Income and Consumption in Germany during the Rearmament period.

UNITED STATES DEPARTMENT OF AGRICULTURE
Washington, D. C.

INCOME AND CONSUMPTION IN GERMANY DURING THE REARMAMENT PERIOD

By Frederick Strauss

Washington, D. C.
August 1941

CONTENTS

Page

Summary and Conclusions.............................. 1

The Problem.. 6

The Nature of Official German Statistics on
Production and Consumption of Consumers' Goods....... 8

The Index of Production of Consumers' Goods... 8

Goods of Inelastic Demand................ 9
Consumers' Goods of Elastic Demand....... 11

Changes in Food Consumption as revealed by
Official Consumption Statistics............... 13

The Official Series on "Apparent Food
Consumption"............................. 15
Changes in Food Consumption as
revealed by Workers' Household Budgets... 17
Food Consumption of the Armed Forces..... 24

Changes in Real Income and in Consumers' Outlay...... 25

The Pattern of Consumers' Outlay in the German
Rearmament Economy.................................. 31

NOTE

This report is an outgrowth of an analysis of the food situation in Europe at the outbreak of the present,war, which Frederick Strauss made for the U. S. Department of Agriculture. Some of the material of that survey has since been further analyzed for possible light on the German experience with the issue of "guns versus butter," and the possible bearing of that experience on efforts in this country to expand defense production and at the same time maintain the normal consumption of those things which constitute the average standard of living. This report is of general interest because of its conclusion that during the rearmament period in Germany up to 1939 the level of living suffered because of the defense programs, and of interest to technicians because of the difficulties involved in dealing with inadequate official German statistics of production and consumption of consumers' goods.

INCOME AND CONSUMPTION IN GERMANY DURING THE REARMAMENT PERIOD

SUMMARY AND CONCLUSIONS

A rapid shift from a peace-time to a defense or rearmament economy immediately poses the alternative of "guns and butter" or "guns instead of butter." The experience in Germany is of more than academic interest. For a number of years neutral observers overstated the effect of shortages in consumers' goods, in Germany, as symbolized in the one word "butter." But once the European War got under way, the initial German successes created a legend of German invincibility which has led many American economists 1/ to take a rosier view of the German "butter" situation during rearmament than the Germans themselves have done.

Germany initiated the shift towards a "total" rearmament economy, utilizing and improving upon methods tried out in other countries. It is only natural, therefore, that many economists regard Germany's as the typical modern defense economy. It is true that many problems which the German economy faced between 1933 and 1939 will present themselves in the course of the defense program in the United States. The results of this study, however, suggest that because the structure and resources of the economy here are so different from Germany's, the effect of this defense program on the civilian standard of living will be vastly different.

The controversial character of this subject demands the marshalling of a good deal of evidence. This evidence must not only be marshalled, it must be inspected. The acceptance of German statistics at their face value is fatal to sound conclusions. Therefore, this report has had to combine the necessary "destructive" criticism of the official German statistics with an attempt - using the statistics in ways not intended by their publishers - at establishing more reliable indications of actual changes in the level of consumption during the rearmament period.

Rearmament resulted in a sharp expansion of industrial production. The official German statistics - in spite of their shortcomings - show conclusively that the number of workers employed, the volume of aggregate production, and therefore the "national income produced" were appreciably higher in 1938 than in 1929. At the same time the standard of living of the mass of the German population was kept above subsistence level. To this extent, Germany did

---

1/See, for instance, Paul Studenski, Armament Expenditures in Principal Countries, in Annals of the American Academy of Political and Social Science March 1941. "Truly, Goebbels was wrong in 1936 when he put forth the slogan 'guns instead of butter.' He should have said 'guns and butter, too', for such was the actual effect of the country's increased armament activity, at least during the prewar period."

indeed succeed in producing guns as well as butter. If the criterion of "subsistence level" were applied - in other words, if the interest were only in whether Germany was able to avert starvation during the rearmament period - no further analysis would be required. But that is not the problem.

Even a rearmament economy has to consider material and human costs and long-range effects on the national economy; even a rearmament economy must avoid over-exertion of the industrial machine and of the human element.

In interpreting changes in the German level of living, one must remember that the pattern of consumer expenditures which constitute the standard of living is far different from that in the United States. Whereas the worker here spends only about one-third of his net income for food, in the German worker's budget food takes nearly 60 percent of total expenditures. In Germany, therefore, changes in food consumption to a large extent determine changes in the whole standard of living of the mass of the population.

It is virtually impossible, on the basis of German statistics, to arrive at the aggregate volume of food available to the civilian population or of changes in this volume. But it is possible to appraise changes in food consumption per "full consumer" between the pre-Hitler period of full employment and 1937-38. According to the official interpretation of the German statistics, per capita food consumption in 1937 or 1938 was higher than in 1929, as was per capita production of processed foods. The first section of the report shows why such a conclusion is unfounded.

If one adjusts for the more obvious sources of inaccuracy in the German statistics - namely, for the quantities withdrawn from civilian consumption by army requirements and the storing of emergency reserves - and for the upward bias involved in better statistical coverage of food production, it becomes obvious that the level of food consumption was appreciably lower in 1937 or 1938 than in 1929. Even disregarding for the moment, the increased requirements caused by the sharp rise in the number of heavy manual workers, comparison of food consumption of similar income groups, and even comparison of lower income groups in 1927 with higher income groups in 1937, reveals a sharp quantitative (as well as qualitative) deterioration between 1927 and 1937. The decrease in caloric intake was at least 15 percent. Yet the rearmament program greatly increased the percentage of workers requiring a higher level of food consumption than that of 1927. The reduction in the standard of food consumption - terms of needs - was therefore noticeably greater than 15 percent.

The experience in Germany strongly suggests that in the United States during the defense period there will undoubtedly be a sharp increase in food consumption per "full consumer." The customary notion based on the experience of slow development, according to which changes in consumption per capita or per "full consumer" occur only gradually, will not hold true for the defense period.

The general level of food consumption in Germany in 1937 and 1938 was already too low to maintain the full efficiency demanded of workers by the armament effort. It may be argued that, in the German, case such considerations are immaterial as long as the working population is supplied with enough food to avoid undernourishment. And there might have been no serious damage to health, efficiency, and staying power, if this lowered standard had prevailed only during the 5 or 6 years of war preparation, and if it had been followed by an increase in food consumption. But the strain of the rearmament period had been preceded by lowered consumption during the depression, and it was followed by a sharp reduction in consumption with the outbreak of war.

There is ample evidence to show that the stamina of the German worker, his physical resistance, and his efficiency, have been affected to an appreciable extent by an increased workload combined with the reduction in quantity and quality of food.

It may be said that such conclusions are an outgrowth of wishful thinking. After all, the German economy did create a sensationally effective war machine. And the physical condition of the German soldier does appear to contradict these conclusions. But this contradiction is apparent, not real. For the German soldier was getting a diet the total calorie value of which was more than 60 percent above that of the average worker. In the United States, too, the soldier is likely to consume more food energy than the heavy manual worker.

Increased production of semi-durable consumer goods has also been cited on the credit side of the German ledger. The most widely used indicator of the supply of the population with semi-durable consumers' goods, predominantly textiles, shoes, and household goods, is the index of production of "consumers' goods of elastic demand." In 1937 this index stood at 1.5 percent above 1928, and in 1938 9.1 percent above 1928. Adjusted for the increase of the population and its changed age composition, this would mean that production of such goods per "full consumer" was approximately 5 percent lower in 1937 and 1 percent higher in 1938 than in 1928. (In 1935 production was 19 percent and in 1936 10 percent below 1928, on the same basis.)

Such an index, however, loses its representativeness as an indicator of civilain consumption during a rearmament period. To a certain extent this is to be expected here too. In the United States it will be possible, however, to avoid false conclusions by utilizing complementary data on the production or consumption of consumers' goods. In Germany, too, such data were known to the authorities, but were not made available for general use. It is estimated roughly in this paper to what extent the production included in this index did not enter into ultimate civilian consumption, but went to the armed forces and for war-time reserves. The evidence shows that the German worker obtained noticeably smaller quantities of such consumers' goods as textiles, shoes, and household goods, and that the quality of those he got was much poorer than in 1928-9.

These conclusions apparently contradict the observation that the total national income was much larger in 1938 than in 1929. According to official figures, nominal income increased from 76 billion RM. in 1929 to 80 billion Rm. in 1938. At the same time the cost of living decreased by nearly 20 percent according to the official index, and by 10 percent according to the rough adjustment here made.

Beginning on page 25 an attempt is made to explain this apparent contradiction. On the basis of official German statistics - merely putting them to a use for which they were not originally intended - it is shown that sharply increased deductions for taxes, contributions to Nazi Organizations, etc., together with a sharp rise in forced savings and investment of individuals and industry, reduced nominal income available for ultimate consumption from 52 billion Rm. to 41 billion Rm. between 1929 and 1938. In 1938 the individual consumer had only 690 Rm. to spend, as against 950 Rm. in 1929. In terms of real purchasing power, consumers' outlay per "full consumer" decreased approximately 20 percent between 1929 and 1938.

This conclusion may have to be accepted with certain reservations. For instance, it does not take into account the change in the contribution of the Government to consumers' welfare, whether or not this contribution was desired by the individual consumer. However, another approach which considers the change in aggregate real income available for direct consumption as well as for normal government expenditures comes to virtually the same result. The sharp increase in taxes and other deductions from the national income and "the voluntary (sic) decision of consumers to use part of their income for savings rather than for consumption"2/ largely solve the apparend paradox of civilian consumption and the standard of living in general falling, in the face of a sharp increase in national income produced and in the number of workers employed.

Obviously the authorities in Germany had every interest to keep the population content and to supply the mass of the population with all the consumers' goods that conditions allowed. The limiting factors were chiefly the requirements for direct rearmament and the relative scarcity in a great many raw materials and factors of production.

As less food, textiles, and shoes were available, were there increases in any other segments of consumption? The German worker had 43 percent of his income left after buying food. He needed 21 percent, or just about half of that, for rent, fuel and light, leaving him little more than 20 percent for all other expenditures, such as clothing, furniture, household goods, recreation, etc. Textiles and shoes, including repair, took 10 percent of his budget in 1937 as against 12.5 percent in 1927.

Residentail construction during the rearmament program fell far short even of the needs demanded by the population increase, not considering the needs resulting from the backlog during the depression and from the sharp increase in marriages. In any case, the housing situation was decidedly less favorable in 1937 or 1938 than it was in 1929.

2/ Report of the Reichs Kredit Gesellschaft, 1938, I, p. 71.

