

ECONOMIC INTELLIGENCE REPORT

**COMPARISON OF THE NATIONAL PRODUCTS
OF EAST AND WEST GERMANY**



CIA/RR ER 60-14

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CENTRAL INTELLIGENCE AGENCY

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COMPARISON OF THE NATIONAL PRODUCTS OF EAST AND WEST GERMANY

Summary and Conclusions

The economy of East Germany has lagged badly behind that of West Germany since the early stages of recovery from World War II.* East German gross national product (GNP) per capita, which was 3 percent above the West German level in 1936, was 26 percent below the West German level in 1955. Walter Ulbricht, the head of the East German Communist Party, has long insisted that East Germany must not only narrow but close the gap, and the regime is now speaking of "overtaking and surpassing" West Germany by 1965. A systematic comparison of the two economies shows how ambitious that aim is -- it cannot possibly be carried out by 1965 -- and provides a basis for assessing future East German claims. The chief indicators are shown in the chart, Figure 1.**

The development of the East and West German economies through 1957 may be summarized by a comparison of the indexes for national income*** (1936 = 100):

<u>Year</u>	<u>East Germany</u>	<u>West Germany</u>
1950	85	117
1955	117	178
1957	127	200

West Germany reached the 1936 level in the late 1940's; East Germany, in the early 1950's. For measuring the recovery of the German economy, however, the best base year to use for comparison is not 1936 but 1939, a year of almost full employment, without any significant

* By East Germany is meant the so-called German Democratic Republic, including East Berlin; by West Germany, the German Federal Republic, not including West Berlin or the Saar. The areas referred to are those normally covered in the official German statistics relating to national products for the years in question.

** Following p. 2.

*** Insofar as possible, the series for East German national income and GNP have been made comparable in coverage and classification with West German official data. For both East and West Germany the series for national income, which are used to measure changes in production, are derived independently from the series for GNP, which are used to measure changes in end uses. The resulting indexes for national income differ slightly from those for GNP. See I, pp. 6-7, below.

exploitation of foreign labor. National income increased by about one-third from 1936 to 1939. Thus West Germany reached the 1939 level only in the early 1950's, and East Germany had still not quite reached it in 1957.

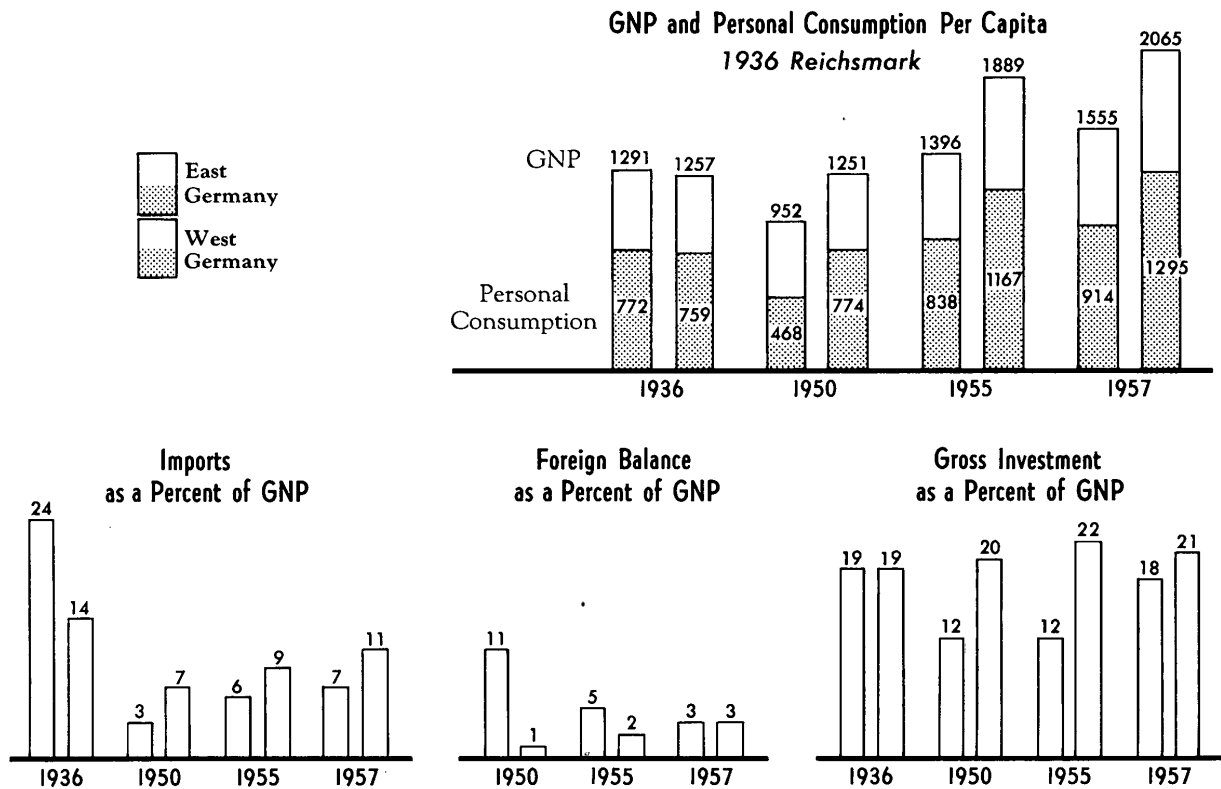
The population of postwar Germany is larger than the prewar population as a result of a great westward movement of refugees from Soviet rule. In the early postwar years this influx increased the population of both East and West Germany, but the initial increase was proportionally greater for West Germany, and later migration from East to West Germany has steadily added to the initial difference. By 1957 the population of East Germany had declined to only 5 percent above the 1939 level, whereas that of West Germany had risen to 28 percent above this level.

Adjusted to a per capita basis, national income reached the 1939 level in 1954 in West Germany and in 1958 in East Germany. The same is true of national income per worker, for labor force participation rates were close to the prewar rates in both economies. Because the number of hours worked per week was about the same as in 1939, the recovery to the prewar productivity level also occurred at about the same time.

East Germany fell behind in the postwar period, first, because the partition of Germany was greatly to its disadvantage on account of the much smaller size of the East German economy and its dependence on West Germany for coal and steel. Second, East German losses from wartime destruction and Soviet dismantling were relatively much greater than those of West Germany.

These two initial handicaps were aggravated by continued Soviet exploitation of the economy and by the low level of foreign trade. Soviet exploitation, which has been an important factor in depressing the level of East German investment, was greatest in the late 1940's, when US aid to West Germany was also at its peak. The low level of foreign trade, which has made for inefficient use of East German industrial capacity and has led to the development of high-cost domestic resources, may have been the most important limitation on East German recovery. In 1957, when West German foreign trade turnover was more than 80 percent greater than in 1936, East German foreign trade turnover was still less than one-half of the 1936 level. The explanation is to be sought in the autarkic character of Soviet Bloc economic institutions and policies, especially the policies of the USSR. The introduction of Communist institutions into East Germany also interfered with recovery, but it is probable that this factor was of great importance only in agriculture.

Figure 1
East and West Germany
INDICATORS OF COMPARATIVE ECONOMIC GROWTH
Selected Years, 1936-57



Since 1955 the USSR has almost given up the direct exploitation of East Germany and has assured the East German economy the raw materials that it needs to operate at capacity. These actions have greatly stimulated East German economic growth, especially in manufacturing and construction. No change in Soviet policy, however, can replace the capacity dismantled in the first postwar years or the plants not built and the trained labor lost through emigration in the decade that followed. Moreover, the Soviet concessions in favor of East Germany have been accompanied by new internal measures against private enterprise that add to the difficulty of matching West German productivity in those sectors, notably agriculture, in which private enterprise has continued to make a significant contribution in East Germany.

East Germany has lagged behind West Germany in nearly all economic activities, as is shown by the indexes for sectors of national income in 1955 (1936 = 100):

<u>Sector</u>	<u>East Germany</u>	<u>West Germany</u>
Energy	204	310
Mining	174	141
Manufacturing	118	198
Construction	85	191
Agriculture and forestry	85	120
Transport and communications	128	189
Trade	95	176
Housing	56	118
State and other public services	198	195
Other services	91	156
National income	117	178

The two exceptions themselves point to obstacles to East German recovery. The East German rate of increase was higher than the West German in mining because East Germany was compelled by the reorientation of its foreign trade to supply a much greater part of its own requirements for minerals, particularly iron ore, than it had before the war. The increase in state and other public services was slightly higher in East than in West Germany, in spite of a much smaller increase in population, because of the early development in East Germany of a military establishment (which was still in the planning stage in West Germany in 1955) and the size of the Party and state bureaucracy needed to run a Communist country.

The chief reason for the lag in manufacturing was the autarkic organization and outlook of the Soviet Bloc economies, which kept East German purchases of raw materials and sales of finished goods far below the prewar level. In agriculture, in which East Germany had been more productive than West Germany before World War II, both per worker and per acre of agricultural land, the relationship was reversed because of the breaking up of the great East German estates, the relatively low state investments made in the sector, and the hostility between the regime and the peasantry. Finally, trade, housing, and miscellaneous services declined, in contrast to the growth in West Germany, as a result of state policy, showing how much less a Communist economy responds to the demands of individual consumers than does a capitalist economy.

The distribution of GNP by end use in East Germany has been quite different from that in West Germany. In 1950 the shares both of personal consumption and of investment in East German GNP were much smaller as a result of the prior claims of reparations, which ran to more than one-half of the value of East German domestic investment in the early 1950's, and the requirements of public consumption. By 1955 the share of personal consumption had risen to the West German level but not the share of investment, which is only now approaching the West German level. That the regime allowed investment to lag behind consumption, contrary to Communist doctrine, is explained by the overriding need to begin reducing the contrast in living conditions between East and West Germany in order to discourage emigration. Although economic factors have by no means appeared decisive in emigration, there is plenty of reason to believe that emigration would have been much greater and the regime's control much more uncertain if the leadership had failed to pursue this policy.

