minus*).

^b Including local authorities. Excluding transfer payments.

The totals given in the third line of the table reflect the aggregate resources devoted to the two purposes shown in the first two lines. These totals are not the same as the national income. The total for 1938 is smaller than the national income, the difference being mainly due to the net investment which took place in that year, and which formed part of the current national product. For 1940 and 1941, on the other hand, the totals are considerably larger than the national income, the difference being mainly due to the disinvestment that took place in these years through liquidation of foreign assets, reduction in domestic commodity stocks, failure to replace plant, machinery, etc.³

In addition to (1) the reduction in the volume of consumption and (2) the consumption of capital (disinvestment), there has been another important factor helping to meet the rapid rise in Government expenditure, namely, (3) an increase in total production. The national income expanded from 1938 to 1941 not only as a result of the rise in prices but also owing to a rise in output; and this "real" expansion may be roughly estimated at 10%.

We may, indeed, attempt to evaluate all the relevant magnitudes in terms of 1938 prices, assuming for this purpose that the general commodity value of money in the United Kingdom was something

³ The estimates of national income and investment or disinvestment at home and abroad are shown below (*Cf. Cmd. 6347*):

	1938	1940	1941
	£(000,000's)		
Net national income	4,595	5,585	6,338
Private net investment or disinvestment (-) at home and war losses made good	406	-286	-493
Private and government net investment or disinvestment (-) abroad	-55	-759	-798
Total investment or disinvestment (-)	351	-1,045	-1,291

like one-fifth or one-fourth lower in 1941 than in 1938, or in other words that prices on the average had risen by something between 25% and 33%.⁴ We may thus obtain a rough idea not only of the "real" volume of Government expenditure but also of the contributions made to the war effort by the "real" sources of war finance discussed in the introductory chapter. More particularly, we wish to assess the relative importance of the curtailment of private consumption, as compared with the other principal sources of war finance. The calculation is necessarily tentative, and more than a purely illustrative value is not claimed for it, even though the general order of magnitude of the figures presented is probably not very far from the truth.

NATIONAL INCOME AND EXPENDITURE IN REAL TERMS
(i. e. AT 1938 PRICES, EXPRESSED AS PERCENTAGES OF
THE NET NATIONAL INCOME IN 1938)

	1938	1941
Net national income	100	110
Personal consumption	76	63
Government expenditure	17	70
Investment at home	8	—
Disinvestment at home	—	- 8
Disinvestment abroad	- 1	-15

The increase in Government expenditure from 17 in 1938 to 70 in 1941 may be taken to represent the economic war effort, equal to 53% of the 1938 national income.⁵ This increase came from the following sources: increase in national income (10), reduction in consumption (13), cessation of new investment (8), disinvestment at home (8), disinvestment overseas (14), making a total of 53%

⁴ The calculation here given follows the method adopted by *The Economist* (London) in two noteworthy articles published on January 3rd and January 31st, 1942. The qualifications to which this procedure is subject are there fully explained. For instance, it is quite probable that the change in prices of goods and services bought by the Government and by the public respectively has not been the same; but there is no means of making allowance for this. *The Economist* assumes a fall in the general value of money by one-fifth, i. e. a general price rise of 25%. The estimates here shown differ somewhat from *The Economist's* figures, not only because the degree of average price-rise is assumed to be somewhat greater, but also because they are based on the revised and up-to-date official data published in April 1942 (*Cmd. 6347*).

⁵ For the *transition* problem, it is this increase that matters. But it should be remembered that even in 1938 a large part—nearly one-half—of Government expenditure (excluding transfer payments) was for military purposes, and that, accordingly, total military expenditure in 1941 was equivalent to more than 53% of the 1938 national income.

of the 1938 national income. The proportions in which these various sources contributed to the war effort were thus approximately as follows:

Increase in total output	19%
Reduction in consumption	25%
Cessation of investment	15%
Disinvestment at home	15%
Disinvestment abroad	26%
Total	<u>100%</u>

The last item—"disinvestment abroad"—represents the liquidation of foreign assets and the increase in overseas liabilities, but it does not accurately reflect the economic assistance—the "import surplus"—received by the United Kingdom from the rest of the world.⁶ Thus, for example, Government expenditure for the support of military operations overseas, included in this item, does not result in any imports into the United Kingdom. On the other hand, however, this item takes no account of the lend-lease shipments received from the United States, which are not included in British Government expenditure. It may be better therefore to confine our attention to the domestic sources of war finance, which together supplied resources equal to 39% of the 1938 national income. The proportions in which they contributed to the war effort, arranged in decreasing order, are as follows:

Reduction in consumption	33%
Increase in output	26%
Cessation of new investment	21%
Disinvestment at home	20%
Total	<u>100%</u>

The shifts in consumption which have accompanied the reduction in total volume may be illustrated by reference to the statistics of retail sales in the United Kingdom, which from 1938 to 1941 indicate a reduction of 20% in the volume of total sales, but a reduction of only 10% in sales of food. The figures below show the changes in the money value of sales, the price indices by which they are corrected and the resulting estimates of changes in the volume of sales.