The authorities directed consumption increasingly towards durable consumers' goods, such as radio sets and motorcycles. This is in the sharpest contrast with what may be expected in the United States. In 1937, in Germany, expenditures for radio sets (including license fees) and for the purchase and upkeep of motorcycles alone drained away more than 1 billion Rm. from the 9 to 9.5 billion Rm. remaining after food and shelter had been purchased. Why the Government supplied the population with such goods is clear. Propaganda is as much a war instrument inside and outside of Germany as are guns. And motorcycles, bought chiefly by young workers, were regarded as a means for training and as potential vehicles of war. It is astonishing, however, that the Government succeeded in its efforts, for the purchase of such durable consumers' goods earmarks a sizeable proportion of the worker's outlay, and deprives him of purchasing power for goods generally far higher in his utility scale.

For the cheapest radio set requires 7 percent of his whole year's net income, and 75 percent of the radios sold in 1938 required 2 months' earnings. The bulk of the radio sets sold in the United States, on the contrary, can be bought by the worker with 2 percent of his annual income. Purchase and upkeep of a motorcycle absorbed between 5 and 8 months' annual income. The retail price of such goods and consequently their share in consumers' outlay were exceedingly high, but it took only a relatively insignificant share of available resources to produce the amount that could be purchased.

Although expenditures for amusements, such as attendance at moving picture theaters, increased far less than in the United States and other countries, attendance in 1938 was 5 percent higher than in 1929. It is here we estimated that expenditures for "Strength Through Joy" offerings, for movie theaters, and for party newspapers amounted to over 1 billion Rm., and that the consumer in Germany spent for these items and for radios and motorcycles more than 2 billion Rm., or 20 percent of all expenditures except food and shelter. Thus, in the expenditure pattern of the German worker during rearmament, these items became more important than they are in a "normal" budget.

To repeat briefly: The Nazis were not able to provide the population with as much food, textiles, shoes and other semi-durable consumers' goods as during the pre-Hitler period of full employment and certainly not with as much as would have been demanded by the sharp increase in employment and the change in occupational distribution. On the other hand, the worker spent more for amusements and party newspapers, and the Nazis maintained or even increased the supply of a few durable consumers' goods which official consumption planning emphasized. The high price of durable consumers' goods fixed a relatively large share of the worker's net income. And since the volume of such goods was still low, it did not cause any significant strain on available resources.

THE PROBLEM

It is extremely difficult to obtain a clear picture of changes in income available for consumption or in the standard of living even in countries which publish more or less adequate and reliable statistical material on income and consumption. The German case presents a great many additional difficulties. Such difficulties are partly of a statistical, partly of a conceptual nature. If one approaches the situation in Germany with the customary notions of "income" and "consumption", the interpretation of official German data on income and consumption must be unconvincing, since so many reservations have to be introduced that confidence in their reliability is very nearly shattered.

If one is interested in the development of total production in Germany or of the aggregate "national income produced" during the rearmament program, the available official statistics fit the concept satisfactorily. Whatever series one uses, he will find that total production increased sharply between 1933 and 1938, and that the number of workers employed, and the volume of aggregate production and therefore the national income produced were higher in 1938 than in 1929. From the German viewpoint, this development realized the goal of the economic program initiated in 1933, the building up of a war machinery in the shortest possible time. Since the direction of this expansion of production was, moreover, partly dictated by the limitation of available resources, it is probable that the goal was attained in the most direct and effective way. At the same time the Germany economy was able to provide its workers with essential consumption goods - the level of living of the mass of the population was undoubtedly kept above subsistence level. In this sense, Germany indeed succeeded in producing guns as well as butter.

Such an approach is feasible, however, only if one completely disregards the usual concepts of material and human costs and long-range effects on the national economy. The high level of production was attained by overexerting the industrial machinery and the human element, by deferring necessary repairs and by neglecting the maintenance of workers' efficiency and staying power.1/ It may be argued that costs and consequences were immaterial from the German point of view since the initial successes of the war - the acquisitions of raw materials, labor, and industrial capacities - largely offset the effect of strains resulting from the armament program.

Every armament program makes it necessary to increase the share of the national income going into non-consumptive channels. As a consequence of the

1/ One of the outstanding Nazi war economic experts states the problem as follows: "The crucial task of a war preparing economy is to safeguard and possibly to strengthen the existing resources. Only a balanced and efficient peace-time economy can be transformed into a war economy with all its manifold requirements." (See Guido Fischer, Der Wehrwirtschaftliche Bedarf, in Zeitschrift fuer die gesamte Staatswissenschaft, 1939, No. 3, p. 518.

natural limitation of resources, this share was particularly large in Germany. The rearmament program required not only the production of weapons of war but appreciable quantities of goods which normally enter into civilian consumption. The food, clothing, and other consumption goods needed by the armed forces are only the more obvious drains. Equally important was the demand of the rearmament program for raw materials, semi-finished and finished goods usually destined for the production of consumers' goods. Moreover, Germany was obliged - in anticipation of a war blockade - to accumulate large emergency reserves of essential consumers' goods during the last few years before the outbreak of war.

Since the German figures on income, production, and consumption are an aggregate of all these components, and even a rough segregation would require thorough study of supplementary evidence, the German figures can be used only in connection with the broadest concept of income and consumption. If one were inquiring simply into the total national income produced, or into the total volume of food and other consumers' goods available for all purposes, approximate measurements could be obtained from the official German statistics. Such inquiries would be interesting in themselves, but this paper is concerned with another question - that of changes in the standard of living of the mass of the civilian population. The official German statistics do not admit of a direct quantitative determination of consumers' outlay, or of the production and utilization of consumers' goods available for ultimate civilian consumption.

The official German statistics can be utilized as indicators of civilian consumption and its changes only in a roundabout way. One must first determine the approximate requirements for the armed forces and for emergency reserves, and the extent of the basic statistical inaccuracies of the data.

The following discussion does not attempt to deal exhaustively with the problem of income and consumption in Germany. Its main purpose is to show that the widely used German statistics in this field lead to erroneous conclusions if one uses them at their face value to indicate changes in the share of the national income available for consumption, changes in the production of consumers' goods for the use of the civilian population, or changes in civilian consumption.

Although there is no reliable evidence which would indicate such changes accurately, a critical analysis of official figures and of certain other data leads to conclusions appreciably different from those suggested by reliance, even with reservations, in the official data. The following pages therefore combine the necessary "destructive" criticism of the official German statistics with an attempt at establishing more reliable indications of the actual changes in consumption between 1929 and 1938.

THE NATURE OF OFFICIAL GERMAN STATISTICS ON PRODUCTION AND CONSUMPTION OF CONSUMERS' GOODS

The Index of Production of Consumers' Goods

German publications use the index of production of consumers' goods as probably the most weighty single line of evidence to show that the standard of living before the outbreak of war was as high as or even higher than in 1929.

Even a cursory analysis, however, will show that the index contains so many inaccuracies that it must be discarded as a basis for far-reaching conclusions, unless one attempts to adjust it at least for the more obvious sources of error. This is not to say that the index is rendered inaccurate intentionally by the German Institute for Business Research. It is imaginable that the American index of production of consumers' goods might lose part of its representativeness during the defense program. Most indexes of consumers' goods production cover industries which normally produce goods entering predominantly into ultimate consumption. Rapid changes in economic organizatio and in the structure of industry are likely to alter the meaning of such an index appreciably.2/ In the case of the United States it would be possible to adjust the index, since adequate supplementary series on production, turnover, and consumption of individual commodities are available.3/

To a certain extent it was possible to adjust the German index. Yet many series on production and changes in inventories were discontinued years ago. Such series, and even more refined data in all fields of the economy, have been collected by the German Central Office for Armament Planning for the use of its agencies. But few of these data are available to the public.4/ For many years the entire consumers' goods sector of the German economy has worked according to official direction. Raw materials have been allotted for special purposes, certain quantities of goods have had to be discontinued, working hours were decreased, and part of the capacity was utilized for the production of war-machinery. It is impossible to ascertain to what extent the production figures of certain industries included in the index of consumers goods production contain other than consumers' goods. The radio industry, the toy industry, the household and porcelain industries, fall into this category. This is by no means the gravest source of inaccuracy of the index, but this change alone in the meaning of the index limits its usefulness.

2/The German Institute of Business Research remarks that "textile raw materials for clothing cover also such materials which are used in the production of rugs, tapestries, curtains, etc. Moreover, they are used for industrial and technical purposes as well. This is true not only for the organic materials, but particularly for synthetic materials", Wochenbericht, March 9, 1938.

3/A segregation of American indexes of production would be possible, for instance, on the basis of Fabricant's monograph on The Output of Manufacturing Industry 1899-1937, National Bureau of Economic Research, 1941.

4/See, for instance, Schriftenreihe des Reichsants fuer Wehrwirtschaftliche Planung, Heft 1, 1939, Die deutsche Industrie.

Goods of Inelastic Demand

The index is segregated into "goods of inelastic demand", that is, processed foodstuffs, beverages, and tobacco; and "goods of elastic demand", predominantly textiles, leather, and household goods.

According to this index, the production of foods in 1937 and 1938 was roughly 20 percent above 1932 and 3.5 percent above 1929. If one adjusts the index for the increase in population and changes in age composition, in other words if one views the consumption of processed foods, beverages, and tobacco per "full consumer",5/ the index was 3 to 4 percent below 1929 in both 1937 and 1938. (In 1935 production per "full consumer" was 5 percent less than in 1939, and in 1936 7 percent less.)

The essential question, of course, is whether this index shows changes in the total production of consumers' goods of inelastic demand. It does not, since it covers only the production of manufactured foods. We must ask, therefore, whether the production of manufactured food products is indicative of the production of all foods.

The index is composed of the following products:6/

Product	Weight
Dairy products	10
Meat	35
Sugar	10
Beer	22
Tobacco	17
Liquors	5
Canned Fish	1
	100

This was the composition as of 1935. From scattered statements in later German publications it appears that other products have been included since, like canned goods and dried vegetables.

Dairy products and meat together have a weight of 45 percent in the total index. This involves a tremendous upward bias owing to the shift from farm food to factory processed foods which occurred between 1929 and 1938, and became especially pronounced after 1935. It was part of the Nazi policy of better utilization of food resources to enforce the production of butter and the processing of meat, as well as of fruits and vegetables, in a more centralized way.

5/ The conversion to "full consumers" assumes that children under 10 years consume 50% as much as "full consumers", children from 10 to 15 years, 75% as much. All males over 15 years of age are counted as "full consumers", all females over 15 as 90% of "full consumers".
6/ See Wochenbericht des Instituts fuer Konjunkturforschung, June 15, 1935.

A few examples may illustrate the extent of upward bias resulting from this trend.

Butter Production
(Thousand tons)

Year	Factory	Farm
1932	224.5	195.0
1934	231.9	170.0
1935	312.0	140.0
1936	333.6	112.5
1937	416.0	100.0

Factory-butter production increased 85 percent between 1932 and 1937; but half of this apparent increase was offset by the simultaneous decrease in farm-butter production. (Actually the decrease in farm-butter production was even greater, since the statistics before 1934 omitted a sizable proportion of farm-butter production, but were complete afterwards.)