A comparison of GNP per capita for East and West Germany in 1955 shows that East German personal consumption had by then risen to 72 percent of the West German level (to about 85 percent for food, tobacco, and beverages, as a result of greatly increased imports), whereas investment was only 41 percent of the West German level. The high proportion of GNP devoted to public consumption and to reparations (more than one-half of the East German foreign balance) is also evident:

End Use	East Germany		West Germany		Ratio of East to West Germany
	1936 RM* Per Capita	Percent	1936 RM* Per Capita	Percent	
Personal consumption	838	60	1,167	62	0.72
Gross investment	173	12	419	22	0.41
Public consumption	318	23	266	14	1.20
Foreign balance	67	5	37	2	1.81
GNP per capita	<u>1,396</u>	<u>100</u>	<u>1,889</u>	<u>100</u>	0.74

* Reichsmark. See the first footnote on p. 7, below.

In comparing the figures for investment, it should be remembered that a much greater part of West German investment was devoted to housing, nearly one-fifth of gross investment in 1955, whereas in East Germany the proportion was only one-twelfth. Even so, nonhousing investment per capita had risen by 1955 to only one-half the level of nonhousing investment in West Germany. Thus the disadvantage resulting from the large-scale dismantling of capacity in 1946, which left East Germany with not much more than one-half of the productive capacity per capita of West Germany, was not much reduced during the first decade following the war.

A closer correspondence between East and West Germany in the distribution of GNP has recently come about, beginning, in East Germany, with a great reduction (perhaps the discontinuation) of uncompensated deliveries to the USSR in 1956; with a reduction of occupation costs by one-half and the doubling of prices for uranium ore deliveries, effective in 1957; and, finally, with the elimination of occupation costs effective in 1959. The entire benefit resulting from these concessions was reallocated to investment, which jumped by more than 30 percent in 1956 and by about 20 percent in 1957. As a result, the proportion of GNP devoted to investment is now approaching that in West Germany, which is more than 20 percent (in 1936 prices) of GNP.

In the 1960's the distribution of East German GNP will begin to diverge again from the West German pattern. On the basis of the Seven Year Plan (1959-65), East German investment should amount to 25 percent or more of GNP by 1965. The East German pattern, in short, will come to look more like what is called for in Communist literature. The planned share of investment in East German GNP, although high by Western standards, is not especially high for a Soviet Bloc country.

I. Introduction

An announced aim of the Seven Year Plan (1959-65) recently adopted by the East German regime is to "overtake and surpass" West Germany in production per worker. 1/* On any reasonable projection of West German economic growth, even the fulfillment of the East German goals for 1965 would not really amount to "overtaking and surpassing" West Germany. Claims of progress toward that goal, however, may be expected within

* For serially numbered source references, see Appendix C.

the next few years, together with corresponding claims of parity in personal consumption per capita. The present comparison of the national products of the two economies offers both a measure and some analysis of the historical differences between them in growth and structure as a basis for interpreting and evaluating East German claims.

Before World War II the East German economy was as productive as the West German. The area of East Germany is less than one-half (44 percent) of that of West Germany, and in 1936 the population and GNP were in very nearly the same proportion. GNP per capita was actually slightly higher in East than in West Germany.* Both areas were highly industrialized, although most of the heavy industry was in West Germany. In the peak year of the prewar period (1939), East Germany's edge over West Germany in GNP per capita was even greater.

In the postwar period, as the East German regime has acknowledged, the East German economy has been much less productive than the West German. It is generally agreed that this disparity results from the partition of Germany, the divergent Soviet and Western occupation policies, and the adaptation of the two economies to different sets of institutions. Although the present report is concerned primarily with the measurement of past economic growth, it addresses itself briefly to the question of the relative importance of these causes at the various stages of postwar recovery and growth.

The years chosen for comparison are 1936, 1950, 1955, and 1957. The year 1936 is the only prewar year for which a systematic comparison can readily be made, although a later year such as 1939 would be better as a base against which to measure postwar recovery. Regular postwar statistics for both East and West Germany begin with the establishment of the two postwar regimes in 1949; the year 1950 is commonly used as a postwar base year. The last year for which a complete comparable breakdown of production and its uses can readily be made for both economies is 1955. Estimated national income and GNP are given also for 1957, but national income by sector of origin in 1957 is broken down only for East Germany.

Two sets of estimates are made, one to measure the production and the other the distribution of the national product.** Changes in the level and structure of production in the given postwar years are measured by means of indexes for the producing sectors, based on

* If, as in the present estimates, East Berlin is included in East Germany, whereas West Berlin is excluded from West Germany.

** The basic estimates are given in Tables 8 through 13, Appendix A, pp. 30-35, below.

1936. These indexes are combined into an index of national income by using base year weights representing net value added by the producing sectors. The corresponding absolute values for the base year and the given postwar years, all expressed in 1936 Reichsmark (RM),* represent national income at factor costs,** broken down by sector of origin.

The distribution of the national product is estimated separately for each of the end uses, in current market prices, for the same years. For the postwar years the end use estimates are then deflated by appropriate price indexes. The sums of the end use estimates for 1936 and, as deflated, for the postwar years represent GNP in constant base year market prices.

The use of 1936 price weights results in somewhat different measurements both of growth and of structure than would be obtained by using the prices of some postwar year. The differences are similar, however, for East and West Germany, and the results of comparisons with prewar weights are close to those that would be obtained by using postwar price weights. Prewar price weights have the great advantage over postwar price weights in that they represent a price system common to both parts of Germany.

An over-all comparison between East and West Germany based on the national income estimates is slightly more favorable to East Germany than one based on the GNP estimates. For 1955, for example, East German national income is shown as 29 percent (79 percent on a per capita basis) of the West German; for GNP the figure was only 27 percent (74 percent on a per capita basis).*** For both economies, moreover, the estimated growth of national income is less than the estimated increase in GNP. In 1955, for example, the index numbers for national income (1936 = 100) are 117 and 178 for East and West Germany, respectively; for GNP, on the other hand, the corresponding index numbers are 120 and 194.† Because the national income estimates are calculated independently of the GNP estimates, some such divergences are to be expected, as a result both of errors in data and of differences in method.

* The ratio of the 1936 RM to the 1955 US dollar is approximately 1 RM to \$0.75 if 1955 West German quantity weights are used, slightly less for consumption and slightly more for investment. This ratio reflects the prewar-postwar price relationships shown in West German national accounts (see Appendix B, p. 45, below) and in Milton Gilbert's study of comparative price levels. 2/

** Actually, national income at factor costs less net factor incomes received from abroad, or "net domestic product at factor costs" (Nettoinlandsprodukt zu Faktorkosten).

*** See Tables 8, 10, 11, and 13, Appendix A, pp. 30, 32, 33, 35, respectively, below.

† See Tables 9 and 12, Appendix A, pp. 31 and 34, respectively, below.

II. Growth of National Income

1. General Trend

With the final defeat of Germany in 1945, output fell far below the levels reached before World War II. The recovery of the German economy, which followed on the restoration of orderly civil life, began at a rapid pace in the Soviet Zone of Occupation as well as in the Western zones. By 1949, however, when the Western powers created the German Federal Republic and the USSR set up the so-called German Democratic Republic, the national product in West Germany was already slightly above the 1936 level, whereas in East Germany it had reached only about three-quarters of that level.* The divergence slowly widened until 1958, when there was a new spurt in the East German and a momentary drop in the West German rate of growth. The estimates of national income in Table 1 show how great the divergence had become by 1957.

Table 1

East and West Germany: Comparison of National Income a/
Selected Years, 1936-57

<u>Year</u>	<u>National Income</u> <u>(Billion 1936 RM)</u>		<u>Ratio of East to West</u> <u>German National Income</u>
	<u>East</u> <u>Germany</u>	<u>West</u> <u>Germany</u>	
1936	16.8	38.2	0.44
1950	14.2	44.6	0.32
1955	19.6	68.0	0.29
1957	21.3	76.3	0.28

a. See Table 8, Appendix A, p. 30, below.

For measuring the recovery of the German economies, the use of 1936 as a base year is misleading. By 1936, German national income had already risen to well above the 1929 level, but there was still a good deal of unemployment, partly in disguised form. Further

* On the basis of official figures. 3/ The East German official index is used only to move the present estimate for 1950 to 1949.

increases in industrial production through 1939 reflected chiefly the absorption of this unemployment. National income in 1939, which was nearly one-third greater than in 1936, is clearly a better measure of the capacity of the German economy under peacetime but full employment conditions. Production continued to increase, of course, almost until the end of the war, but most of the increase must be attributed to exceptional wartime factors such as the exploitation of the captured areas, in particular the large-scale importation of forced labor. If 1939 is used as a base year, the recovery of West Germany occurred in 1951, and the recovery of East Germany was not quite complete even by 1957.*

A major factor influencing the recovery of both German economies during the postwar period was the large westward movement of refugees from Soviet rule. The initial effect of this movement, which much more than offset population losses during the war, was a substantial increase in the population of both East and West Germany, but the increase was proportionally greater for West Germany, and later migration from East to West Germany has steadily added to this difference. The size of the postwar changes in population for the two areas is shown in Table 2.

Table 2

East and West Germany: Changes in Population a/
Selected Years, 1936-57

Year	Population (Millions)		Index of Population (1939 = 100)		Ratio of East to West German Population
	East Germany	West Germany	East Germany	West Germany	
1936	16.2	38.2	97	97	0.42
1939	16.7	39.3	100	100	0.42
1950	18.6	46.9	111	119	0.40
1955	17.9	49.2	107	125	0.36
1957	17.5	50.5	105	128	0.35

a. The figures for 1939 are based on the census of that year; otherwise the figures represent average annual population. The figures are all official 5/ except that, for the sake of comparability with the West German figure, an estimate of average population (based on official figures) is used in place of the East German official figure for 1950 (18.4 million on 31 August).

* This statement is generally consistent with a set of West German GNP estimates (in 1953 prices) for 1953 and 1939. 4/

If national income per capita is used to measure economic recovery, the West German recovery was complete, not in 1951 but in 1954, and the date of East German recovery is moved from 1957 to 1958. The absorption of a large influx of additional population, however, is an accomplishment that goes beyond mere recovery, and the per capita measure surely minimizes the accomplishment of the West German economy, relative both to 1939 and to the postwar performance of the East German economy.