⁶ Needless to say, the external disinvestment has made possible not only an increase in imports but also a diversion of export industries to domestic war production.

	TOTAL			FOOD		
	<i>Retail sales: value</i>	<i>Cost of living</i>	<i>Retail sales: volume</i>	<i>Retail sales: value</i>	<i>Cost of living (food)</i>	<i>Retail sales: volume</i>
1938	100	100	100	100	100	100
1939	103	101	102	105	100	105
1940	107	119	90	107	116	92
1941	103	128	80	106	118	90

The distribution of consumers' expenditure among the main groups of goods and services in 1938 and 1940 has been officially estimated as follows: ⁷

	PERCENTAGE OF TOTAL CONSUMERS' EXPENDITURE	
	1938	1940
	Food, drink and tobacco	41
Rent, rates, fuel, light, household goods and domestic service	24	23
Clothing and laundry	12	12
Private motor vehicles (including running expenses)	3	1
Other travel	4	4
Other goods and services	16	14
Total	100	100

The results of a similar study for 1941 are not available at the time of writing.⁸ It may be of interest, however, to quote the following extract from an official document published in August 1941: "There is a substantial reduction in the goods (other than food) available for sale, which might be very roughly estimated at 50%. The full effect of this reduction has not yet been felt owing to the existence of a "cushion" of accumulated stocks, now rapidly diminishing."⁹

In the case of Germany, we are faced with a complete lack of official data comparable to those of the United Kingdom. Private estimates have appeared from time to time in German periodicals, but they are fragmentary and frequently conflicting. One writer has estimated that in 1940 the reduction in consumption amounted to about 14 billion marks, of which 4½ to 5 billion was on account of

⁷ *Cmd. 6261*, p. 12.

⁸ *Cf. Board of Trade Journal*, August 9th, 1941, p. 79.

⁹ *Cf. Cmd. 6347*, p. 2.

food, about 5 billion on account of clothing and about 4 billion on account of other industrial products.¹⁰ If we assume that just before September 1939 total consumers' expenditure in Germany (including Austria and the Sudeten region) was at a rate of about 70 to 75 billion marks a year,¹¹ the percentage reduction works out at 18–20%. Considering the rise in prices,¹² the decline in the volume of consumption may have been even greater.

For purposes of comparison it may be mentioned that, according to the same source, total disinvestment in 1940 amounted to 8–10 billion marks,¹³ of which 5–6 billion was due to depletion of stocks.

For 1941, no estimates are available concerning the volume of consumption in Germany, but certain indirect calculations may be mentioned. On the basis of the available data concerning revenue and borrowings, the amount of German Government expenditure in 1941 has been estimated at 99 billion marks,¹⁴ while the 1941 national income according to the Reich Finance Minister was 110–115 billion marks. This would seem to leave an extremely small margin for private consumption. But the former figure includes transfer payments, estimated at 12–15 billion, which must be excluded in order to obtain the Government expenditure on goods and services. On the other hand, the national income must be increased by the amount of business and consumption taxes (about 20 billion)—which enter into the value of output but not into individual incomes—in order to obtain the total value of goods and services currently produced—in order, that is, to obtain a figure comparable with the estimates given above for pre-war consumers' expenditure and for the reduction that occurred in 1940. But even the difference between the figures thus adjusted—about 85 billion for Government expenditure and 130–135 billion for national income—cannot be taken as a measure of consumption expenditure. Disinvestment continued in 1941, though apparently at a reduced rate,

¹⁰ Cf. *Der Deutsche Volkswirt*, December 20th, 1940. Cf. also a similar estimate made by the *Deutsche Bank* (Berlin), reported in *The New York Times*, February 17, 1941, p. 23.

¹¹ In the "Old Reich" it amounted to 61 billion in 1938 and 65 billion in 1939. Cf. *The Bulletin of International News* (The Royal Institute of International Affairs, London), 1941, p. 811.

¹² The official indices alone were 3–4% higher in 1940 than before the war.

¹³ The estimate of the *Deutsche Bank* placed the amount of disinvestment at 12 billion marks.