The index of dairy production, which is part of the production index of goods of inelastic demand, is largely determined by this trend. The index of dairy production itself has not been published since 1934. Even before that time the index was distorted by this upward bias. The index increased 35 percent between 1928 and 1934. Total butter consumption, according to official figures, however, rose only 7.6 percent. If one extrapolates the dairy index beyond 1934 by the use of figures on factory-butter production, the index shows a rise of more than 100 percent between 1928 and 1937. Even the official figures on total butter consumption - which over-emphasize the actual increase - show a rise of consumption of only 17 percent during the same period. In other words, 80 percent of the apparent increase of the index of dairy production is due to the shift from farm to factory butter. Since the dairy index has a weight of 10 percent in the total index, this factor alone expresses itself in an unjustified rise of 8 percent of the total food index, which is not based on any real increase of food production.

The bias involved in the figures on manufactured meat production is not so pronounced as that in dairy products. But since the meat group has a weight of 35 percent in the total index, the resulting inaccuracy is also significant.

Although canned goods probably have a low weight in the total index, the rapid rise in volume must have affected its course somewhat. Canned vegetables production, for instance, rose from 50 million cans in 1931 to 115 million in 1936; canned fruits from 26 million to 36 million cans. Dried vegetables rose from 4,000 tons to 26,000 tons between 1933 and 1937.

It is certain, therefore, that the index of production of processed foods cannot be used as an indicator of total food production or consumption.

The second question is whether this index depicts changes in the volume of processed foods available to the civilian population.

There is sufficient evidence to indicate that an appreciable proportion of such processed foods as are contained in the index did not enter into civilian consumption channels during the period of rearmament. Undoubtedly the requirements for dairy products and meat of the armed forces, the labor camps, and other quasi-military organizations were met by such processed foods. One can estimate this quantity only roughly. About 2 million people belonged to the army, etc., and in 1937 the soldier was allotted about 50 percent more fat and 60 percent more meat than the average "full consumer".7/ The number of non-farm "full consumers" who depend on processed dairy products and meat is about 35 million. The army and related organizations therefore consumed approximately 10 percent as much as the total non-farm civilian population before the European War. In other words, about 10 percent of processed dairy products and meat was withdrawn from civilian consumption.

The quantities needed for the storing of emergency reserves must also be deducted from the index. These reserves may not have been significant in the case of dairy products, but they played an important part in the case of meat, vegetable fats, margarine, and some other foods. For instance, the expansion of the canning industry and of the production of dried vegetables was enforced by the army.8/ A major part of such fruit and vegetable products was destined for the use of the armed forces and for emergency reserves.

It is hardly necessary to analyze this index in any more detail. These factors alone suffice to show why it cannot be used to measure changes in available food quantities or in actual consumption, much less changes in civilian consumption.

Consumers' Goods of Elastic Demand

According to this index the total production of manufactured non-food consumers' goods in 1937 was 1.5 percent above 1928, and in 1938 9.1 percent above 1928. This would mean that production of such goods per "full consumer" was approximately 5 percent lower in 1937 and 1 percent higher in 1938 than in 1928. (In 1935 production per "full consumer" was 19 percent and in 1936 10 percent below 1928.)

Here indeed, if one could rely on this index, would be evidence that on the whole the mass of the German population was adequately provided with manufactured non-food consumers' goods, since the 1929 standard was satisfactory. It will be shown, however, that the index can hardly be used for this purpose, and represents, at best, production changes in industries which are normally classified under consumers' goods industries.

7/ A detailed comparison of workers' with soldiers' consumption is contained in a monograph by this writer on "German Food Consumption and Requirements", Office of Foreign Agricultural Relations, Mim. report, Jan. 1940.
8/ Wirtschaftskurve, 1939, No. 3.

The index is composed of the following products:9/

Product	Weight
Textiles	49.0
Leather	8.8
Household goods	32.4
China & porcelain	2.9
Glass	2.9
Pianos	1.0
Radios	1.0
Toys	2.0
	100.0

It could not be ascertained whether any changes in the composition have been made since 1935, the year in which this composition was published.

The index, like most indexes of consumers' goods, is not limited to goods which necessarily enter into ultimate consumption. In times of gradual development and slow changes in the industrial setup, this factor hardly affect the usefulness of such indexes. But Germany was building up a mechanized army and rapidly expanding the production of a great many producers' goods which require raw materials, semi-finished and finished goods normally destined for private consumption. It is virtually impossible to detect the share which such production represents of the total production of consumers' goods, since long before the outbreak of war, Germany discontinued the publication of data on the production of goods directly or indirectly connected with rearmament. There are even indications that some of the capacity of various consumers' goods industries was utilized for purposes directly connected with defense production. The radio industry and the toy industry are examples.

Probably more weighty is the inclusion in the index of production for the armed forces and for emergency reserves. A few examples will illustrate this point.

Textiles have a weight of 49 percent in the total index. The textile index is composed, among others, of the production of cotton, linen, and hemp. It is significant that the linen index stood at 150.1 percent of 1928 in 1937 and at 164.7 percent in 1938, and that the hemp index was 144 percent of 1928 in 1937. It is known that at least one-half of the production of the linen industry was absorbed by army orders.10/ Germany considered the equipment of the armed forces with adequate uniforms, shoes, etc., as necessary as the production of war instruments proper. One will not overestimate these requirements in assuming that between 1935 and 1938 Germany had to prepare to equip an army of 5 million soldiers with two uniforms per year for 2 or 3 years and with other textile materials in corresponding quantities.11/

9/ See footnote 6.
10/ Wirtschaftskurve 1939, No. 1
11/ This is a conservative estimate. Many observers believe that Germany's armed forces are more nearly in the neighborhood of 10 million at the present time.

"The boots in which Poland was conquered were produced only to a minor extent in establishments of the army ordnance. By far the major part came from factories producing civilian shoes, especially workers' shoes."12/

The official index of shoe production was 3 percent above 1929 in 1937 and 15 percent above 1929 in 1938. Production per "full consumer" in 1937 was thus 4 percent below, and in 1938 7 percent above, 1929. A glance at more detailed statistics of shoe production, which are currently published by the Reich Central Statistical Office, shows that during the last few years there has been a continuous increase in the production of heavy workers' shoes and shoes for the army, at the cost of other shoes. The share of leather shoes in total shoe production has decreased from year to year. Army needs stand out more clearly if one figures roughly that the army has had to obtain about 30 million pairs of army shoes during the last few years (based on 2-year needs of an army of 5 million soldiers, and consumption of three pairs per soldier per year). The total German production of leather shoes was in the neighborhood of 75 million pairs per year, of which only 30 million pairs were boys' and men's shoes. This may give a rough idea of the drain that military needs exercised upon the volume of consumers' goods finally available to the civilian population.

In interpreting the total "index of production of consumers' goods of inelastic demand", one must therefore keep in mind that, first, it contains goods which are not exclusively consumers' goods and, secondly, that it does not segregate production for civilian use and that for military and storage purposes. Moreover, during the rearmament period there was a pronounced tendency toward centralization of production. A noticeable share of total textile production, for instance, was formerly produced by home industries,13/ and this production was formerly not included in the index. All these factors together, though they far from exhaust the sources of inaccuracy contained in this index, show conclusively that the index of production of comsumers' goods of elastic demand is no indicator of the volume of production of consumers' goods, much less of the volume of consumers' goods available to the population at large.

Changes in Food Consumption as Revealed by Official Consumption Statistics

In interpreting changes in the German standard of living one should keep in mind that the distribution of consumer expenditures which constitute the standard of living is very different from that in the United States.

12/ Wirtschaftskurve 1940, No. 3.

13/ Wirtschaftskurve 1939, No. 3. In 1929, the number of industrial home-workers exceeded that of workers in establishment to which the index refers, though their production was probably less.

If one compares representative German and American budgets of wage earners and salaried workers, one will find that food which represents just about one-third of total expenditures in the American budget, 14/ accounts for 57.5 percent in the German budget. 15/ The German worker has to spend an additional 18 percent of his income for rent, fuel, and light, so that only 25 percent remains for all his other needs, of which clothing alone would take, in the average, about 14 percent. In comparison, the American worker, who spends 24.5 percent for rent, fuel, and light and 10.4 percent for clothing, still has 31 percent of his income available for the purchase of durable consumers' goods, for recreation, medical care, transportation, and savings. Average figures do not tell the whole story. According to the German Central Statistical Office, 16/ the lower-salaried workers - those with an income below R.M. 25 per week - had to spend 67 percent of their income on food and 27 percent on rent, fuel, and light, leaving only 2.5 percent for clothing and 3.5 percent for all other needs. And according to the official figures, this pattern of expenditures holds true for about 45 percent of German wage earners and for over 25 percent of the salaried workers. 17/

Changes in food consumption, therefore, to a large extent determine changes in the whole standard of living of the mass of the population in Germany. For this reason it is essential to obtain an accurate picture of changes in German food consumption.

As in the United States, two lines of approach can be followed. If one is interested primarily in changes in the aggregate volume of food available to the whole economy for all purposes, one may well use statistics on "apparent consumption", which are derived from domestic production of individual foodstuffs, supplemented by the difference between imports and exports, with some adjustment for apparent changes in stocks. The second approach is based on food consumption in representative households as revealed by studies of sample budgets.

German publications have emphasized the first approach during the last few years. However, it is noteworthy that the food experts of the German War Department and of planning agencies have relied much more on studies of household budgets.

14/ Derived from the composition of the revised B.L.S. Cost of Living Index which is based on representative household budgets (See B.L.S. Serial No. 1156, The B.L.S.' New Index of Cost of Living, March 15, 1940.)

15/ Die Messung der Lebenshaltungskosten, Vierteljahrshefte zur Statistik des Deutschen Reiches, 1937, No. 1, p. 151.

16/ Ibid., p. 159.

17/ These figures refer to 1938.

The Official Series on "Apparent Food Consumption"

The German Central Statistical Office currently releases figures on "apparent food consumption" based on domestic production, imports and exports, and apparent changes in stocks. Three sets of series are published - the aggregate volume of individual foods available for consumption for all purposes, per capita consumption of individual foods, and consumption of individual foods per "full consumer." Before discussing the results it is necessary to indicate the nature of the basic data.

As in most other countries, figures on food production are at best rough estimates. This was true for Germany until about 1934. With the establishment of the Reich Food Estate, however, the authorities were able to cover the production of essential foods more and more completely. This was one of the outstanding accomplishments of the Nazi organization. It is probable that the published figures on the domestic production of most foods were not intentionally falsified before the war; in other words, they may depict the current level of food production adequately. But as the coverage of domestic production has been improved continuously since 1933, a comparison of 1929 food production figures with those of 1937 or 1938 by no means indicates the real change in production. This is true for foods in which Germany is normally deficient, as well as for foods in which it is self-sufficient.