Comparisons of East with West Germany are nearly the same on a per worker basis as on a per capita basis. If East German "unreported" employment is taken into consideration,* the over-all ratio of employment to population in recent years has run very close to that in 1939, about 50 percent, and it has run only slightly lower (about 49 percent) in West Germany. The growth of employment in East and West Germany is indicated by the number of economically active persons, as shown in Table 3. Moreover, the available data

Table 3

East and West Germany: Economically Active Population a/
1939, 1950, and 1957

	Thousand Persons		
	East Germany	West Germany	Ratio of East to West German Population
1939 census	8,529	19,682	0.43
1950 census	8,477	22,074	0.38
Status at the end of 1957	8,676	25,510	0.34

a. Appropriate population figures for comparison are given in source 7/. The figures for economically active persons in 1939 are census figures as of 17 May 1939, 8/ which exclude conscripts in the German army and members of labor service battalions. The 1950 census figures are as of 31 August for East Germany and 13 September for West Germany. The figures for the end of 1957 represent the status of 1 January 1958 for East Germany and of 31 December 1957 for West Germany. The West German figures are official data. 9/ The East German figure for the 1950 census is official 10/; that for the end of 1957 is the best estimate (with a range of error of two-thirds of 1 percent) by the Bureau of the Census. 11/

* East German published employment series explicitly exclude employment in the uranium mines, in some defense plants, and in police units and the armed forces. They are believed to exclude as well a large number of other state and Party employees and a considerable number of self-employed. For the best estimates of the total numbers excluded, see source 6/.

(for industry only) 12/ indicate that there is no significant difference between the two economies in the number of hours actually worked per week -- average hours worked per week are also about the same as in 1939. Thus for productivity, as for national income per capita, the level reached by East Germany in 1958, the base year of the Seven Year Plan (1959-65), was about the same as in West Germany in 1954.

It should be noted that the economic position of East Germany in relation to that of West Germany is improved if the Communist definition of national income is the basis of comparison. There are as yet no East German official figures available for measuring East German economic recovery and growth.* It is possible to illustrate, however, the effect on comparisons of economic growth resulting from the difference in coverage between Western and Communist definitions of national income. In Communist countries, national income by definition excludes so-called "nonproductive" services -- among them the services of banking and insurance, administration and defense, public health and education, and personal and professional services.** The effect of this exclusion is considerable if applied to the present estimates. Whereas these estimates show the increase of national income per capita from 1950 to 1955 as 45 percent for West Germany and 44 percent for East Germany, the exclusion of "nonproductive" services, using the same data, reverses the comparison, making the figures 53 percent and 60 percent, **respectively.*****

The relatively rapid growth of "nonproductive" services in West Germany, which is the cause of the difference between these two measurements, will continue to have much the same effect. Official East German claims are expected to raise the East German rate of growth by about 1 percent relative to the West German rate, on this account alone.

2. Changes in Structure

In some important respects the East and West German economies have been changing in the same ways during the last decade. Industry

* The official series for East German national income is in current prices. A series purporting to be at constant 1950 prices was issued for 1950-55 in the East German statistical yearbook for 1955, 13/ but it was later explained that for most sectors constant prices would not be issued in the near future. 14/

** In some Communist countries, transport and communications services to households and government are also treated as "nonproductive," 15/ but beginning in 1956 they were treated entirely as part of "material production" in East German statistics. 16/

*** See Table 10, Appendix A, p. 32, below.

has become more important and agriculture less important than in the early postwar years or in the prewar period (see the chart, Figure 2*). During the entire period the shift was fundamental to industry in the general economic structure. There have also been other changes, however, some of them transitional and some more permanent, especially within industry and in the relative importance of various services.

The share of national income originating in industry -- energy, mining, and manufacturing -- was about 43 percent in prewar Germany. East Germany was heavily dependent on other areas, especially West Germany, for fuels and metals, but when East Berlin is included -- as it invariably is in the present estimates -- prewar East Germany was nevertheless as fully industrialized as West Germany.

In terms of the 1939 base, industrial recovery came in 1951 in West Germany, whereas it was not reached in East Germany until 1957, the lag being about the same as for national income as a whole.** Within East German industry, postwar recovery and growth were comparatively rapid in energy and mining (as shown in Table 9***), in metallurgy, and in chemicals. In short, the basic materials industries did much better than the investment goods and consumer goods industries. The contrast reflects primarily the inability of East Germany to replace prewar sources of supply for materials. The result was to force production of raw materials and intermediate products and to depress production of finished goods.

The difference between the two economies is striking in the construction sector. Value added by construction in East Germany, which was more than two-fifths of the West German level in 1936, was only one-fourth in 1950 and only one-fifth by 1955. The difference reflects the lower level of investment in East Germany and especially the lower level of housing construction. The sharp increase in construction in East Germany since 1955 reflects the termination of uncompensated deliveries to the USSR, which permitted a large increase in the share of the national product devoted to investment.

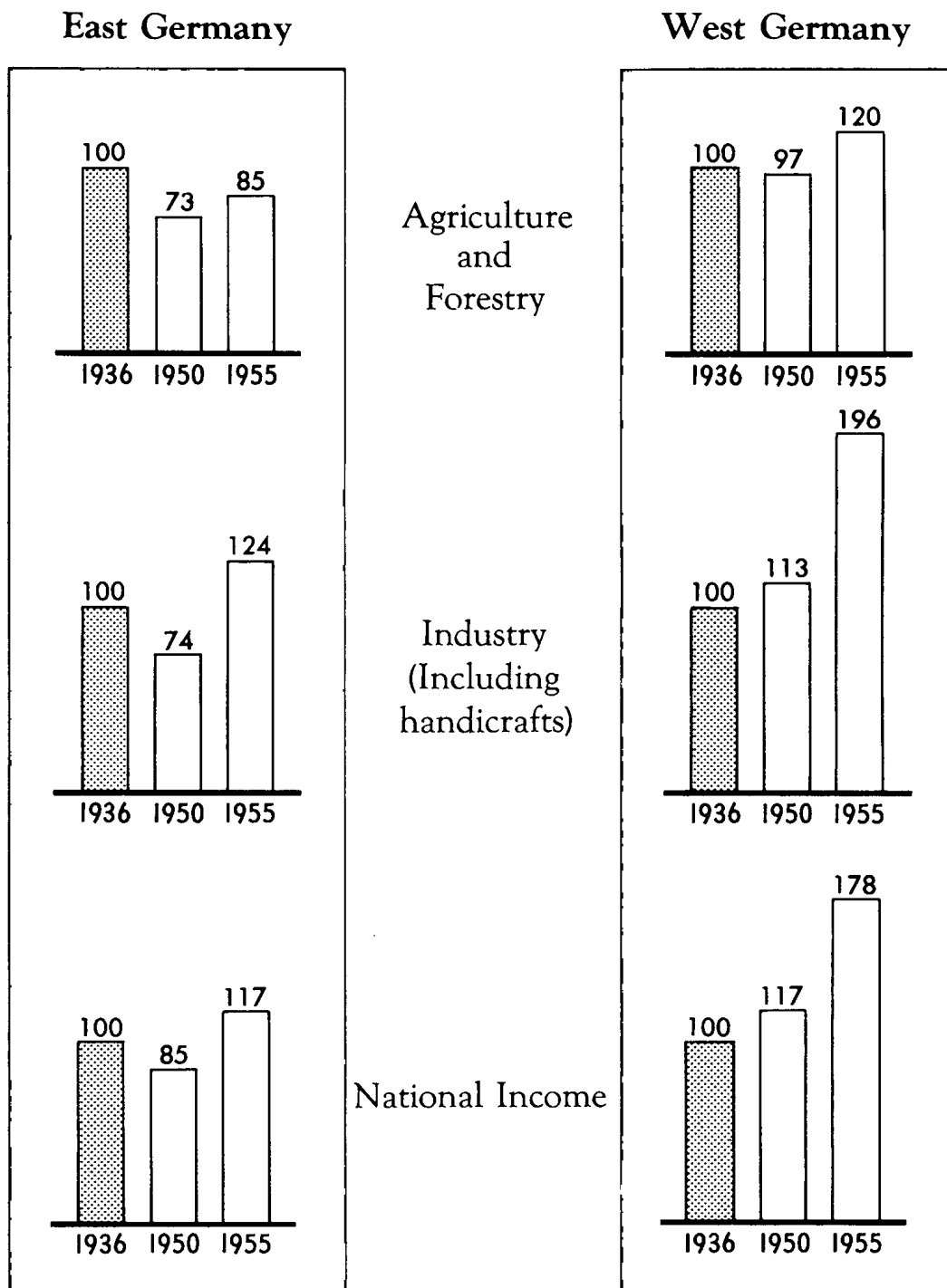
Another contrast is evident in agriculture and forestry. The share of this sector in German national income, about 13 percent in 1936 (higher in East Germany), declined in the late prewar period and

* Following p. 12.

** Based on the present estimates, moved to a 1939 base by Bruno Gleitze's figures for industrial production in 1936 and 1939. 17/
The coverage in this case includes construction but excludes energy and industrial handicrafts.

*** Appendix A, p. 31, below.

Figure 2
East and West Germany
INDEXES OF GROWTH OF AGRICULTURE AND FORESTRY,
INDUSTRY, AND NATIONAL INCOME, 1936, 1950, and 1955



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has since declined further in both areas. In West Germany, however, output has been somewhat above the prewar level since 1951, whereas in East Germany it has remained well below the prewar level. Output per worker and per acre of agricultural land, which in the prewar period were higher in East Germany, are now higher in West Germany. Independent peasants in East Germany have neither the resources nor the incentives of those in West Germany, and the East German government has not replaced either in the process of "socializing" agriculture.

There have been significant changes in the shares of national income accounted for by various types of services. Transport and communications necessarily kept pace with postwar recovery and growth and have accounted for a slightly greater share (9 percent) in both economies than before the war. The share of trade, on the other hand, has been relatively low in East Germany since the war. It was only 7 percent of national income in 1950 and has risen to about 9 percent in later years, as against 11 percent in prewar Germany and in West Germany. The extremely low figure for East Germany in 1950 reflects in part the lag in the recovery of retail trade. Retail trade has since increased to a point where trade turnover is almost as large, relative to national income, as in prewar Germany or in West Germany. Employment in trade, however, is relatively lower in East Germany, as a result not of greater efficiency but of less service (also indicated by relatively smaller investments and lower operating inventories). The difference is found throughout the trade sector but especially in the limited use made of advertising in East Germany and in the small number of such establishments as hotels, restaurants, and cabarets.