¹⁴ Cf. *Bank-Archiv*, February 15th, 1942.

since it is estimated at a total of 5–10 billion marks, of which commodity stocks provided 3–5 billion.¹⁵ Contributions from occupied territories in 1941 have been estimated at 15–17 milliards; but part of this was required for actual occupation costs; and it is known that of the French contribution a large part remained unused for want of goods to buy. Against the balance remaining in Germany's favour must be set her own contributions or "capital exports" to other countries, such as Italy. It seems safe to conclude, therefore, that the money value of consumption in 1941 cannot have been larger than in 1940, while its real volume must have declined further, owing to increases in indirect taxes and the rise of prices especially in the illegal or uncontrolled markets. Indeed, a further reduction in the standard of living became more and more necessary, as consumable stocks were depleted and as domestic production was beginning to show signs of slackening. Far from being able to increase her total output, observers are agreed that Germany has probably suffered a net decline in her productive capacity since June 1941.

For the occupied countries of Europe, where consumption has been most sharply reduced, estimates of consumers' purchases are completely lacking. There is an official estimate for Sweden—one of the remaining neutral countries—according to which the money value of Swedish food consumption rose by 13% from 1939 to 1941, while its volume declined by no less than 20% (owing largely, no doubt, to the cessation of food imports of a "luxury" character). For goods and services other than food, there is an estimate, not strictly comparable with the preceding one, relating to the period from July 1940 to June 1941, showing a 3% rise in money value and a 15% decrease in volume compared with 1939. The total volume of consumption in 1941 is estimated to have fallen to about 20% below the level of 1939.¹⁶

An index of retail sales available for Switzerland is shown below.¹⁷ By adjusting it for the rise in the cost of living (excluding rent), we obtain a rough indication of the volume of consumers' purchases, which seems to show a drop of some 15% from 1939 to 1941. There is little doubt, however, that the cost-of-living index, even

¹⁵ Cf. *Bank-Archiv*, February 15th, 1942.

¹⁶ Cf. *Ekonomisk Tidskrift* (Stockholm), September 1941, p. 282.

¹⁷ Cf. *Monthly Bulletin* of the Swiss National Bank.

after the exclusion of rent, understates the general rise in prices, and that consequently the reduction in the real volume of consumption has been even greater:

SWITZERLAND: INDICES OF RETAIL SALES AND COST OF LIVING

	1938 = 100		
	<i>Value of retail sales</i>	<i>Cost of living (excl. rent)</i>	<i>Volume of retail sales</i>
1939	107.2	101.6	105.5
1940	117.3	114.2	102.7
1941	122.2	137.1	89.1

The experience of the United States of America in 1941 provides a complete contrast to that of Germany. As one writer has put it, "the increase in military expenditures from under 3 billion dollars in 1940 to over 13 billion in 1941, far from being associated with a reduction in civilian consumption, was actually accompanied by the highest level of consumption in our history."¹⁸ Not only was there a concurrent expansion of consumers' outlay (by 15%) and national defence expenditure (by 375%), but private investment, including commodity stocks, also increased. This, of course, was made possible by a striking growth of aggregate output, reflected by a 27% increase in industrial production from 1940 to 1941.¹⁹

The 15% increase in consumption expenditure was partly absorbed by higher prices. The increase in the real volume of consumers' purchases from 1940 to 1941 may be put at 8%. The quarterly movement of both the money value and the real volume of consumption may be observed from the table below (col. 2 and 4). Column 5 of the table shows the amount of expenditure due to the rise in prices—an amount which increased steadily up to the second quarter of 1942.

It will be noticed that the real volume of consumers' purchases reached its peak in the summer of 1941. The buying wave which occurred at that time was prompted by anticipations of higher prices and shortages, and was mainly concentrated on durable goods, such as motor-cars, radio sets, refrigerators, vacuum cleaners and other

¹⁸ Milton Gilbert: "War Expenditures and National Production," in *Survey of Current Business* (U.S. Department of Commerce), March 1942, p. 9.

¹⁹ From its lowest point in 1940 (April), the monthly index (1935-39 = 100) rose from 112 to 174 in April 1942, or by 55%.