A few examples may suffice. The official figures on domestic production of butter show an increase from 1935 to 1936 of from 431,000 tons to 480,000 tons, which resulted in apparent increases in butter consumption "per capita" from 7.5 to 8.2 lbs., and per "full consumer" from 8.7 lbs. to 9.8 lbs. One of the best known Nazi experts explains this increase as follows: "Consumption per capita and per "full consumer" increased rather suddenly from 1935 to 1936. In the latter year, for the first time, a control of butter distribution took place, which was preceded by a better coverage of production."18/

The same is true for most other foods. The coverage of meat production, for example, became more complete by changing from a yearly to a quarterly and then to a monthly coverage; the data on the production of flour have become more and more representative. Aside from all other inaccuracies in the data, this factor alone would make it impossible to use the current official figures on apparent consumption for comparison with earlier years.

A second source of inaccuracy in this series is the inadequate treatment of changes in stocks. There is ample evidence that the major part of the emergency stocks accumulated during the last few years is not accounted for in these statistics. At the outbreak of war the Nazis claimed to possess 6 million tons of breadgrains, or nine months' comsumption requirements; fat and meat requirements for 6 months, and a great many other reserves.

18/ Ude Tornau, Verbrauchsstatistik und Ernaehrung, in Zeitschrift fur Ernaehrung, 1938, No. 4, page 10.

Even if one attempted to adjust the official figures for such inaccuracies, moreover, these figures still would represent only the aggregate volume of food available for both civilian and non-civilian consumption. The unreliability of such figures for measuring changes in living standards will be indicated later.

It is necessary to guard against still another source of inaccuracy, that is, the use of the figures on "per capita consumption" publicised in most German writings. The use of "per capita" figures is likely to distort changes in consumption and must lead to unwarranted conclusions. Dr. Hans v. d. Decken, the food expert of the German Institute for Business Research, elucidates this point very frankly: "According to the official figures, per capita consumption of meat was 2 percent higher in 1935 than in 1913; but in reality the meat-consuming population obtained 5 percent less than in 1913."19/ In view of the rapid change in age composition, one can only use consumption figures per "full consumer", which take care of this change.

Although the preceding discussion should have left no doubt that a comparison of official consumption figures for 1937 or 1938 with 1929 involves a great bias in favor of the later years, it is nevertheless interesting to make this comparison, for it shows that, in spite of this bias, the quantities of most foods available per "full consumer" (even disregarding the requirements for the armed forces and for emergency reserves) decreased between 1929 and 1938. Consumption per "full consumer" decreased in the following foods:

(1938 compared with 1929)

Item	Percent
All flour	- 3
Wheat flour	- 7
Fat	- 3
Milk	- 8
Eggs	- 12
Vegetables	- 5
Fruits	- 36
Tropical fruits	- 10

These decreases were by no means offset by the following increases:

Item	Percent
Rye flour	+ 2
Meat	+ 6
Sugar	+ 3
Potatoes	+ 6

19/ See Hans v. d. Decken, Entwicklung der Selbstversorgung Deutschlands mit landwirtschaftlichen Erzeugnissen (Development of Agricultural Self-sufficiency in Germany), 2nd ed. 1938, page 86.

The official figures on apparent consumption cannot be used for an appraisal of the adequacy of food consumption. This is partly due to the inaccuracies noted and partly to the nature of the basic statistics. Even the 1929 girues could not be used for such a purpose. In connection with a study of German food consumption and requirements, by this writer, the Bureau of Home Economics of the U. S. Department of Agriculture analyzed the official figures on apparent consumption. It found that according to them the calorie value of the food intake per "full consumer" was about 4,000 in 1937, whereas the requirements are about 2,800 and actual consumption in Germany in 1937 did not exceed 2,600 calories. American figures on "apparent consumption" evidently come much closer to real consumption. The German figures, even in 1929, made inadequate allowance for changes in stocks and probably for losses involved in the distributing process. These sources of error have become even graver during the rearmament period. These German statistics purport to show an increase in consumption per "full consumer" in both meats and fats of 4 percent between 1937 and 1938, at a time when, according to numerous German statements, periodic shortages occurred in both foods, and customer lists and rationing had to be introduced. Actually 1938 saw relatively larger quantities stored and absorbed by non-civilian consumption.

Changes in Food Consumption as Revealed by Workers' Household Budgets

After careful analysis of most available German statistics, one concludes that it is virtually impossible to arrive at the aggregate volume of food available to the mass of the German population or of changes in this volume. Indirect evidence, however, enables a determination of the current level of civilian and non-civilian food consumption. Such evidence is found in the studies of workers' household budgets and in the level of consumption of German soldiers.

In 1927 the German Central Statistical Office made an inquiry into the income and expenditure patterns of German workers and salaried employees.20/ The inquiry was undertaken on the basis of thorough sampling and careful geographical, income, and occupational distribution. The results are generally accepted as reliable indicators of the standard of living in Germany. They are the basis of the German cost of living index, and of virtually all comparisons of the standard of living in Germany and in other countries.21/

An even larger sample inquiry was undertaken in 1937 to obtain a basis of comparison with 1927. As a matter of fact, the identical household books were distributed, and the sampling and coverage were patterned after the 1927

20/ Die Lebenshaltung von 2000 Arbeiter-Angestellten-und Beamtenhaushaltungen, Einzelschriften zur Statistik des Deutschen Reiches, No. 22, Berlin 1932.
21/ Cf. Wirtschaftrechnungen von 350 Arbeiterhaushaltungen, Vierteljahrshefte zur Statistik des Deutschen Reiches, 1937, No. 1, p. 61-66.

CHANGES IN FOOD CONSUMPTION, 1928-1938

(Based on official consumption figures)

Consumption per full consumer, in kilograms

	1928	1929	1932	1935	1936	1937	1938
Wheat flour	67.5	64.9	51.8	57.3	61.1	62.9	60.3
Rye flour	60.5	60.5	62.2	61.0	63.8	64.0	61.5
Total flour	128.0	125.4	114.0	118.3	124.9	126.9	121.8
Total meat	53.4	52.3	49.0	51.3	50.4	53.2	55.5
Total fat	--	31.0	31.7	28.0	29.6	28.8	30.0
Lard	9.9	9.6	9.9	8.8	9.4	9.3	9.7
Butter	3.8	9.3	8.8	9.1	9.8	10.3	10.2
Margarine) Veg. Fats)	--	12.1	13.0	10.1	10.4	9.2	10.1
Milk	139	134	120	126	127	123	124
Eggs	161	164	161	133	135	144	144
Sugar	--	27.3	23.5	25.2	26.0	27.8	28.1
Potatoes	--	200.6	222.0	201.6	198.0	201,8	212.2
Vegetables	--	--	57.1	52.1	60.2	58.3	54.4
Fruits	--	--	36.5	34.5	33.8	42.5	23.5
Tropical fruits	9.15	9.05	9.25	9.22	10.03	6.8	8.1

Percentage Change in Consumption
(1929 = 100)

Wheat flour	100	80	97	93
Rye flour	100	103	106	102
Total flour	100	91	101	97
Total meat	100	94	102	106
Total fat	100	102	93	97
Milk	100	90	92	92
Eggs	100	98	88	88
Sugar	100	86	102	103
Potatoes	100	111	101	106
Vegetables	--	100	102	95
Fruits	--	100	116	64
Tropical fruits	100	102	75	90

Note: 1 kilogram equals roughly 2.2 pounds.

inquiry. Before the outbreak of war only a representative sample of this inquiry, based on the results for 350 households, was published.22/ But the Central Statistical Office emphasized that these results were to be regarded as representative despite the smallness of this sample.

As the income and occupational distribution changed greatly between 1927 and 1937 and as various conceptual difficulties (indicated later) exist, reservations must be made when comparing consumption of the "average full consumer" of 1927 with that of 1937. If one deflates the average nominal income upon which the 1927 and 1937 budgets are based with the official cost of living index, 23/ the average real income of the 1927 sample was approximately 10 percent higher than that of the 1937 sample. With this qualification, a comparison of the food consumption of the average worker in 1927 with that in 1937 24/ would show a decline in calorie value of about 15 percent and an appreciable deterioration of the qualitative composition of the food intake. And as the calorie value of the consumption per "full consumer" was below 2,600 in 1937, according to an analysis of the Bureau of Home Economics, it is obvious that food intake in 1937 was a good deal below requirements.

It should be noted that in the 1937 sample the average income of the family head (Rm.2043) was actually about 15 percent above the average worker's income in that year.

To eliminate any bias which may result from a comparison of averages, we have compared the food intake of comparable income groups 25/ in 1927 and 1937. This comparison is contained in the following table.

The most significant group is, of course, the one representing consumers whose income approaches the actual average of 1937 workers' income. A glance at the figures for the group earning a gross income of Rm. 2272 in 1927 and Rm. 1782 in 1937 (comparable real income groups) shows a rather sharp decrease in consumption for virtually all foods. A similar decrease occurs for the middle income group, the one earning Rm. 2758 in 1927 and Rm. 2220 in 1937.

22/ Wirtschaft und Statistik, February and April 1939.
23/ The official cost of living index will be discussed in Section IV.
24/ The results of the 1927 study were published in terms of consumption per family and per "full consumer." The 1937 inquiry is available only in terms of family consumption. However, as the number of family members and the age composition are available, we computed consumption per "full consumer" on the same basis as was used in the 1927 study. All consumption figures in the following tables and in the text refer to consumption per "full consumer." (See footnote 5.)
25/ Criteria for comparability are both the change in income level and in cost of living (official) upon which the current income level is largely based. Both were about 20 percent lower in 1938 than in 1929.