The contrast in housing between East and West Germany is notorious. Per capita housing space in East Germany has been little more than one-half of the prewar level, and the slight easing of the situation during the 1950's has been rather more the effect of emigration than of new construction. The total postwar housing construction in East Germany through 1958 was less than the construction in any single recent year in West Germany. As a result of the large increase in population, per capita housing space even in West Germany is not yet back to the prewar level.

The remaining services -- banking and insurance, professional and personal services, public services, civil administration, and defense -- offer another contrast. The share of these services in German national income in 1936 was 14 percent in both East and West Germany. The postwar figures show a large rise in value added in these services (relative to 1936) of about the same magnitude for

both parts of Germany. Because of the lag in East German recovery generally, however, the share of national income accounted for by such services has been higher in East Germany. Within this general development, there has been an actual decline in East Germany in the services chiefly purchased by households -- notably personal and professional services -- and a relatively slower growth in those services purchased by enterprises -- banking and commercial insurance. The per capita level of public services, civil administration, and defense, on the other hand, has been much higher than in West Germany because of the size of the Party and state bureaucracy and the early development of a military establishment.*

III. Factors Affecting Economic Recovery and Growth

1. General

In the postwar race between the East and West German economies, East Germany began with a heavy handicap. In the first place, the partition of Germany was much more to the disadvantage of the East German economy, which was less than one-half of the size of the West German economy and depended heavily on it for materials. The loss of West German markets and sources of supply forced East Germany to depend more on its own, very limited natural resources and left the country with a distribution of capital assets that had been designed to support a different production structure. Reduced economic specialization in East Germany led to the development of relatively inefficient industries and to inefficient use of existing capital assets in other industries. In the second place, East Germany lost a great deal of property through destruction and dismantling, especially in heavy industry, in which East Germany had been relatively weak.

Besides this initial handicap, East German recovery has also been greatly influenced by the incorporation of East Germany into the Soviet Bloc, specifically by Soviet exploitation and by the low level of foreign trade within the Bloc. Soviet exploitation was greatest in 1948-49, when East Germany could least afford it. Only in these years, when US aid to West Germany also reached its highest point, did the rate of recovery of West Germany greatly exceed that of East Germany. Soviet exploitation continued to have some effect on the rate of East German recovery in the 1950's, although not the critical effect that it had had in the late 1940's.

* In estimating value added in state services, an imputation is made for value added by the occupation forces, to correspond with the imputation made in the official West German accounts, in which it amounts to approximately one-third of the total payment for occupation costs. See Appendix B, p. 41, below.

Once the remaining East German industrial capacity was largely restored to operating condition, the low level of foreign trade probably became the chief factor limiting the rate of East German recovery. East German foreign trade was low not only relative to the prewar level but also relative to the level of West German trade. It was restricted by the strongly autarkic Communist economic policies and institutions and the subordination of East German economic interests to the predominant interest of the USSR in its own economic recovery.

It is not possible to make a general evaluation of the economic efficiency of Communist institutions in East Germany on the basis of experience to date. In agriculture the measures taken by the regime to lay the groundwork for ultimate socialization have probably been the main cause of the failure even to reach prewar levels of output per worker and per hectare. In other sectors also the process of nationalization involved certain costs, but because so many other economic conditions were unfavorable, the relatively poor showing of East Germany cannot be attributed to the East German Communist system as such. It may be possible to make more meaningful comparisons of economic efficiency between East and West Germany for the 1960's than for the 1950's, but the effects of the contrasting postwar histories as well as differences in size and natural endowment will still have to be taken into account.

2. Soviet Exploitation

Soviet exploitation in the postwar period unquestionably resulted in a large capital transfer from East Germany.* From comparisons of the value of fixed capital assets before and after World War II,** it appears that East Germany suffered a net loss equal to nearly one-half of the value of fixed capital in 1939 as a result of wartime destruction and Soviet dismantling. Soviet dismantling alone may have accounted for a loss equal to as much as one-third of the value of fixed capital in 1939, but there is a very wide margin of error in any such estimate.

Soviet takings out of current production were also large.*** Estimated in terms of world market prices of 1936, they ran at about

* It is impossible to avoid a large margin of error in estimates of the value of machinery and equipment dismantled and the value of Soviet takings from current production in the early postwar period. For the most widely circulated estimates, see source 18/.

** See 5, below.

*** In the present estimates of GNP these are separated from deliveries financed out of occupation costs, which are treated (as in West Germany) as a part of domestic defense expenditures.

2 billion RM in 1950, including, in addition to formal reparations deliveries, the goods bought by the USSR with the profits from Soviet-owned enterprises. In 1955 the value of Soviet takings ran at about one-third of that amount. They were composed of uranium ore deliveries, a good deal of machinery and equipment, and perhaps other commodities. By 1956-57 these impositions had become negligible.*

The estimated total value of Soviet takings does not, of course, reflect the total cost to East Germany. In certain cases, notably shipbuilding and uranium mining, East Germany was forced into the development of relatively high-cost industries to satisfy Soviet demands, and the resulting misallocation of resources tended to affect adversely the over-all level of output and economic growth. These costs have not been eliminated by the near cessation of uncompensated exports.

The principal effect of Soviet takings appears to have been to depress the level of domestic investment.** In 1950, when the value of gross domestic investment was only 2.1 billion RM, it was only slightly greater than the value of Soviet takings. By 1955, when the value of investments had risen to 3.1 billion RM, the value of Soviet takings represented only a fraction of that amount (somewhat more than one-sixth). In general, the value of Soviet takings in the entire period 1950-55 probably was equal to about one-half of the amount of gross domestic investment.

3. Level of Foreign Trade

The limiting effect of foreign trade on East German recovery is suggested at once by a comparison of prewar with postwar levels of foreign trade. Before World War II, economic activity in East Germany was highly dependent on outside sources of supply and outside markets, far more so than in West Germany. In particular, the large trade between the two areas was relatively much more important to East than to West Germany. In the postwar period, while the foreign trade of West Germany has risen far above the 1936 level, East German foreign trade has remained much below it, as shown in Table 4.*** The enormous postwar drop in East German foreign trade reflected not only the virtual discontinuation of the interchange of specialized finished goods between East and West Germany but also a great reduction in East German imports of basic materials. For example, in 1936 imports accounted for almost three-quarters of East German consumption

* For these and the following estimates, see Appendix B, p. 47, below.

** A discussion of the factors affecting the allocation of GNP is found in IV, below.

*** Table 4 follows on p. 17.

Table 4

East and West Germany: Imports and Exports a/
 Selected Years, 1936-57

Year	East Germany				West Germany			
	Imports		Exports		Imports		Exports	
	Billion 1936 RM	Index (1936 = 100)	Billion 1936 RM	Index (1936 = 100)	Billion 1936 RM	Index (1936 = 100)	Billion 1936 RM	Index (1936 = 100)
1936	5.1	100	5.5	100	6.8	100	7.4	100
1950	0.5	10	2.5 b/	45 b/	4.1 c/	60 c/	4.6	62
1955	1.4	27	2.8 b/	51 b/	8.7	128	10.6	143
1957	2.0	39	2.9	53	11.4	168	14.5	196

a. Trade in commodities only. For the derivation of the estimates, see Appendix B, 3, p. 47, below.

b. Including estimated reparations deliveries, deliveries of uranium ore and concentrates, and other uncompensated deliveries.

c. Including US aid.

of finished steel. In 1950, imports of bituminous coal were only about two-fifths and imports of finished steel less than one-fifth, respectively, of the 1936 level. Even by 1957 the respective fractions were only two-thirds and not quite one-half.

The low level of East German foreign trade in the postwar period is explained largely by the fact that the USSR, which alone could replace West Germany as the chief trading partner of East Germany, was very slow to take over this role. The Soviet leadership continued to be preoccupied with Soviet recovery and growth and to plan for the Soviet economy with only incidental reference to foreign trade.

The contrast between East and West Germany remains striking when imports and exports are compared with GNP. In 1936, both imports and exports were much higher in East Germany in relation to GNP. Throughout the postwar period, on the other hand, the level of imports in relation to GNP has been higher in West Germany, and the same is true for exports unless reparations are included. If reparations (and other uncompensated deliveries) are included in East German exports, then exports represent a larger proportion of GNP in East than in West Germany as late as 1953. A part of the East German export balance also reflects unfavorable terms of trade with the

USSR and the West. Imports and exports as a percentage of GNP are shown in Table 5.

Table 5

East and West Germany: Imports and Exports
as a Percentage of Gross National Product a/
Selected Years, 1936-57

<u>Year</u>	<u>Percentage of GNP</u>			
	<u>East Germany</u>		<u>West Germany</u>	
	<u>Imports</u>	<u>Exports</u>	<u>Imports</u>	<u>Exports</u>
1936	24	26	14	15
1950	3	14 <u>b/</u>	7 <u>c/</u>	8
1955	6	11 <u>b/</u>	9	11
1957	7	11	11	14

a. The percentages are based on the estimates of foreign trade in Table 4 (p. 17, above) and on the estimates of GNP in Table 11, Appendix A, p. 33, below.

b. Including estimated reparations deliveries, deliveries of uranium ore and concentrates, and other uncompensated deliveries.

c. Including US aid.

There can be little doubt that the level of imports of basic materials in the 1950's was a very important factor limiting increases in the output of manufacturing, which in turn represented the chief factor determining the rate of East German recovery. With a much more rapid increase of imports of basic materials, existing productive capacity in manufacturing could have been used far more effectively. In such a case, it would have been necessary to increase investments in electric power and transportation more rapidly than has been done, but this cost could have been more than covered with a higher total production and with the savings from lower investment requirements in the high-cost industries producing domestic basic materials.

As shown above, East German imports have been increasing more rapidly than the national product, and the same is true of exports (if reparations and other such deliveries are excluded from consideration). This trend is expected to continue, as a result of Soviet guarantees

of a rapidly increasing flow of raw materials to East Germany, together with Soviet encouragement of specialization among the Satellites. The ratio of East German foreign trade to GNP is thus likely to increase during the 1960's, although it will hardly reach the present West German ratio. Given the smaller scale of the East German economy and its very limited resources of fuels and metal ores, an optimum ratio would certainly be still higher. Nevertheless, foreign trade should cease to be the main limiting factor on East German growth.