WARTIME RATIONING AND CONSUMPTION

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DISPOSABLE INCOME, CONSUMPTION EXPENDITURE, PERSONAL SAVINGS, AND THE DIVISION OF CONSUMPTION EXPENDITURE BETWEEN REAL CONSUMPTION AND CHANGE IN COST OF LIVING

QUARTERLY DATA IN ANNUAL RATES, ADJUSTED FOR SEASONAL VARIATION
(Billions of dollars)

Year and Quarter	1 Dispos- able income	2 Consumption expenditure at current prices	3 Savings (1-2)	4 Consumption expenditure at 1941 prices	5 Consumption expenditure accounted for by price changes (2-4)
1940					
I. Quarter	71.7	65.0	6.7	68.9	-3.9
II. "	72.3	65.6	6.8	69.0	-3.5
III. "	73.9	66.1	7.8	69.8	-3.7
IV. "	76.9	68.0	8.9	71.8	-3.8
1941					
I. Quarter	81.0	72.8	8.2	76.3	-3.5
II. "	86.0	75.6	10.4	76.9	-1.3
III. "	91.2	78.1	13.1	76.5	+1.6
IV. "	96.1	76.6	19.5	72.5	+4.1
1942					
I. Quarter	99.9	80.6	19.3	74.1	+6.5
II. "	103.0	78.8	24.2	70.3	+8.5

Source: "Survey of Current Business" (U.S. Department of Commerce), August 1942.

household appliances. A second wave of forward buying developed in the early months of 1942, affecting notably articles of clothing.

Although the rise in consumers' expenditure in 1941 was substantial, it showed a significant lag relatively to the rise in disposable incomes,²⁰ as may be seen from a comparison of the first two columns. The result was an increase in savings, as shown in the third column of the table. In 1940, of a disposable income of 72.2 billion dollars, 10% (7.5 billion) was saved. In 1941, of a disposable income of 88.6 billion dollars, as much as 14% (12.8 billion) was saved.²¹ Thus, of the *increase* in disposable income from 1940 to 1941, only 68% was spent on consumption, while 32% was saved.

²⁰ Income payments to individuals less direct taxes paid by individuals.

²¹ Cf. *Survey of Current Business* (U.S. Department of Commerce), April 1942, p. 9.

A decline in the "marginal propensity to consume" is a normal phenomenon in periods of rising incomes; the fact that it occurred even in 1941, when consumers were faced with exceptionally strong incentives for forward buying, has been attributed to various factors, such as the growing scarcity of durable goods, the restrictions on instalment purchases introduced in September, the anticipation of higher taxes, the defence bond campaign, the uncertainty as to future incomes, etc.²²

In the early months of 1942 as productive capacity was being more and more fully employed, a wide range of consumers' goods, especially durable and semi-durable goods, were, as already stated, in fact subjected to restrictions of various kinds. In March 1942, it was calculated²³ that the completion of the then existing war expenditure programme would require a reduction in aggregate consumers' outlay, assuming prices to remain at their 1941 level, from 74 billion dollars in 1941 to 64 billion in the fiscal year 1942/43,²⁴ that is, a reduction of 13.5% in the volume of purchases. According to the same estimate, the bulk of this reduction would fall on purchases of durable goods, which would need to be cut from 10.5 to 3.0 billion dollars, or by over 70%, while expenditure on non-durable goods would not need to be curtailed by more than about 4%, namely, from 63.3 billion dollars in 1941 to 61.0 billion in 1942/43.²⁵

According to a statement made by the U.S. Price Administrator on May 6, 1942,²⁶ civilian consumption in the United States would be reduced to the 1932 level within twelve or fifteen months.

There is, however, one important qualification which must be borne in mind in considering the estimates just quoted. The volume of consumers' purchases is not the same as consumption in the strict sense. The distinction is particularly important in the case of durable goods, which yield their services long after the date of purchase. In view especially of the large stocks of durable goods that accumu-

²² Cf. *Survey of Current Business* (U.S. Department of Commerce), April 1942, pp. 10 and 11.

²³ *Survey of Current Business* (U.S. Department of Commerce), March 1942, pp. 11 ff.

²⁴ July 1942 to June 1943.

²⁵ In Mr. Milton Gilbert's article, where these estimates are presented, the increase in war expenditure from 1941 to 1942/43 is placed at 41.2 billion dollars, to be covered by an estimated increase in total output (17.3 billion), a decrease in Government non-war expenditures (1.4), a decrease in private capital expenditure (11.7) and a reduction in the increase in foreign claims (1.0), in addition to the estimated decrease in consumers' purchases (9.8 billion dollars).

²⁶ Cf. *New York Times*, May 7, 1942, p. 10.

lated in the hands of consumers during 1941, a drastic curtailment of new purchases does not imply anything like a proportionate sacrifice in the "standard of living."²⁷

Judging by the statistics of retail trade, consumers' expenditure in Canada has followed a course very similar to the United States.²⁸ A large expansion of total output from 1939 to 1941 rendered possible an increase in consumption in spite of the rapid growth in war production.