CHANGES IN FOOD CONSUMPTION, 1927-1937, OF SELECTED INCOME GROUPS

(Based on Workers' Household Budgets)
(Consumption per "full consumer", in kilograms)

Average total income, Rm.	1927	1937	Percentage Change	1927	1937	Percentage Change	1927	1937	Percentage Change	1927	1937	Percentage Change
	2,272	1,782	-21.6	2,758	2,220	-19.5	2,272	2,220	-2.3	2,758	2,837	2.9
Total bread	117.5	104.6	-11.0	115.1	110.0	-4.4	117.5	110.0	-6.4	115.1	121.2	5.3
Rye bread	99.3	92.1	-7.3	93.2	97.1	4.2	99.3	97.1	-2.2	93.2	106.4	14.2
Wheat bread	14.8	10.3	-30.4	17.3	9.4	-45.7	14.8	9.4	-36.5	17.3	10.8	-37.6
Other bread	3.4	2.2	-35.3	4.6	3.4	-26.1	3.4	3.4	0	4.6	3.9	-15.2
Total meat	33.0	32.3	-2.1	40.5	33.5	-17.3	33.0	33.5	1.5	40.5	39.7	-2.0
Total fat	20.8	18.7	-10.1	21.7	19.8	-8.8	20.8	19.8	-4.8	21.7	19.5	-10.1
Butter	2.7	5.4	100.0	5.3	5.5	3.8	2.7	5.5	103.7	5.3	5.9	11.3
Marg. & Animal fats	16.4	11.9	-27.4	14.2	11.9	-16.2	16.4	11.9	-27.4	14.2	11.7	-17.6
Vegetable fats	1.7	1.4	-17.6	2.2	2.4	9.0	1.7	2.4	41.2	2.2	1.9	-13.6
Milk	109.4	79.1	-27.7	137.9	89.7	-35.0	109.4	89.7	-18.0	137.9	96.9	-30.0
Cheese	3.6	4.4	22.2	4.3	4.5	4.7	3.6	4.5	25.0	4.3	4.3	0
Fresh & Canned vegetables	30.6	32.3	5.6	35.3	33.7	-4.5	30.6	33.7	10.1	35.3	38.9	10.2
Potatoes	147.8	148.8	0.7	160.3	159.6	-.4	147.8	159.6	8.0	160.3	155.4	-3.0
Fruits	15.2	13.5	-11.2	22.8	16.2	-29.0	15.2	18.7	23.0	22.8	20.8	-8.8
Sugar	14.1	13.6	-3.5	17.0	13.8	-18.9	14.1	13.8	-2.1	17.0	15.1	-11.2
Eggs	78	62	-20.5	129	73	-43.4	78	73	-6.4	129	100	-22.5

In this comparison one should keep in mind that in the 1937 inquiry 12 percent of the food consumed was raised by the workers themselves. This is largely explained by the fact that many workers in smaller cities who were formerly farmers had been drawn into armament industries by 1937. They continued to grow a certain quantity of their own fruits and vegetables. Evidently this novel factor was not considered adequately in the sampling of the households. It is fairly certain that the consumption of fruits and vegetables as revealed by the 1937 inquiry was above average actual consumption: It is very improbable that the average German consumer produces 22.8 percent of the vegetables and nearly 30 percent of the fruits he eats.

Even if one compares the consumption of lower income groups in 1927 with that of higher income groups - earning about 20 percent more real income - in 1937, one will find a decline from 1927 to 1937. The 1937 medium-income group (Rm. 2220) consumed 5 percent less fat, about 20 percent less milk, 6 percent less eggs and 2 percent less sugar than the 1927 lower income (Rm. 2272) group. Bread consumption was equal and meat consumption of the higher income group in 1937 was 1.5 percent above that of the lower income group in 1927. (Consumption of fruits and vegetables cannot be compared for the reason mentioned in the preceding paragraph.)

A comparison of the consumption of the medium income group of 1927 (Rm. 2758) with that of the higher income group in 1937 (Rm. 2837) shows far greater decreases in consumption, except for bread. Meat consumption of this group in 1937 was 2 percent less, fat consumption 10 percent, milk consumption 30 percent, egg consumption 22 percent, and sugar consumption 11 percent, below that of the lower income group in 1927. This suggests that, owing to shortages of various foods, income had less to do with determining the level of consumption in 1937 than in 1927.

Analysis of food consumption based on budget studies can probably not arrive at exact measurements of changes in food consumption. But the extent of the changes between 1927 and 1937, as revealed by the comparison of consumption of similar income groups, and even by comparison of lower income groups in 1927 with higher income groups in 1937, makes it fairly certain that an appreciable decline in quantity as well as in quality of civilian consumption took place between 1927 and 1937. The comparison suggests that the decrease in calorie value was at least 15 percent.

An evaluation of the meaning of this change will be attempted in the summary of this discussion. It is necessary at this point, however, to emphasize that the preceding analysis cannot claim to measure the real change in the standard of food consumption of the mass of the German population. The preceding comparison would indicate that only if the structure of the German economy and the occupational distribution of the population had remained unchanged between 1927 and 1937. But both had changed vastly.

The armament program meant an industrial expansion which was greatest in construction and the heavy industries; in other words, in industries requiring "heavy manual work." The sharp increase in the number of heavy manual workers occured partly by way of drawing the new workers into these industries, partly by way of shifting people from service industries and from occupations requiring light manual work, merchants and other self-employed, into heavy manual work. The number of construction workers in 1936 was 30 percent above 1929 and had increased an additional 15 percent by 1938. The total number of workers in the automobile industry in 1936 was 40 percent and in 1938 70 percent above 1929. In addition there was the increasing number of soldiers and people in labor camps.

German food experts are well aware of the significance of this change in food requirements: "Investigations in the field of food consumption must find out whether the population has been supplied with sufficient quantities and adequate quality of food so as to safeguard the health and efficiency of the working population." 26/

Long before the outbreak of war the food specialists in the German War Ministry made special inquiries into food consumption and food requirements of heavy manual workers. One can obtain a rough idea of the differentials in consumption between average workers and heavy manual workers by comparing the food intake of the average worker as revealed in the 1937 budget studies with the consumption of heavy manual workers in 1936. 27/

This comparison shows that the heavy manual worker consumed nearly 30 percent more bread, 70 percent more meat, over twice the amount of fat, and more than half as much again of fruits and vegetables as the average "full consumer." It is significant that the present war-time rations attempt to maintain these differentials. Heavy manual workers now obtain twice as much meat as the average worker, and since the full pre-war fat differential could not be maintained, heavy manual workers now obtain only 45 percent more fat, but 58 percent more bread as a compensation. It is obvious, then, that in the course of the German rearmament program a large percentage of the workers required a higher level of food consumption than that of 1929 in order to maintain efficiency and staying power. In other words, if the budget studies reveal a reduction in food energy value of about 15 percent, it should be emphasized that the reduction in the standard of food consumption - in terms of needs - is appreciably greater.

In the United States during the defense period there will undoubtedly be a very sharp increase in food consumption per "full consumer." The customary notion based on the experience of slow development, according to which changes in consumption per capita or per "full consumer" occur only vary gradually, will not hold for the defense period. Unfortunately, studies of

26/ Nahrungsmittelverbrauch und Beruf, in Vierteljahrshefte zur Statistik des Deutschen Reichs, 1939, No. 1, page 268.

27/ The latter is based on a special inquiry by the food specialist of the War Ministry, W. Ziegelmayer.

consumption in the United States do not reveal differentials by occupation, but the problem has been recognized in the literature on food and nutrition. 28/

Only Czechoslovakia undertook a special inquiry into food consumption by professions and occupational groups (in 1931-32) 29/ On the basis of a representative sample, the daily calorie intake of different workers' groups was as follows:

Miners	3961 calories
Unskilled labor	3586 "
Skilled labor	3329 "
Foreman	3261 "
Average of all wage earners	3532 "
Average of all salary earners	3312 "
Average of all civil service employees	3151 "

It is difficult to measure accurately the additional requirements which the changes in the occupational structure in Germany would have necessitated in order to maintain the 1929 standard of living. It may be argued, moreover, that such considerations are immaterial as long as the working population is supplied with enough food to avoid malnutrition. Yet these considerations are far from academic, since the present food rationing system has lowered consumption far below even the 1937 or 1938 level. 30/

Undoubtedly, the general level of food consumption in Germany in 1937 or 1938 was too low to maintain the high efficiency demanded from the workers by the armament effort. Probably there would have been no serious damage to health, efficiency and staying power if this lowered standard had prevailed only during the 5 or 6 years of preparation for war, and if it had been followed by an increase in food consumption. But the lowering of the standard during the rearmament period was preceded by lowered consumption during the depression, and followed by a sharp reduction in consumption with the outbreak of war.

28/ As far as we can ascertain, the following are the only estimates of food requirements for different degrees of occupational activity available for the United States: (H.C.Sherman, Chemistry of Food and Nutrition, 5th ed. 1937, p. 207)

2000-2400 Calories per day suffice for a shoemaker.
2400-2700 Calories per day suffice for a weaver.
2700-3200 Calories per day suffice for a carpenter or mason.
3200-4100 Calories per day suffice for a farm laborer.
4100-5000 Calories per day suffice for an excavator.
Over 5000 Calories per day are required by a lumberman.

29/ The results of this inquiry are published in Nahrungsmittelverbrauch und Beruf, in Vierteljahrshefte zur Statistik des Deutschen Reichs, 1939, No. 1, p. 274.

30/ This is particularly true for meats, fats, eggs, milk, Virtually the only foods now available in pre-war quantities are bread and potatoes. For a detailed analysis, see study cited in footnote 7.

There is ample evidence that the stamina of the German worker, his physical resistance, and his efficiency were affected to an appreciable extent by an increased workload combined with quantiative and qualitative reduction in food consumption.

Increases in working hours and in demand on efficiency, of course, raise food requirements in the same way as does a change from light manual work to heavy manual work.

Food Consumption of the Armed Forces

This writer is well aware that the results of the preceding analysis may be regarded as an outgrowth of wishful thinking. After all, the German economy, though working under an appreciably lowered standard of food consumption, succeeded in creating an efficient war machinery, and the physical condition of the German soldier may appear to contradict our conclusions entirely. This contradiction is apparent rather than real, as an analysis of the German soldier's diet shows conclusively. The nutrition of German soldiers during the rearmament period, that is, before the outbreak of war, has been described in an article by Ziegelmayer, the nutrition expert of the War Department in Germany, and is corroborated by statements of Quartermaster General Pieszcsek. 31/ If one compares the soldier's consumption with that of the average worker, as revealed by the 1937 household-budget study, it will be found that the total calorie intake of the soldier was more than 60 percent above that of the average worker. The soldier's advantage in consumption of individual foods follows:

	Percent
Bread	105
Meat and meat products	63
Fats	48
Cheese	-13
Potatoes	120
Fruits and vegetables	86

Total calorie intake of the soldier was even 5 percent above that of the heavy manual worker.

It is interesting that the food-energy value of the American soldier's diet is in the neighborhood of 5,000 calories a day. In the United States, too, the soldier is likely to consume more food energy than the average worker or even the heavy manual worker.

The German soldier who entered the war had enjoyed several months of this high level of consumption - far higher than that of any group of the civilian population.

31/ Die Ernaehrung des Deutschen Soldaten, Zeitschrift fuer Volksernaehrung, Sept. 20, 1938.

This differential between civilian and soldiers' consumption gives, at the same time, a rough idea of the drain which the needs of the armed forces exercised on the food supplies available for civilian consumption.

It would be interesting to compare the rate of rejections of conscripts in Germany and in the United States. Unfortunately no figures for the German Army are available. Some figures have been published on the rejections for the Storm Troops, but they are so high that this writer hesitates to quote them. 32/

CHANGES IN REAL INCOME AND IN CONSUMERS' OUTLAY

The preceding discussion has been concerned as much with "destructive" analysis of available statistics for Germany as with an appraisal of actual changes in the standard of living in Germany. This is due not so much to a chosen approach as to the nature of available material. The writer believes, however, that sufficient evidence has been here submitted to show that, even with rough adjustment, the official statistics on the production and consumption of consumers' goods reveal an appreciably lowered standard of living.