4. Socialization

The introduction of Soviet economic institutions into East Germany has affected some sectors more than others. In transport and communications, for example, Communist management apparently did not hamper recovery, although the policy of minimizing out-of-pocket costs involved especially large hidden (chiefly deferred) costs in this sector. In industry, construction, and trade, on the other hand, it may be presumed that the differences between East and West German organization and management had some effect on the speed of recovery, but in these sectors the material supply problems resulting from the separation of East from West Germany had such a great effect as to swamp all others. The one sector in which the process of imposing Soviet economic institutions had a demonstrably great direct effect on East German recovery is agriculture, in which private enterprise continued to account for a larger part of output than in any other sector.

The chief factors depressing East German agriculture were the breaking up of the great estates, the control of most agricultural machinery by the state, the imposition of an irrational pricing system, and the constant pressure on the independent peasant to accept the inevitable collectivization. To be sure, the East German regime was forced to be more moderate in the treatment of the peasant, as of private enterprise generally, than the other Eastern European regimes under Soviet control. Indeed, independent peasants in East Germany benefited much more from economic recovery than any other group of workers except perhaps self-employed artisans. The regime nevertheless made it quite clear that the status quo would last only a few years. It was chiefly because of the prospect of collectivization in the near future that agriculture failed even to reattain prewar levels of efficiency. Under these circumstances the regime may not stand to lose greatly by socialization. Socialization can hardly be expected, however, to yield any short-term benefits, and the transitional costs of socialization will continue to be a burden on the economy for some time.

5. Capital and Labor*

The various factors discussed in the previous sections (the effects of partition, war losses and dismantling, and Soviet policies and Communist institutions) created or continued an over-all shortage of capital that was compounded by a shortage of imported materials. In most parts of the economy, there was more than enough labor to operate existing capital assets to the limits established by technology or by the available supply of raw materials. In fact, because of material or capital bottlenecks, labor was often used to the point at which its marginal productivity was very low.

In the early postwar years the value of productive fixed capital per person in East Germany was less than one-half of the value per person before the war. There was thus a large labor surplus, the greater part of which was found in nationalized industry and in agriculture, although there was considerable unemployment. West Germany, on the other hand, entered the postwar period with fixed capital assets not greatly reduced. In spite of the larger influx of population into West Germany, the value of fixed capital per person in the early postwar years was about four-fifths of the value before the war. West Germany also began the postwar period with excess labor, but the labor surplus was relatively much smaller than in East Germany, although more of it took the form of unemployment and much less of overstaffing in enterprises.

East Germany thus began the postwar period with about three-fifths as much productive capital per person as West Germany, and the ratio remained about the same through 1955. The stock of fixed capital actually grew more slowly through current investments in East Germany than in West Germany, but the shift of population from East to West Germany was sufficient to maintain the per capita relationship unchanged. With the sharp rise in East German investments in 1956, the relative position of East Germany began to improve, although the change in the relative value of capital assets is, of course, slow.

The relative scarcity of productive fixed capital in East Germany has led to a very intensive use of capacity in certain sectors, notably in rail transport and in the generation of electric power. In these sectors, East German capital/output ratios are much below those in West Germany even though the West German ratios have declined considerably since the war. In other sectors, however, a number of factors have led to considerable unused capacity. In the

* For the derivation of the following comparisons of the value of fixed capital, see Appendix B, 2, p. 46, below.

long-established branches of manufacturing, production has been held down by chronic supply difficulties and inability to reestablish a large dependable market -- problems directly traceable to the re-orientation and decline of foreign trade. In the heavy engineering industries, which were expanded to replace West German imports and to fill Soviet requirements, these problems have been compounded by inexperience. In mining and metallurgy, which were expanded for the same reasons, exploitation of low-grade resources, especially iron and uranium ores, required heavy capital outlays. All industries have been hit by lack of replacement parts, a characteristic fault of East German planning and management. For these reasons, capital/output ratios in East German industry probably have run not far below those in West Germany, in spite of the over-all shortage of fixed capital and the relatively large supply of qualified labor.

By the mid-1950's the labor force as a share of the population had risen to the prewar level, the agricultural labor force had dropped to the prewar level, and unemployment had virtually disappeared in East Germany. Since then the supply of labor has become more of a problem, but there are still ample opportunities to increase production substantially through increases in the supply of materials and capital goods, with the same or even a smaller labor force.

Future plans, in fact, assume a decline in the labor force through the mid-1960's, and they are based above all on the expectation of an improved foreign trade position and consequent improvements in efficiency. Projected increases in fixed capital, however, also play a part in East German plans. The anticipated rate of increase in fixed capital is higher than at any previous time during the postwar period. On the basis of the prospective improvements in the supply of materials and in the market for East German manufactures, together with the anticipated rate of increase in fixed capital, the gap between East and West Germany in output per worker can be reduced significantly in the 1960's.

IV. Distribution of Gross National Product

The distribution of the national product in East Germany during the postwar period has differed markedly from the distribution in West Germany. The fact that GNP per capita was actually higher in 1936 in East Germany than in West Germany reflects the very high level of incomes and output in East Berlin. In the rest of East Germany the average level of GNP per capita was about the same as in West Germany. Similarly, of course, in the postwar comparison, if East Berlin were excluded from East Germany (or if West Berlin were included with West Germany), the comparison would be somewhat less

favorable to East Germany. The present estimates of GNP and GNP per capita are summarized in Table 6.

Table 6

East and West Germany: Comparison of Gross National Product a/
Selected Years, 1936-57

Year	GNP (Billion 1936 RM)		GNP Per Capita (1936 RM)		Ratio of East to West German GNP Per Capita
	East Germany	West Germany	East Germany	West Germany	
1936	20.9	47.9	1,291	1,257	1.03
1950	17.7	58.7	952	1,251	0.76
1955	25.0	92.9	1,396	1,889	0.74
1957	27.2	104.3	1,555	2,065	0.75

a. See Tables 11 and 13, Appendix A, pp. 33 and 35, respectively, below.

In view of the lower level of GNP per capita in East Germany since the war, the regime has been torn between the fear of losing more workers to West Germany because of the lag in personal consumption and the fear of losing out in competition with West Germany because of the continued lag in capital investment. The difficulty of agreeing on policies affecting the distribution of the national product was much intensified by Soviet exploitation and by the large scale of government expenditures considered necessary to gain and consolidate Communist control. The effects of these forces may be seen in Table 7* in the breakdown of GNP per capita in 1950, 1955, and 1957, accompanied by the parallel statistics for West Germany.

There was a major shift in the distribution of East German GNP after 1950, as shown in Table 7* and in the chart, Figure 3.** The shares both of personal consumption and of investment in 1950 were kept down by the large prior claims of occupation costs,

* Table 7 follows on p. 23.

** Following p. 26.

Table 7

East and West Germany: Gross National Product Per Capita, by End Use a/
1950, 1955, and 1957

End Use	1950		1955		1957	
	1936 RM Per Capita	Percent	1936 RM Per Capita	Percent	1936 RM Per Capita	Percent
East Germany						
Personal consumption	468	49	838	60	914	59
Gross investment	113	12	173	12	286	18
Public consumption	269	28	318	23	309	20
Foreign balance	102	11	67	5	46	3
GNP per capita	<u>952</u>	<u>100</u>	<u>1,396</u>	<u>100</u>	<u>1,555</u>	<u>100</u>
West Germany						
Personal consumption	774	62	1,167	62	1,295	63
Gross investment	258	20	419	22	430	21
Public consumption	213	17	266	14	279	13
Foreign balance	6	1	37	2	61	3
GNP per capita	<u>1,251</u>	<u>100</u>	<u>1,889</u>	<u>100</u>	<u>2,065</u>	<u>100</u>

a. See Table 13, Appendix A, p. 35, below.

administration, and defense (all under public consumption) and of reparations (under foreign account). The large increase in production during the 5-year period was allocated largely to personal consumption. Personal consumption showed an increase of 6.3 billion RM as against an increase of 1.0 billion RM in the level of gross investment. Even in percentage terms the increase in consumption from 1950 to 1955 was larger (about three-fourths) than the increase in investment, which was only twice as large (about one-half).

Table 7 indicates the following ratios between the value of the various end uses in East and West Germany on a per capita basis:

<u>End Use</u>	<u>1950</u>	<u>1955</u>
Personal consumption	0.60	0.72
Gross investment	0.44	0.41
Public consumption	1.26	1.20
Foreign balance	17.00	1.81
GNP per capita	0.76	0.74

As is indicated, the contrast between East and West Germany in personal consumption was at its greatest in the late 1940's and early 1950's and was thereafter steadily reduced -- a fact noted by every returning traveler. Personal consumption has continued to increase, at a slower rate, since 1955. The ratio of East to West German personal consumption is significantly higher for food, tobacco, and beverages, East German per capita consumption of which by 1955 was about 85 percent of the West German.* This estimate reflects calculations of the volume of consumption covering cash purchases and consumption in kind. It does not fully reflect the less satisfactory assortment of goods or the deterioration in quality of goods in

* The only breakdown of private consumption in West Germany is given in the original postwar series for GNP, 19/ which has since been recalculated. If the original figure were used, East German per capita consumption in 1955 would be within a few percent of West German. The original total for West German personal consumption has been officially increased by 12.5 percent, 20/ and it seems likely that about this increase should be applied to the figure for food consumption. The East German figure for cash purchases of foods is calculated from data on retail trade in 1936 prices 21/ adjusted for direct purchases from peasants. 22/ Agricultural consumption in kind is assumed to be the same per family as estimated for West Germany in 1953, 23/ deflated by the appropriate West German price index. 24/

East Germany. East German and West German consumption per capita are also roughly comparable for public transportation and repair services. Well below the general average is the ratio of East to West German consumption of textiles and shoes, consumer durables, professional services, telephone service, entertainment, and housing.

The East German leadership has dwelt on the intention of matching West German consumption of the "most important" consumer goods by the early 1960's. ^{25/} Of course, to provide the same number of kilograms of meat and butter, liters of milk, dozens of eggs, meters of cloth, and pairs of shoes is by no means to close the gap between East and West German consumption. Nor can it be closed by adding even a good many items to the list, such as bicycles, motor scooters, motorcycles, and radio and television sets. In the near future, however, the gap will be of a different kind than in the past, and the comparisons and contrasts will be drawn between two economies each of which has met the basic demands of a European standard of living -- with the important exception of housing, in which East Germany will not recover the prewar standard by the end of the 1960's.