The following data are available to illustrate the movement of private consumption in Canada:²⁹

CANADA: INDICES OF RETAIL TRADE
1935-39 = 100

	1939	1940	1941
Urban Stores, Value of Sales:			
Department stores	103.6	116.2	133.0
Food stores	106.7	117.5	135.9
Hardware	107.6	117.3	137.6
Furniture	102.0	118.1	126.9
Radio and electrical stores	103.0	130.3	142.4
Clothing, boots and shoes	99.9	113.5	134.7
Drug stores	104.8	113.9	130.9
Variety stores	113.2	133.4	159.9
Total, urban stores	105.1	117.5	135.8
Country General Stores, Value of sales ...	100.5	106.4	116.0
Retail Price Index	101.0	106.6	114.9
Sales of Urban Stores, at 1935-39 prices ...	104.1	110.2	118.2
Sales of Country Stores, at 1935-39 prices ..	99.5	99.8	100.9

The last two lines of the table indicate roughly the changes in the volume of retail sales, after making allowance for the rise in prices. The rise in the volume of sales was confined to the urban stores, the sales of country stores remaining practically constant, a fact which reflects the growing industrialization of the Canadian economy.

As in the United States, there was a certain amount of forward buying on the part of Canadian consumers in 1941. A state of full employment, however, was being reached, and restrictions on consumers' purchases became increasingly necessary. Restrictions were

²⁷ Cf. *Survey of Current Business* (U.S. Department of Commerce), March 1942, p. 15.

²⁸ Cf. *Monthly Review*, Bank of Nova Scotia, December 1941, showing a comparison of the retail trade indices for the two countries.

²⁹ Cf. *Statistical Summary* of the Bank of Canada.

placed on instalment sales in 1941, and heavy excise taxes were imposed on a number of commodities. The introduction of a price and wage "ceiling" in the latter part of 1941 has made it necessary to resort to priorities and rationing on an increasing scale; and the production of certain durable goods for civilian needs has been stopped altogether.

Japan has had to effect a severe curtailment of private consumption since 1937; but she has published no data enabling one to gauge the extent of that curtailment. Figures for Government expenditure, however, are available, together with data concerning "private" capital issues, which may safely be assumed to represent investments in war industries; and it may be of interest to compare the total of Government expenditure and these "private" investments with the estimates of Japan's national income. The last reasonably reliable estimate of national income refers to the year 1939. Industrial production in Japan reached a "ceiling" in 1939, and showed signs of decline in 1940.³⁰ Assuming that aggregate real output remained at the 1939 level, the national income can have increased subsequently only because of the rise in prices. Accordingly, the national income in 1940 and 1941 may perhaps be tentatively estimated by raising the 1939 figure by the average percentage increase in prices as shown by the official cost-of-living and wholesale-price indices. We thus obtain the following table:

JAPAN: GOVERNMENT EXPENDITURE, INVESTMENTS
AND NATIONAL INCOME
Yen (000,000's)

	1	2	3	4	5	6
	Government expenditure ^a	"Private" investment	Total (1+2)	National income	Balance (4-3)	Balance (5) at 1936 prices
1936	2,282	2,000	4,282	16,320	12,038	12,038
1937	5,249	3,627	8,876	20,476	11,600	10,113
1938	7,821	3,976	11,797	22,518	10,721	8,495
1939	8,563	5,308	13,871	25,500	11,629	8,283
1940	11,034	4,470	15,514	29,656 ^c	14,152	8,828
1941	12,205	4,750 ^b	16,955	30,778 ^c	13,823	8,262

^a Figures relate to fiscal years, ending in March following each calendar year shown.

^b Estimate based on figure for the first six months as published in the *Oriental Economist*. ^c Tentative estimate.

³⁰ See *World Economic Survey, 1939/41* (League of Nations), p. 32.

The figures for Government expenditure and national income are not, of course, strictly comparable. The former, for instance, include mere transfer payments as well as expenditures on currently produced goods and services. The latter, on the other hand, undoubtedly fall short of the aggregate market value of final goods and services currently produced. No attempt can here be made to effect the necessary adjustments. Yet it may be that the margin between Government and investment expenditure on the one hand and national income on the other (Column 5 of the table) affords some indication of at least the approximate *trend* of private consumption expenditure. This margin, after adjusting it for the changes in the official price indices that have taken place since 1936, shows a drop of over 30% from 1936 to 1941. The reduction in the real volume of consumption is unlikely to have been in the same proportion, since there has undoubtedly been a certain amount of disinvestment, which has tended to mitigate, temporarily at any rate, the fall in the standard of living. There is no means of making allowance for this factor; and even apart from that, the calculation here given in default of other information is obviously subject to a wide margin of uncertainty.

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