The following analysis presents additional evidence on changes in consumption and in income available for consumption. This additional material may serve two purposes: (1) it may supplement our knowledge as derived from the evidence in the preceding part, and (2) it may help to explain the apparent contradiction of civilian consumption and the standard of living in general falling, in the face of a sharp increase in national income produced and in the number of workers employed.

The most convenient way of obtaining additional information would be to study what is usually the most revealing single line of evidence, the data on national income or on workers' income. It is true that even in the United States the analysis of figures on national income is a difficult undertaking, because the results depend greatly on the concepts applied. But, aside from these difficulties, figures of national income can reveal fairly accurately changes in income available for civilian consumption. The German figures, on the other hand, require a much more critical appraisal before they can be used for this purpose.

German publications use two sets of data to show changes in the income of the mass of the population and in consumers' outlay.

Most frequently they refer to the changes in labor income. According to these figures, which are derived as secondary statistics from social-insurance data, the total nominal income received by wage earners and salaried employees increased from 31 billion Rm. in 1929 to 33.6 billion Rm. in 1938. This income was earned by 17.92 million workers in 1929 as against 20.36 million workers in 1938. Between 1929 and 1938 total nominal income would thus

32/ See, for instance, Gustav Behrens, Stillstand in der Erzeugungeschlacht, In Odal, Monatsschrift fuer Blut und Boden, March 1939.

have increased 8.5 percent and the total number of workers 13.6 percent. Nominal income per worker would show a decrease of only 5.2 percent. As the official cost of living index decreased 18 percent during the same period, real aggregate labor income would have increased over 26 percent, and real income per worker about 13 percent. As the legal deductions from the nominal income increased between 1929 and 1938, total net income from wages and salaries would be about equal in 1929 and 1938, but aggregate real income would be roughly 20 percent higher and real income per worker would be about 5 percent higher.

In reality, the picture is far different. These statistics do not admit of a comparison between 1929 and 1938. First, this series is not representative of total labor income. Although it shows an increase in the income of wage earners from 23.3 billion Rm. to 23.7 billion Rm. and in the income of salaried employees from 7.6 billion Rm. to 9.9 billion Rm., it does not cover Government employees and salaried employees who are not forced to belong to the social-insurance system. The income of the latter group, however, decreased from 12.1 billion Rm. to 9.1 billion Rm. between 1929 and 1938, at a time when the number of Government employees increased sharply. 33/ This decrease is explained by the fact that many groups of employees who formerly were not covered by social insurance are now included in the social-insurance system and its statistics. These are the higher salaried employees. Their inclusion in 1938 augments the apparent total nominal labor income and, even more, the income per wage or salary earner. This factor alone makes it impossible to use the statistics of income derived from social insurance data as indicators of changes in total labor income.

Other equally serious inaccuracies distort these statistics. As the Nazis exercise complete control over employment of workers and professionals, every wage or income earner has to possess a "labor book" and to belong to a professional organization. A great many free professions whose income may formerly have been covered only in total national income, or not at all, but not in the statistics of labor income, were included in 1938 in the social insurance statistics on labor income. At the same time a great many people who were self-employed in 1929 (merchants, artisans, etc.) were subject to social insurance in 1938. A rough measure of this factor alone is suggested by the decrease of 1,663,000 in the number of "self-employed" income earners between 1933 and 1939. Their income in 1929 or 1932 did not appear as "labor income."

It is impossible to adjust the statistics on labor income for these and similar factors. The sources of error are so weighty that one has to discard this approach entirely.

If one wishes to use income statistics at all, one must use those on total national income - and then only with important reservations. According to these official statistics, the total nominal national income was 75.9

33/ According to the German Census of 1939, the number of civil servants increased 389,000 between 1933 and 1939.

billion Rm. in 1929 and 79.9 billion Rm. in 1938. It is interesting that the final 1938 figure as released in November, 1939 is 3 billion Rm. higher than the figure released in the middle of 1939. But even if it is assumed that the final figure is not the result of intentional falsifications, it is not comparable with the 1929 estimate. According to many official statements, the income coverage for taxation purposes became much more efficient under the Nazis. In other words, part of the increase in nominal income between 1929 and 1938 is apparent rather than real, as it is due to improved statistical procedure. There is no way of adjusting the data for this factor.

The following analysis of these income figures is undertaken for the sole purpose of showing that these data cannot be used as indicators of changes in nominal income and much less in total real income or income per capita or per "full consumer" available for consumption. Although such analysis would furnish additional evidence that total real income or income per "full consumer" decreased noticeably between 1929 and 1938, it is believed that the basis of these statistics is so doubtful that any conclusions derived from them are on shaky ground. They deserve analysis merely because they prove conclusively that the official interpretation of these statistics - that total consumer outlay and real income per "full consumer" were higher in 1938 than in 1929 - is completely unfounded.

In the following table an effort is made to condense a rather involved computation into the most convenient form. The table is largely self-explanatory and requires only few comments. To avoid the impression of accuracy, no attempt was made to adjust official statistics; official German statistics were merely put to a use for which they were not originally intended.

Starting from the official figures on total nominal national income, the writer tries to arrive at total nominal income available for individual consumption. This approach in itself involves a conceptual inaccuracy. As a measurement of changes in the "standard of living", is desired it might be well to consider not only the income available for direct consumers' outlay - that is, for shelter, food, clothing, and all other direct consumers' expenditures - but also the contribution of the Government to consumers' welfare, whether or not this contribution is desired by the individual consumer. In his approach the writer has disregarded the contribution of the Government entirely. In other words, he has disregarded the changes in the contributions of the various social-insurance agencies, the improvement in the individual's "security" resulting from the rearmament expenditures and the factor of employment security during the rearmament program. 34/

34/ This omission hardly affects the comparison for such changes are relatively small and must be considered in the light of numerous personal hardships incurred under the Nazi system.

To derive changes in consumers' outlay from total national income, the share that is demanded by the Government from income recipients, such as taxes, social-insurance contributions, and other enforced or semi-enforced contributions must first be deducted from national income. These deductions amounted to 18.4 billion Rm. in 1929 and to 29.4 billion Rm. in 1938. 35/ Therefore, whereas the total nominal income showed an increase of 4 billion Rm. between 1929 and 1938, the income available for individual consumption, savings, and investment shows a decrease from 57.5 billion Rm. to 50.5 billion Rm.

The figures on savings and investment probably give only a very rough indication; they are based entirely on official figures. The savings in savings banks, etc., are probably correct, as are the data on the increase in premiums for private life insurance. No attempt was made to check the increase in long-term and short-term investments of individuals and of industry which are given in the column on "bonds and stocks placed outside credit institutes" and "increase in cash and other short-term assets of private persons and individuals." These estimates of the Reich Central Statistical Office and the Reich Kredit Gesellschaft purport to measure "net private investment." According to these figures on savings and investment, 5.3 billion Rm. was thus withdrawn from private consumption in 1929, and 9.8 billion Rm. in 1938. As a result the total nominal income available for individual consumption decreased from 52 billion Rm. in 1929 to approximately 41 billion Rm. in 1938. Income per "full consumer" available for direct consumers' expenditures thus shows a decrease from Rm. 950 in 1929 to Rm. 690 in 1938.

This apparent decrease, however, overstates the decrease in real income available for consumption, since the cost of living was lower in 1938 than in 1929. The usual procedure of converting nominal to real income is to deflate nominal income by the cost-of-living index. If one deflates "nominal income available for consumption" by the official cost-of-living index, "real" aggregate income available for consumption decreased from 52 billion Rm. in 1929 to 50 billion Rm. in 1938. Since the number of "full consumers" increased 8 percent in the decade 1929 to 1938, real income available per "full consumer" would have decreased from 950 Rm. in 1929 to 850 Rm. in 1938, a decrease of over 10 percent.

The official cost-of-living index, however, is wholly inaccurate. In order not to interrupt the sequence of this discussion, the official German cost-of-living index will be appraised later. The basis of the three estimates of "real" income available for consumption given in the table will be clarified in the section beginning on page 31. No attempt has been made to correct the official cost-of-living index to make it as nearly accurate

35/ All deductions are official figures except the increased contributions to the Labor Front, etc. According to all indications the latter item is appreciably higher than 0.5 billion Rm. but the writer wishes to avoid any bias which might lead to a questionable result for 1938.

"NOMINAL" AND "REAL" NATIONAL INCOME IN GERMANY, 1929-1938
(Based predominantly on official figures)

	1929	1932	1937	1938
Total nominal income, billion Rm.	75.9	45.2	72.6	79.9
Deductions:				
Taxes and duties " "	13.3	10.3	18.5	22.5
Unemployment insurance " "	0.8	1.3	1.7	1.9
Other social insurance " "	4.3	2.5	3.8	4.0
Winter help " "	--	--	0.5	0.5
Increased contributions to Labor Front, Air Raid Precaution, etc.-billion Rm.	--	--	0.5	0.5
Total deductions	18.4	14.1	25.0	29.4
Income available for individual consumption and saving " "	57.5	31.1	47.6	50.5
Savings and investments:				
Savings (savings banks, building assoc., coop.) " "	2.6 1/	0	1.8 2/	2.6 2/
Private life insurance " "	0.4	0.6	1.0 2/	1.2 2/
Bonds & stocks placed outside credit institutes " "	2.0	?	1.4 2/	2.7 2/
Increase in cash & other short-term assets of priv.persons & ind." "	0.3	?	1.7	3.3
Total apparent savings and investments " "	5.3	0.6-1.0	5.9	9.8
Nominal income available for consumption " "	52.2	ca 30	41.7	40.7
Per "full consumer," Rm.	950	540	715	690
Estimates of "real" income for individual consumption:				
Estimate (1):				
Official cost-of-living index-percent	100.0	78.3	81.2	81.6
"Real" aggregate income available for consumption - billion Rm.	52.2	ca 39	51.3	49.9
Per "full consumer" - Rm.	950	700	880	850
Percent of 1929	100	74	93	90
Estimate (2):				
Corrected cost-of-living index-percent	100	75	85	85
"Real" aggregate income available for consumption - billion Rm.	52	40	49	48
Per "full consumer" - Rm.	950	715	840	815
Percent of 1929	100	75	88	86
Estimate (3):				
Corrected cost-of-living index-percent	100	75	90	90
"Real" aggregate income available for consumption - billion Rm.	52	40	46	45
Percent of 1929	100	77	88	87
Per "full consumer" - Rm.	950	720	790	770
Percent of 1929	100	76	83	81

1/ Sonderheft 22, Institut fuer Konjunkturforschung, p.29 (Private Geldkapitalbildung).