The next largest share of GNP in East Germany has not been investment, as in West Germany, but public consumption. The regime's desire to fasten its control on the area as securely as possible led to the early development of a domestic military establishment. Moreover, the essential political aims of the regime led to relatively large outlays on the Party and on state bureaucracy. As a result, public consumption was about 28 percent of GNP in East Germany in 1950 as against about 17 percent in West Germany, and the difference has remained large. Expenditure per capita for public consumption in both years is still greater in East than in West Germany.

The relatively large balance on foreign account in East Germany in 1950 is chiefly accounted for by Soviet exploitation of one sort or another. The balance in 1955 also includes uncompensated deliveries to the USSR, together with debt servicing.* Such deliveries probably account for more than one-half of the balance shown in 1955. Unfavorable terms of trade, both with the USSR and with the West, account for a small part of the unfavorable balance in 1950, a considerable part of the balance in 1955, and most of the balance in 1957.

* The regime has never admitted that uncompensated deliveries continued beyond the formal discontinuation of reparations at the end of 1953, but there is evidence to show that they must have been continued, on one or another pretext, through 1955, although on a reduced scale.

The regime clearly found it more urgent to increase personal consumption, to set up a military establishment, and to support a large Party and state apparatus than to increase investment. As a result, East German investments ran at only about 12 percent of GNP in 1950 and 1955. On a per capita basis, East German investments in 1950 and 1955 (as shown in Table 13*) ran at only 44 and 41 percent, respectively, of West German investments. To be sure, fixed capital investments increased somewhat more, for additions to inventory were relatively greater in 1950 than in 1955 or 1957. In 1950 they constituted a larger part of investment than in West Germany, although not in 1955 or 1957. It is true, on the other hand, that a much greater part of West German investment was devoted to housing, somewhat less than one-sixth of gross investment in 1950 and somewhat less than one-fifth in 1955, whereas in East Germany the proportion ran at about 6 percent in 1950 and 9 percent in 1955.** All things considered, nonhousing investment per capita in fixed capital in 1955 was still only about one-half of nonhousing investment in fixed capital in West Germany.

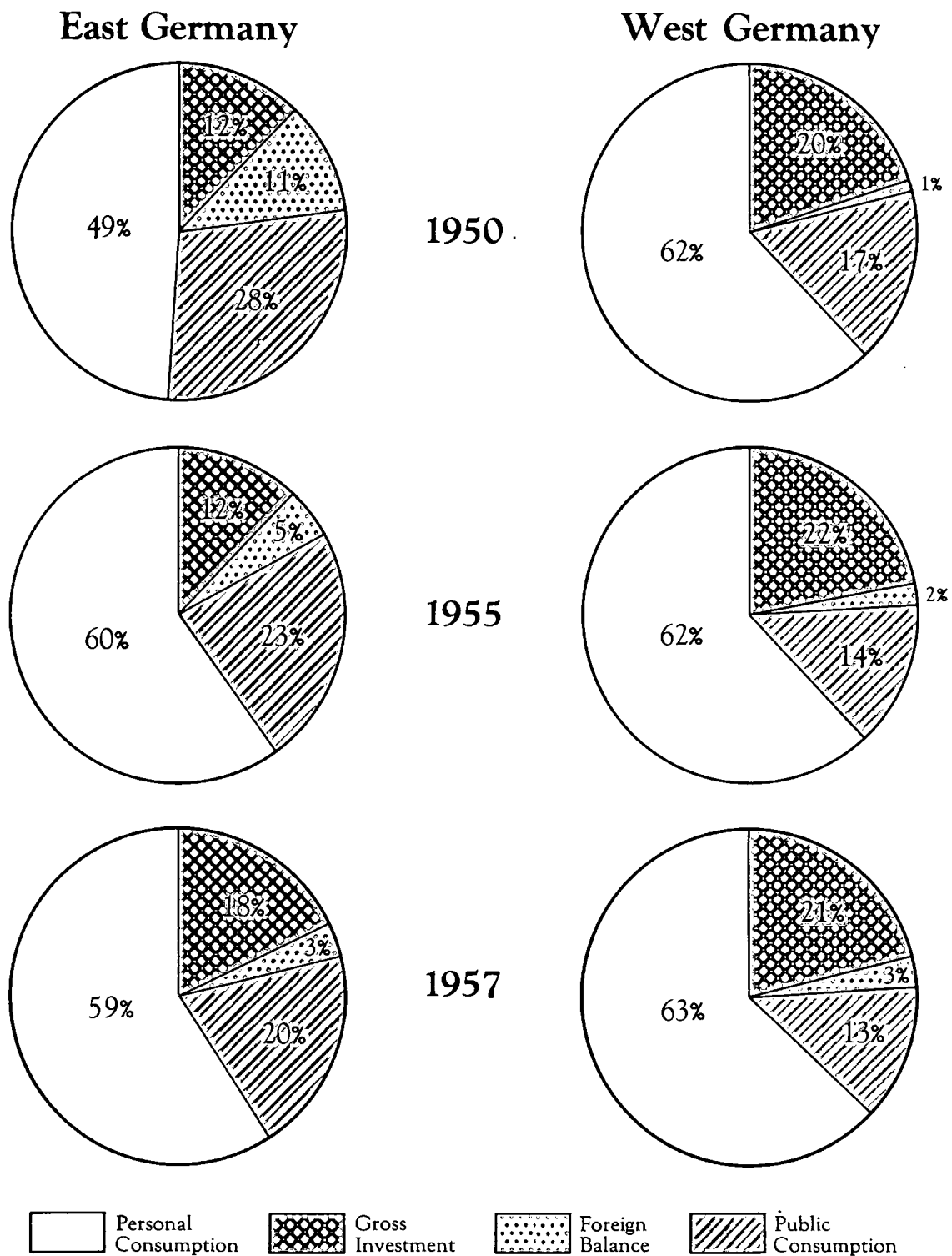
The willingness of the regime to allow consumption to increase and investment to lag arose from the need to encourage highly trained labor to remain in East Germany. The regime recognized, although with obvious reluctance, that its success in holding trained labor must depend in part on convincing the population that consumption would improve steadily -- indeed, rapidly. Although economic factors have by no means appeared to be decisive in emigration since the early 1950's, there is good reason to believe that emigration would have been much greater and the regime's control much more uncertain if the leadership had failed to pursue this policy.

A marked shift took place between 1955 and 1957 in the allocation of resources, as a result of the great reduction (perhaps the discontinuation) of uncompensated deliveries to the USSR in 1956. In 1956, moreover, the USSR agreed to a further reduction (by one-half) in occupation costs 29/ and a big increase in payments for

* Appendix A, p. 35, below.

** For purposes of comparison with the present estimates of gross investment in 1936 prices (see Table 8, Appendix A, p. 30, below), the value of housing construction in current prices 26/ was in each case deflated by the appropriate price index. That for West Germany is the official index for the price of housing construction. 27/ For East Germany the index used reflects a UN estimate for the change from 1950 to 1955 28/ and the present estimate of the change in overall construction costs in East Germany from 1936 to 1950, for which see Appendix B, p. 44, below.

Figure 3
East and West Germany
DISTRIBUTION OF GROSS NATIONAL PRODUCT
1950, 1955, and 1957



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uranium ore deliveries (the price was doubled). 30/ The reduction in Soviet demands was reflected in a comparable rise in investments. Personal consumption was allowed to increase moderately from 1955 to 1957 (by roughly 3 percent per year), but investment jumped by more than 30 percent in 1956 and by about 20 percent in 1957.

In the 1960's the share of GNP devoted to investment in East Germany is likely to rise above that in West Germany. In 1958, East German investment (which was perhaps 5 percent greater than in 1957) was still less than 20 percent of GNP, but on the basis of the Seven Year Plan the projected level of investment amounts to 25 percent or perhaps more of GNP by 1965,* which in any case is somewhat greater than the present share of investment (in 1936 prices) in West German GNP.

A close correspondence between East and West Germany in the allocation of GNP is to be found at present, but there will probably be a gradual divergence as the East German pattern comes to resemble more that which is called for in Communist economic literature. The projected East German level of investment, however, although very high by Western standards, is by no means high by Communist standards. A ratio of 25 percent of investment to GNP has been exceeded by most other European Satellites.

* Planned fixed capital investment is to double, and national income (according to the Soviet concept) is to grow by about three-fifths. 31/ The estimate relating gross investment to GNP assumes that inventories are to grow about in proportion to national income and that "nonproductive" services are to increase at 1 percent per year.

APPENDIX A

STATISTICAL TABLES

Tables 8 through 13, given in this appendix, summarize the present set of estimates of East and West German national income and GNP for the selected years 1936, 1950, 1955, and 1957. The derivation of these tables is explained in Appendix B. There are two possible sources of error -- inaccuracies embodied in the official statistics used and misinterpretation of these statistics. It is not possible to assess the possible range of statistical error from either source, but it is believed to be rather unlikely that there are serious errors in the conclusions that have been based on these estimates.

The estimates in Tables 8, 10, 11, and 13 are expressed in terms of 1936 Reichsmark (RM). The ratio of the 1936 RM to the 1955 US dollar is approximately 1 RM to \$0.75 if 1955 West German quantity weights are used.*

* See the first footnote on p. 7, above.

Table 8

East and West Germany: Estimated National Income at Factor Costs, a/ by Sector of Origin Selected Years, 1936-57

Sector	1936				1950				1955				1957		
	East Germany		West Germany		East Germany		West Germany		East Germany		West Germany		East Germany	West Germany ^{b/}	
	Billion 1936 RM	Percent	Billion 1936 RM	Percent	Billion 1936 RM	Percent	Billion 1936 RM	Percent	Billion 1936 RM	Percent	Billion 1936 RM	Percent	Billion 1936 RM	Billion 1936 RM	
Energy	0.2	1	0.4	1	0.3	2	0.7	2	0.4	2	1.2	2	0.5	2	
Mining	0.4	2	1.2	3	0.5	4	1.3	3	0.7	4	1.7	2	0.7	4	
Manufacturing															
Industry	5.8	35	13.3	35	4.0	28	14.9	33	7.2	37	27.3	40	8.3	39	
Handicrafts ^{c/}	0.8	5	1.8	5	0.5	4	2.0	4	0.6	3	2.6	4	0.6	3	
Construction	0.9	5	2.1	5	0.6	4	2.4	5	0.8	4	4.0	6	1.2	6	
Agriculture and forestry	2.6	15	5.1	13	1.9	13	4.9	11	2.2	11	6.1	9	2.0	9	
Transport and communica- tions	1.4	8	3.3	9	1.2	9	4.3	10	1.8	9	6.2	9	2.0	9	
Trade	1.8	11	4.2	11	1.0	7	4.7	11	1.7	9	7.4	11	2.0	9	
Housing	0.5	3	1.3	3	0.3	2	1.2	3	0.3	1	1.5	2	0.3	1	
State and other public services	1.6	10	3.7	10	3.3	23	6.0	13	3.2	16	7.2	11	3.0	14	
Other services	0.8	5	1.8	5	0.6	4	2.2	5	0.7	4	2.8	4	0.7	4	
National income at factor costs	<u>16.8</u>	<u>100</u>	<u>38.2</u>	<u>100</u>	<u>14.2</u>	<u>100</u>	<u>44.6</u>	<u>100</u>	<u>19.6</u>	<u>100</u>	<u>68.0</u>	<u>100</u>	<u>21.3</u>	<u>100</u>	<u>76.3</u>

a. Exclusive of net factor incomes received from abroad.

b. Data for West Germany in 1957, which are derived from linking with a later series, are not completely comparable with the previous series. For this reason, no breakdown for the sectors is shown.

c. A small part of value added in handicrafts (roughly one-tenth) should properly be classified under services rather than under manufacturing.

Table 9

East and West Germany: Indexes of Estimated National Income at Factor Costs, by Sector of Origin
1950, 1955, and 1957

1936 = 100

Sector	1950		1955		1957	
	East Germany	West Germany	East Germany	West Germany	East Germany	West Germany ^{a/}
Energy	133	182	204	310	236	
Mining	128	108	174	141	183	
Manufacturing						
Industry	69	112	124	205	143	
Handicrafts ^{b/}	66	112	75	144	75	
Construction	65	114	85	191	133	
Agriculture and forestry	73	97	85	120	77	
Transport and communications	89	130	128	189	141	
Trade	56	113	95	176	112	
Housing	55	92	56	118	58	
State and other public services	207	162	198	195	186	
Other services	76	122	91	156	91	
National income at factor costs	85	117	117	178	127	200

a. Data for West Germany in 1957, which are derived from linking with a later series, are not completely comparable with the previous series. For this reason, no breakdown for the sectors is shown.

b. A small part of value added in handicrafts (roughly one-tenth) should properly be classified under services rather than under manufacturing.

Table 10

East and West Germany: Estimated National Income Per Capita at Factor Costs, by Sector of Origin
Selected Years, 1936-57

Sector	1936 RM Per Capita							
	1936		1950		1955		1957	
	East Germany	West Germany	East Germany	West Germany	East Germany	West Germany	East Germany	West Germany ^{a/}
Energy	12	10	16	15	22	24	29	
Mining	25	31	27	28	39	35	40	
Manufacturing								
Industry	358	348	215	318	402	555	474	
Handicrafts b/	49	47	27	43	34	53	34	
Construction	56	55	32	51	45	81	69	
Agriculture and forestry	160	134	102	104	123	124	114	
Transport and communications	86	86	65	92	101	126	114	
Trade	111	110	54	100	95	150	114	
Housing	31	34	16	26	17	30	17	
State and other public services	99	97	177	128	179	146	171	
Other services	49	47	32	47	39	57	40	
National income per capita	<u>1,036</u>	<u>999</u>	<u>763</u>	<u>952</u>	<u>1,096</u>	<u>1,381</u>	<u>1,216</u>	<u>1,511</u>

a. Data for West Germany in 1957, which are derived from linking with a later series, are not completely comparable with the previous series. For this reason, no breakdown for the sectors is shown.

b. A small part of value added in handicrafts (roughly one-tenth) should properly be classified under services rather than under manufacturing.

Table 11

East and West Germany: Estimated Gross National Product at Market Prices, by End Use
Selected Years, 1936-57

End Use	1936				1950				1955				1957			
	East Germany		West Germany		East Germany		West Germany		East Germany		West Germany		East Germany		West Germany	
	Billion 1936 RM	Percent	Billion 1936 RM	Percent	Billion 1936 RM	Percent	Billion 1936 RM	Percent	Billion 1936 RM	Percent	Billion 1936 RM	Percent	Billion 1936 RM	Percent	Billion 1936 RM	Percent
Personal consumption	12.5	60	29.0	60	8.7	49	36.3	62	15.0	60	57.4	62	16.0	59	65.4	63
Gross investment	4.0	19	9.0	19	2.1	12	12.1	20	3.1	12	20.6	22	5.0	18	21.7	21
Public consumption	4.4	21	10.0	21	5.0	28	10.0	17	5.7	23	13.1	14	5.4	20	14.1	13
Foreign balance					1.9	11	0.3	1	1.2	5	1.8	2	0.8	3	3.1	3
GNP at market prices	<u>20.9</u>	<u>100</u>	<u>47.9 a/</u>	<u>100</u>	<u>17.7</u>	<u>100</u>	<u>58.7</u>	<u>100</u>	<u>25.0</u>	<u>100</u>	<u>92.9</u>	<u>100</u>	<u>27.2</u>	<u>100</u>	<u>104.3</u>	<u>100</u>

a. Computed from unrounded data.

Table 12

East and West Germany: Indexes of Estimated Gross National Product at Market Prices, by End Use
1950, 1955, and 1957

1936 = 100

End Use	1950		1955		1957	
	East Germany	West Germany	East Germany	West Germany	East Germany	West Germany
Personal consumption	70	125	120	198	128	226
Gross investment	52	134	78	229	125	241
Public consumption	157	103	157	149	141	172
Foreign balance						
GNP at market prices	85	123	120	194	130	218

Table 13

East and West Germany: Estimated Gross National Product Per Capita at Market Prices, by End Use
Selected Years, 1936-57

End Use	1936			1950			1955			1957		
	1936 RM Per Capita		Ratio of East to West Germany	1936 RM Per Capita		Ratio of East to West Germany	1936 RM Per Capita		Ratio of East to West Germany	1936 RM Per Capita		Ratio of East to West Germany
	East Germany	West Germany		East Germany	West Germany		East Germany	West Germany		East Germany	West Germany	
Personal consumption	772	759	1.02	468	774	0.60	838	1,167	0.72	914	1,295	0.71
Gross investment	247	236	1.05	113	258	0.44	173	419	0.41	286	430	0.67
Public consumption	272	262	1.04	269	213	1.26	318	266	1.20	309	279	1.11
Foreign balance				102	6	17.00	67	37	1.81	46	61	0.75
GNP per capita	<u>1,291</u>	<u>1,257</u>	1.03	<u>952</u>	<u>1,251</u>	0.76	<u>1,396</u>	<u>1,889</u>	0.74	<u>1,555</u>	<u>2,065</u>	0.75

APPENDIX B

DERIVATION OF ESTIMATES

Insofar as available information permits, the estimates made for East Germany have been made comparable with West German statistics in over-all coverage, in classification, and in methods and assumptions. The data and procedures used, however, are generally not of exactly the same kind as those underlying the West German official statistics, and additional research might result in improvements with respect to comparability.*

1. National Income and GNP

a. Estimates for East Germany

For purposes of comparison with published data for West Germany, national income and GNP in East Germany were calculated for 1936, 1950, 1955, and 1957 in terms of 1936 Reichsmark (RM). Estimates of GNP are almost entirely independent of estimates of national income.

Estimates of national income involved two distinct steps: (1) an estimate of national income and its distribution by sector in 1936 and (2) an estimate of the movement of national income between 1936 and postwar years by means of quantity indexes representing the individual sectors.

Estimates of GNP were made in the following manner: (1) GNP in current prices was estimated for each of the years considered, and (2) these values in current prices were converted to 1936 prices by means of estimated price indexes for each major end use of GNP.

These two methods give somewhat different results in measuring the growth of the East German economy, but the series for GNP and national income are close enough to each other to offer some corroboration of the results.

* For remarks on comparability in the valuation of services, see p. 41, below.

(1) National Income

(a) Estimate for 1936

The present estimate of East German national income* in 1936 is obtained as the sum of sector estimates. It is very close to the total obtained from prewar official data for national income, broken down by Laender.** 32/ The present estimate of national income is 5 percent above that of "Germanicus" 33/ and about 3 percent below the only other comparable figure*** -- the sum of the estimates for the Soviet Zone of Occupation and the Soviet Sector of Berlin made by the Deutsches Institut fuer Wirtschaftsforschung (commonly called the DIW, West German Institute for Economic Research). 34/

The principal basis for the present sector estimates is a DIW study (by Bruno Gleitze), 35/ which is used for energy, mining, manufacturing, construction, agriculture, transport and communications, and trade. The proportions that Gleitze shows between the Soviet Zone plus East Berlin (36 percent of the total Berlin figures) and West Germany (excluding West Berlin and the Saar) are applied to the net value-added figures in 1936 for West Germany shown in official accounts. For services, the estimate for the Soviet Zone by the late Ferdinand Gruenig is used, blown up (by the ratio of employment figures in 1939) to include East Berlin. The same figure would be found by using the 1939 employment ratio for services between East and West Germany 36/ and applying it to the West German net value-added figure. The estimate of value added in housing represents the same proportion of estimated rent as in West Germany. The breakdown between the public sector ("state services and other public services") and other services is assumed to be the same as in West Germany.

The breakdown of national income in 1936 by sector of origin seems to be very nearly consistent with the DIW estimates (by Gruenig) for the Soviet Zone, 37/ if the latter are blown up sector by sector to include East Berlin by using the employment ratios of 1939.

* Net national product at factor costs except that net factor incomes received from abroad have been excluded.

** The weight assigned to East Berlin reflects a breakdown of the total given for Berlin according to the DIW estimate cited below. The ratio of East to West German national income in the official prewar figures cited is slightly higher than the ratio between the present estimates.

*** The 1936 estimates by Fred Sanderson and Wolfgang Stolper (see p. 42, below) are only for GNP, not for national income.