2/ Reichs Kredit Ges. report, min - 1939, p.57, Also Wochenbericht 23, Dec. 1938, p. 359.

as possible. But it can be indicated that the actual change in cost of living was somewhere between Estimate 2 and Estimate 3; more likely the cost-of-living index fell only about 10 percent, rather than 18 percent, from 1929 to 1938. On this basis "real" aggregate income in 1938 would be between 45 billion Rm. and 48 billion Rm., as against 52 billion Rm. in 1929, or roughly 10 percent less. Between 1929 and 1938 real income available for consumption per "full consumer" would have decreased accordingly from 950 Rm. to about 800 Rm. or between 15 and 20 percent.

It should be emphasized again that the basic income figures are far too dubious to admit of far-reaching conclusions. At best, the preceding discussion may show that even use of the official income statistics implies a high probability that real aggregate income and real income per "full consumer" available for consumption were appreciably lower in 1938 than in 1929. Our analysis may be open to criticism in detail, - the writer has merely accepted the official figures on income, legal deductions, and savings and investment.

It may be of interest that the semi-official Reich Kredit Gesellschaft states, in quoting the official estimate of savings and investment for 1937, that "the large amount of savings and investment is the result of the voluntary decision of consumers to use part of their income for savings rather than for consumption." 36/ The same source repeats, in its report of 1938-39, data previously made known by State Secretary Brinkman, according to which 47.1 percent of the national income was needed by the Government and thus not available for individual consumption. This estimate is based on a somewhat different approach from ours. According to it, 35.8 billion Rm. out of a total national income of 75 billion Rm. was spent by the Government; in other words, 40 billion Rm. out of 76 billion Rm. was available for "consumers' outlay." The report remarks that "the share of income directed by the government has increased continuously during the last few years. It is an expression of the importance which must be attributed to the governmental direction of income and consumption in the German economy."

If one disagrees with the approach of determining consumers' outlay from nominal national income, one may apply a simpler and more direct method: On the basis of Hitler's famous 90 billion Rm. figure on armament expenditures, the 1938 expenditures reached a minimum of Rm. 25 billion. 37/ Deduct the 25 billion Rm. from the official 1938 national income figure of 80 billion Rm., and 1 billion Rm. from the 76 billion Rm. income of 1929. That leaves a nominal income of 75 billion Rm. in 1929 and 55 billion Rm. in 1938 available for civilian consumption and normal government expenditures.

36/ Reich Kredit Gesellschaft, Report on Germany's economic situation, first half of 1938, p. 71.

37/ This figure is assumed, for instance, by Paul Studensky. Armament Expenditures in Principal Countries, Annals of the American Academy of Political and Social Science, March 1941, p. 30.

As the cost of Government may have decreased somewhat more than the item in the cost-of-living index, one may use our Estimate 2 of the cost-of-living index, which would suggest that aggregate real income was 65 billion in 1938 as against Rm. 75 billion in 1929. This would mean a decrease in aggregate real income available for consumption and normal government expenditures of 13 percent. Real income per "full consumer" would thus have decreased from Rm. 1370 in 1929 to Rm. 1100 in 1938, a decrease of nearly 20 percent.

In any case, there is strong evidence that the sharp increase in national income produced during the German rearmament period was not shared by the development of consumers' outlay and that real income available for civilian consumption was significantly lower in 1938 than in 1929.

THE PATTERN OF CONSUMERS' OUTLAY IN THE GERMAN REARMAMENT ECONOMY

So far the evidence derived from adjusted official data on production and consumption of food and other consumers' goods, as well as on real income available for consumption, have strongly suggested that the total volume of food and other consumers' goods, and even more pronouncedly the level of consumption per "full consumer", were appreciably lower at the time of full employment during the rearmament period (1937-38) than during the most nearly comparable pre-Hitler period, in 1929. The nature of the data admitted conclusions only in rather general terms, on changes in the standard of living particularly in nonfood items. In the case of foodstuffs analysis of the 1927 and 1937 budget studies and of the index of production of processed foods clearly indicated a quantitative and qualitative deterioration in the composition of the total food intake; the reduction in food energy value was largely caused by diminished consumption of protective foods.

Normally it might be concluded on the basis of this factor alone that the standard of living decreased noticeably between 1929 and 1937, as the item of foodstuffs alone represents about 57 percent of total German consumers' outlay, and for half of the working-class families it takes almost two-thirds of the budget.

However, the pattern of expenditures of what remains after the most urgent items - food and shelter - are purchased, probably determines the standard of living more than its nominal share of total expenditures would suggest.

Detailed analysis of this part of consumers' expenditures is not necessary. But even a partial analysis reveals some interesting facts with regard both to the standard of living and to the German policy of "consumption planning" during the rearmament period.

Obviously the German authorities had every interest to keep the population content and to supply the mass of the population with as many consumers' goods as conditions allowed. The limiting factors were chiefly the requirements for direct rearmament and the relative scarcity in a great many raw materials and factors of production.

So far as food is concerned the problem was relatively simple. The availability of sufficient carbohydrates - bread and potatoes - which can be produced domestically aided greatly in averting conditions of actual suffering. It is probably that most of the workers accepted periodic shortages in some important foods as a necessary sacrifice for the rearmament program. Increased job security may have partly compensated for hardships among the workers.

The consumption figures alone do not tell the whole story of the changed standard of food consumption in Germany during rearmament. In 1929 the German housewife had the possibility of providing a nourishing meal most economically by selecting foods which were relatively cheap seasonally and by buying cheaper qualities in the most inexpensive retail stores. In the course of the rearmament period conditions changed completely, with the result that the housewife had to buy such foods and such qualities as were available, without regard to price. Moreover, governmental price policy largely succeeded in abolishing price differentials in comparable foods which, before 1933, had existed between neighborhoods.

The German Institute for Business Research 38/ investigated the effect of diminished neighborhood differentials in Berlin. The Institute compared prices of 22 foods in 100 retail stores in Berlin during November, 1936, with those prevailing in November 1932, and November 1934. On the basis of the 1927 workers' household-budget study these 22 foods were combined into a "market basket." In 1932 this basketful was 9 percent cheaper in the northern neighborhood of Berlin than in the west of the city. In November, 1936, however, the same basket was only 2 percent cheaper in the north than in the west.

To put it differently: Between November 1932, and November 1936, average costs of food in Berlin increased by about 18 percent, but people who bought in the western part of Berlin paid only 13 percent more, whereas the workers in the northern part had to pay 21 percent more. The latter are workers whose income is relatively low, and whose food budget requires about two-thirds of their total consumers' expenditures. It is obvious then that their level of food consumption, as well as their total standard of living, was appreciably curtailed by the governmental policy of making prices more nearly uniform.

38/ Carl Boehm, Zur Frage der Preisstreuung, Vierteljahrsheft zur Konjunkturforschung, 1937, No. 4, pp. 449-62.

At the same time, this factor throws some light on the reliability of the official cost-of-living index. The Reich Central Statistical Office itself evidently recognized that the official cost-of-living index is not a fair indicator of actual changes in the cost of living. It remarked that during 1935 the cost-of-living index increased only 1.8 percent, but that "there is evidence that a multitude of goods which are not covered by the index increased much more steeply. Equally, the limited choice of available foodstuffs played a role. Frequently only the higher priced qualities could be offered." 39/

It is virtually impossible to measure the net effect of similar factors on the cost of living. It is certain that the official cost-of-living index greatly overemphasizes the decrease in costs between 1929 and 1938. Additional evidence will be given on other commodities in this section.

The "Wirtschaftskurve" published an interesting estimate of the actual change in the standard of living between 1933 and 1937. 40/ The official German cost-of-living index shows an increase of 4 percent between 1933 and 1937. The Wirtschaftskurve remarks - cautiously, for obvious reasons - that the items included in the official cost-of-living index increased between 5 and 8 percent during this period, but that the cost of living for households that were consuming better quality goods increased 10 to 15 percent between 1933 and 1937. As the above mentioned Berlin sample inquiry indicates, the official cost-of-living index is as unrepresentative for workers' households as it is, according to the Wirtschaftskurve, for households with higher than average income.

For an evaluation of housing conditions and their reflection in workers' household budgets, the official statistics can be used only guardedly. In the official cost-of-living index, expenditures for housing remained virtually unchanged between 1932 and 1938, at a level of about 4 percent below 1928. It is admitted, however, that this index considers only rents in apartments built before 1918 and that it is based on "fixed rents." Actual rents even in apartments built before 1918 were much above the level of the legally "fixed rents." The Reich Central Statistical Office implies as much: "Since the beginning of 1938 tenants in old houses have been aided by the official announcement that henceforth further increases above the legal rent will not be tolerated." 41/ Higher rents must have prevailed according to this statement, before 1938. Moreover, by 1938 over 25 percent of the apartments had been constructed after 1918, and their rents were much higher than those of old apartments. It is appar nt that the cost-of-living index does not express the real cost of housing. 42/

39/ Wochenberichte des Instituts fuer Konjunkturforschung, Feb. 12, 1936.
40/ Wirtschaftskurve, 1938, No. 3.
41/ Vierteljahrschefte zur Statistik des Deutschen Reiches, 1939, No. 1, p.201.
42/ If one considers these factors and takes account of the hidden price increase caused by deterioration in the quality of many consumers' goods, one will find that "Estimate 3" page 34 is rather conservative.

In official publications the sharp increase in the number of marriages and the increase in building activity, far above 1932, are frequently quoted as indications of increased real income and of the ability to meet increased demand for housing. Indeed, the official construction figures show that in 1937 the net addition of new apartments was close to the 1929 level, and that in 1937 320,000 new apartments were available as against 141,000 in 1932. But these statistics do not reveal the real housing situation. The 1929 level had been maintained for several years. During the depression, building activity had sharply decreased and normally this decrease should have been offset by a high level of construction in the upswing of the business cycle. This was not the case, however, during the rearmament period and even in 1938 the number of newly available apartments decreased to 280,000.

These figures on "apartments" hide another significant fact. In 1929 the number of rooms per apartment was 4.3 and the number went up to 4.8 in 1931. During the rearmament program the average number of rooms in the newly available apartments was as follows:

1934 - 1.8
1935 - 2.0
1936 - 2.5
1937 - 2.6

By 1938, 58 percent of all apartments had less than four rooms (kitchen counted as a room) as against 49 percent in 1937.

It is certain that residential construction during the rearmament program fell far short even of the needs demanded by the population increase, not considering the needs resulting from the backlog during the depression and from the sharp increase in marriages. 43/ In any case, the housing situation was decidedly less favorable in 1937 or 1938 than it was in 1929.

In 1937, the worker spent about 21 percent of his net income for rent, fuel, and light. In other words, 78 percent of his net income was needed for food and shelter, leaving 22 percent for all other expenditures, such as clothing, shoes, furniture, household goods, and recreation. This is roughly 2 percent more than he had to spend on these items in 1927.

How was he able to spend this part of his income during the rearmament period? In 1927 he used 12.5 percent of his net income for textiles and shoes (including repairs.) From the analysis of the index of production of consumers' goods it became apparent that a smaller quantity of textiles and shoes was available in the aggregate and per "full consumer" in 1937 or 1938 than in 1929. The 1937 budget study shows that the worker spent about 10 percent

43/ "The general housing shortage which is particularly pronounced in large cities and industrial regions and relates especially to cheaper apartments could not as yet be mitigated during 1937" (Soziale Praxis, June 1, 1938, p. 691.)

of his net income for these items. This 2.5 -percent lower figure is not due to a sharper decline in textile and shoe prices between 1927 and 1937 than in other items of the budget. On the contrary, there is evidence that the real retail costs of textiles and shoes were relatively higher than most other costs, since the quality of both deteriorated greatly.

This is another factor which finds no expression in the official cost-of-living index. "There is no doubt," remarks the Wirtschaftskurve, "that the shift to lower qualities, particularly in the case of finished goods, led frequently to a circumvention of the price-fixing laws." 44/ If anything, the share of income spent for textiles and shoes in 1937 should have been greater than in 1927, to purchase comparable goods.

It is interesting to see toward what other items the German supply situation, and probably official policy, directed consumers' outlay.

No figures are available on the aggregate expenditures for amusements and recreation as offered by the "Strength Through Joy" (Kraft durch Freude) organization. But undoubtedly several hundred million marks were spent by workers for this purpose. This is not to say that these expenditures were regarded exclusively as a forced contribution. But it is known that as often as not such expenditures were far from optional. 45/

In the same category belong the expenditures for newspapers and periodicals of the party, the labor front, and the women's and children's organizations. The aggregate of such expenditures is not known, but it can be estimated from the 1937 budget study. On that basis, the worker had to spend 1.3 percent of his net income for this purpose; in other words, half a billion marks out of total consumers' expenditures of 40 billion Rm. and of expenditures for all items except food and shelter of 9.0 to 9.5 billion Rm.

Equally important is another factor which is usually regarded as a net addition to the standard of living, that is, the increased expenditures of the German population for certain durable consumers' goods, such as radio sets and motorcycles.

There is a vast difference between the impact of such expenditures on the German worker's budget and on the American worker's budget. In the United States, the production of radio sets rose sharply between 1928 and 1939. In 1939 close to 10 million sets were produced, as against 3.6 million in 1933. In 1939 about 50 percent of the output was in sets the factory price of which did not exceed $11. Over half of all retail sales were at prices under $17.

44/ Wirtschaftskurve, 1939, No. 3.
45/ This the Nazis themselves admit: "Some forced contributions, some attempts at forced attendance of theatrical performances and at uniform clothing prevailed..." (See Willy Neuling, Wettbewerte, Monopol und Befehl in der heutigeu Wirtschaft, in Zeitschrift fuer die gesamte Staatswissenschaft, 1939, No. 2).

If consumers' outlay per consumption unit in the United States averaged $850 in 1937, 46/ the consumer here needed 2 percent of his net budget for the purchase of a radio set. It is not surprising, then, that the number of sets in use increased from 6-1/2 million in 1928 to more than 50 million in 1940, and that more radios are in use than there are homes.

The German worker, on the other hand, had to spend about 70 Rm. for the "people's radio" (volksradio) and, in addition, his license fee was 24 Rm. per year. Out of 1400 Rm. which he could spend for food, shelter, and all other consumers' expenditures, he would need 7 percent for about the cheapest set and his license. Actually only 25 percent of the German radio production of 2 million sets in 1938 were cheap sets; 75 percent had an average retail value of over 200 Rm. One-third of the production of the more expensive sets was bought by factories, business enterprises, etc., to enable their workers to listen to political speeches. But 1 million of these sets were sold to individuals. The worker who bought a 200 Rm. set spent approximately 15 percent of his net income, or, together with the license fee, 2 months of his year's income.

The retail value of the 1933 radio sets, together with the license costs, amounted to about 600 million Rm. Total consumers' outlay in 1938 was about 40 billion Rm., of which over 30 billion Rm. was required for food and shelter alone. Retail value of shoes amounted to a little over 1 billion Rm. in 1938. The expenditures for radios alone were half as much as the expenditures for shoes, 47/ and more than half as much as the expenditures for furniture and household goods, including repair costs. 43/

This is not to deny that the increased supply of radio sets was a net addition to the standard of living in Germany. The interesting fact is that such improvements in the standard of living occurred in durable consumers' goods, in line with the Government's intentions. Propaganda is as much a war instrument inside and outside of Germany as guns. The Government made great efforts during the reermament programs to increase the sales of radio sets. Apparently it succeeded, in spite of the fact that the purchase of a radio set earmarks a sizeable proportion of the worker's outlay and deprives him of purchasing power for goods actually far above radios in his utility scale.

46/ See Kuznets' figures on consumers' outlay as given in the National Bureau of Economic Research Occasional Paper, No. 2, April 1941.

47/ According to a special inquiry of the Reichs Kuratorium fuer Wirtschaftlichkeit, retail expenditures for shoes amounted to 1.2 billion Rm. in 1938. It is worth noting that this amount corresponds surprisingly with that indicated by the 1937 household budget study (Cf. Wirtschaftskurve 1939, No. 3, Der Kleidungsetat).

48/ The German figures on radio production, sales and prices can be found in Wochenberichte des Instituts fuer Konjunkturforschung, August 3, 1938 and July 26, 1939.

In spite of all Government propaganda, however, only 60 percent of households in Germany were equipped with radios in 1938, as against 71 percent in Great Britain, 77 percent in Denmark, and far above 100 percent in the United States, 49/ (owing to the fact that many families have portable and automobile radios, and some homes have more than one set). In the same category belongs the sharp increase of sales of motorcycles. By 1938 these sales reached 270,000, surpassing those of 1929 by more than 20 percent; 60 percent were sold to workers and salaried employees. The fact that nearly 50 percent of the motorcycles were sold to workers and another 10 percent to salaried employees is explained by the existence and the propaganda of the Nazi motorcyclist organization. 50/ Most of the motorcyles were sold to workers between 20 and 25 years of age. These workers had a net income of hardly more than Rm. 1200. The cheapest motorcycle costs Rm. 350, and the average price of half the motorcycles sold was Rm. 550. These workers therefore required between 3 and 6 months of their annual income merely for the purchase of a motorcycle. Of course, as in the case of radios, the Government induced the retailers, with the help of Government-owned banks, to extend installment credit ranging from 18 to 24 months. But the upkeep of a motorcycle (disregarding depreciation) cost 250 Rm. per year. Expenditures for the purchase and upkeep of motorcycles alone drained away about half a billion Rm. in 1938 from the Rm. 9 to 9.5 billion remaining after food and rent had been bought. 51/

Another indicator of the standard of living frequently used in German publications is the increase in the attendance at movie theaters. According to German figures the attendance in 1937-38 was 396 million persons, as against 352 million in 1928-29. This was an increase of 12 percent, while the number of full consumers increased 8 percent. At the time of full employment during the rearmament program, attendance was only 5 percent higher than in 1929, although in most countries there was a sharp upward trend in attendance at motion picture houses during the same period. In the United States, for instance, weekly attendance increased from 65 million to 85 million between 1928 and 1937 - more than 30 percent in absolute terms,

---

49/ Cf. Wochenbericht des Instituts fuer Konjunkturforschung, April, 1939.

50/ Automobiles need not be considered here, for only 1 percent of the automobile production of 1938 was bought by wage earners, according to official German statistics.

51/ German officials point out that the people's car (Volkswagen) idea was largely intended as a means of consumption planning. An increasing share of the German income will be spent for automobiles in the future. This corresponds to the will of the Fuehrer. As he indicated, the German people cannot spend its entire income for food. The "Kraft durch Freude car is thus part of the system of consumption planning." (Soziale Praxis, June 15, 1938, p. 731. Until the outbreak of war 200 million Rm. had been collected as installment payments for the "volkswagen." Of the 200,000 cards ordered in 1938, more than half were ordered by people earning less than 300 Rm. per month. To run this car required 43 Rm. per month disregarding the costs for amortization and garage. (Soziale Praxis, March 1, 1939).

or 20 percent if one adjusts for the increase in population. 52/ In spite of all propaganda efforts in Germany, the average attendance per person for the whole people was only 6.0 times a year in 1938, equal to that in Italy. The figures for France were 8, for Belgium 11, for Great Britain, 21, and for the United States 34. The number of motion pictures offered by Germany in 1938 was 20 percent below even 1933. Still, consumers' expenditures for movie-theater attendance amounted to over 300 million Rm. in 1937-38.

It may seem strange to discuss such seemingly unimportant items as expenditures for "Strength Through Joy" offerings, for party newspapers and periodicals, for radios and motorcycles, and for movies. But in the expenditure pattern of the German worker during the rearmament program, these items became more important than they are in a "normal" budget. The consumer in Germany spent more than 2 billion Rm. a year for these items. On them he spent 20 percent of all expenditures other than food and shelter.

All these expenditures were desirable from the offical point of view. Expenditures for "Strength Through Joy" performances and for official publications were semi-obligatory; they represented an important instrument of propaganda, without requiring a noticeable drain on resources of raw materials or labor. Expenses for radio sets and motorcycles were equally in the official interest, - the radio as another channel of Nazi propaganda, motorcycles as a means for training and for potential use in war. The resources required in the production of radios and motorcycles might have been used for more immediate rearmament purposes. But radios and motorcycles required a relatively insignificant share of the available resources, 53/ although their retail price and consequently their share in consumers' outlay were exceedingly high.

52/ U. S. Dept. of Commerce, Motion Pictures Abroad, March 15, 1940, p. 3.

53/ A comparison of the non-ferrous metal requirements of the German and American automobile industries may illustrate this point. Despite a tremendous expansion of the automobile industry in Germany (including motorcycles) during the rearmament period, its share in total metal consumption was relatively small as late as in 1938.

Non-ferrous metal requirements of the German and American automobile industries percent of total national consumption.

	Germany (1938)	U.S.A. (1937)
Aluminum	4.8	12.7
Copper	1.9	16.8
Lead	3.3	31.4
Tin	3.4	12.0
Zinc	0.1	12.5

(See M. Genthe, Der Metalleinsatz der deutschen englischen und Amerikanischen Kraftfahrzeugindustrie, in Metallwirtschaft, No. 7, 1939).

Changes in the pattern of consumers' outlay during the German rearmament are of particular interest if one notes the contrast to the potential development in the United States. In Germany, as has been shown, it was not possible to provide the population with as much food, textiles, shoes, and other semi-durable consumers' goods as in 1929, and certainly not with as much as would have been demanded by the sharp increase in employment and the change in occupational distribution. On the other hand, the supply of a few durable consumers' goods that were emphasized by official consumption planning was maintained or even increased. The reasons for this latter fact were explained above: The high price of durable consumers' goods fixed a relatively large share of the workers' net income. And since the volume of such goods was still low and required an insignificant share of available resources, maintenance or increase of their production was decidedly advantageous.