(b) Estimates for 1950, 1955, and 1957

The estimates of national income for 1950, 1955, and 1957 are obtained by multiplying the estimates of net value added in each sector of origin in 1936 by quantity indexes representing the movement of production in these sectors. The resulting index for national income is somewhat lower than the indexes of economic growth given by "Germanicus" and Sanderson and somewhat higher than that of Stolper, as indicated in the following comparison (1936 = 100):

	<u>1950</u>	<u>1955</u>
"Germanicus" (national income) <u>38/</u>	91	118
Sanderson (GNP at factor cost) <u>39/</u>	91*	
Stolper (GNP at market prices) <u>40/</u>	79	111
Present estimates (national income)**	85	117

The index resulting from the present estimates of national income would actually be close to Stolper's except for a major difference in estimates of "nonproductive" services, in which Stolper fails to include the services of those gainfully employed persons (including all military and police forces) excluded from the official East German employment figures.***

The sector indexes for energy, mining, and manufacturing are based largely on the indexes computed by Stolper, 41/ whose work represents far more detailed investigation than has been done by anyone else. The base year weights represent net rather than gross value added, and gas has been shifted from mining to energy. Net value added in uranium mining is estimated as negligible.

The figures for industrial handicrafts are based on estimates of productivity. It is assumed that productivity was somewhat less than one-half of that in manufacturing in 1950 and about one-third of that in manufacturing in 1955 and 1957.[†] The ratios are the same as in West Germany.^{††}

* Sanderson's index is for 1948 and 1952, and the number shown here for 1950 is interpolated, using the decline in the rate of growth as estimated by "Germanicus" and Sanderson.

** See Table 9, Appendix A, p. 31, above.

*** See p. 41, below, and the footnote on p. 10, above.

† For the East German employment figures, see source 42/.

†† For the West German employment figures, see source 43/.

The index for construction is likewise based on Stolper's index 44/ for 1936 and 1955, but it is much higher than Stolper's index for 1950. Stolper's index, which reflects the estimated supply of building materials, takes no account of the use of materials from bombed-out buildings, which was still significant in 1950. The estimate for 1950 was obtained by linking Stolper's index for 1955 (1936 = 100) to an official index of the growth of construction in current prices between 1950 and 1955, corrected by a price index given by the UN, reportedly based on official East German data. 45/

Stolper's index for agriculture and forestry was also used except that the base year was shifted to 1936 from the 1934-38 average for vegetable products and from 1938 for animal products. 46/ A rough adjustment, based on prewar data for agricultural sales and costs and on price indexes for farm sales and purchases, 47/ reduces Stolper's base values by about 7 percent. Thus Stolper's index numbers for the postwar years are raised by about 8 percent.

The index of the transport and communications sector is the same as Stolper's for 1955 and 1957 in relation to 1950, 48/ but it is lower in relation to 1936 than Stolper's because of an adjustment in the index for rail freight transport. The index (for net ton-kilometers) of the West German expert Wolfgang Seidel 49/ has been used in place of Stolper's (for tariff ton-kilometers).

To estimate the movement of value added in the trade sector, an index of employment in trade was used for 1955 in relation to 1936. This index was then linked with an index of wholesale and retail turnover, weighted by employment, for 1950 and 1957 in relation to 1955. The sum of value added in industry and agriculture is assumed to represent wholesale trade, and the retail index is derived from East German published figures on retail trade turnover in constant prices.* 50/ This procedure implies that value added per worker in trade was the same in 1955 as in 1936 but was below the 1936 level in earlier postwar years. Stolper's procedure, on the other hand, assumed that value added per worker was the same in all postwar years as in 1936.

It would have been closer to the West German approach to rely entirely on indexes of wholesale and retail trade activity, weighted by employment, to measure value added in trade. The service

* This index is not to be confused with the official retail price index, 51/ the use of which results in understating the value of retail sales in 1936 prices in the early 1950's.

rendered by trade in postwar East Germany, however, has obviously been of less value in relation to turnover than in prewar Germany or in West Germany, and the rule-of-thumb adjustment used in making the present estimate allows for such a shift.

The index for housing represents the relation between Dorothea Faber's estimate of available housing (square meters of Wohnraum) in 1939 52/ and UN estimates for 1950 and 1957. 53/ The 1955 figure is interpolated on the basis of published housing construction figures 54/ and the average UN retirement rate for the 1950's.

The indexes for public and for other services reflect the movement of estimated employment in these services times a constant average value added per worker. The estimates of total employment in each of these two types of services include unreported employment. Net value added per worker in these two sectors is obtained by dividing estimated net value added in 1936 by employment in 1939. 55/ Employment in services may well have been somewhat lower in 1936 than in 1939; if so, the postwar estimates are somewhat too low for services.

Constant labor productivity is also assumed in West German calculations for public services and for some private services, and a check on the figure for all private services shows very little change over time in productivity. The assumption used in making the present estimates for East Germany therefore seems preferable to any alternative assumption in measuring the output of services.

A further adjustment in the postwar estimates for public services was made for the sake of comparability with West Germany. The West German official figures for value added in public services include an imputation for the services of foreign troops on duty in West Germany. Explicit mention is made of this allowance for the years through 1954 (while these troops were present as occupation troops), and it is obvious that the allowance continued to be made in 1955 and thereafter. 56/ From the figures shown for 1950-52, 57/ it appears that imputation of value added by foreign troops ran between 30 and 40 percent of the West German payment toward their maintenance. This basis is used in making a parallel estimate for East Germany; the estimate for public services is adjusted upward by the ratio between one-third of occupation costs 58/ and the total estimated personnel costs of public services. The total estimated personnel costs of public services are computed by multiplying the total number employed by the average cost per employee (the published average wage plus 10 percent).

(2) Gross National Product

(a) Estimates for 1936

The present estimate of East German GNP in 1936 is obtained by adding to national income* indirect taxes and depreciation, estimated from the ratios between East and West German figures for a large part of indirect taxes (40.8 percent) and for a large part of the value of capital assets (44.6 percent). 60/ The resulting GNP estimate is 3.9 percent above that of Sanderson, 61/ 5 percent above that of "Germanicus," 62/ and 16.1 percent above that of Stolper. 63/ Stolper's estimate, which was obtained as the sum of estimates of gross value added by sector of origin, is so much lower because of the exclusion of value added in housing, incomplete coverage of value added by handicrafts, and the omission of a substantial part of indirect taxes.

The percentage distribution of GNP by end use in 1936 was assumed to be the same in East as in West Germany except that investment was allocated to East Germany in proportion to the estimated value of construction activity in East and West Germany, and the relative size of the other end uses was modified accordingly.

(b) Estimates for 1950, 1955, and 1957

The estimates of East German GNP in 1950, 1955, and 1957 are, with minor exceptions, the sums of the estimated end uses, in current prices, deflated by calculated price indexes. Sanderson's GNP estimates, 64/ which are for different years (1948 and 1952), imply a level about 10 percent higher for 1950 than that shown in the present estimate. Likewise, Gruenig's estimate of net national product for the year 1949, valued at current West German market prices, is 12 percent higher in relation to the estimate for West Germany than is the present estimate for GNP in 1950 to the present West German figure (33.7 percent as against 30.2 percent). 65/ "Germanicus'" estimate of GNP in 1950 is 19 percent above the present 1950 estimate, but the estimate for 1955 is only 3 percent above the present 1955 estimate. 66/ Stolper's estimates of postwar East German GNP, on the other hand, are 20 percent lower than the present estimates. 67/ Stolper's estimates are obtained by applying indexes of the growth of output to his estimates for the sectors of origin in 1936. The omissions and undercoverage in those estimates for the base year, together with the difference between his estimate and the present

* The estimate given in Table 8 (Appendix A, p. 30, above) plus net factor incomes received from abroad. The adjustment is arbitrarily made proportional to that shown for West Germany. 59/

estimate of the growth of "nonproductive" services, account roughly for the difference between his GNP estimates and the present GNP estimates for the postwar period.

The estimates for personal consumption in 1936 prices represent the value of consumer expenditures, excluding housing rentals and consumption in kind, in current prices, deflated by means of price indexes, plus direct calculations of rentals and consumption in kind in 1936 prices. Personal consumption expenditures (excluding rents and consumption in kind) in current prices were calculated from direct estimates of the wage bill and from a percentage distribution of the money incomes and expenditures of a sample of the East German population.

The wage bill is computed from the published wage bill 68/ plus the estimated wage bill of various categories of unreported employment. The total employment for such categories, including self-employed persons, has been estimated by the Bureau of the Census, which has also made a partial breakdown.* Average wages in the unreported categories are calculated by analogy with those of the most nearly comparable groups for which average wage figures are given. An announced figure for the total wage bill covering these categories, which was given for 1955 and 1957 by Margarete Wittkowski (Deputy Chief of the East German State Planning Commission) in November 1957, provides a check for the above estimates. 70/

The relation between total money wages and the various categories of personal consumption (excluding agricultural consumption in kind and rents) is calculated for 1955 and 1957 from a representative breakdown of the "incomes and expenditures of the population." 71/ The relation is computed for 1950 from published information showing the main changes from 1950 to 1955 in the structure of personal incomes and expenditures. The resulting estimates of personal consumption expenditures in current prices are converted to 1936 prices by means of computed price indexes for retail trade, household purchases from peasants, and services. The most important of these, the index for retail trade, is derived from published East German series for retail trade in current and constant (1936) prices. 72/ The over-all cost-of-living index implied in the present estimates shows postwar prices as substantially higher (11 to 16 percent) in relation to 1936 prices than is indicated by the cost-of-living index of the DIW, 73/ and it is therefore possible that the final estimate of personal consumption in 1936 prices is too low. Against this

* The total has been formally published; the breakdown is given only in a preliminary working paper. 69/

should be set the difference in quantity weights: the price index implied in the present estimates reflects postwar quantity weights, whereas the DIW cost-of-living index reflects prewar quantity weights, and those commodities for which postwar consumption dropped the most were generally those for which price increases were the greatest.

The value of rents, both actual and imputed, at 1936 prices is calculated by multiplying the number of square meters of dwelling space (based on UN estimates 74/) by the average rental per square meter in 1936. 75/ Peasant household consumption in kind of agricultural products per farm family is estimated to be the same for East Germany in the 1950's as for West Germany in 1953. It is deflated to 1936 prices by means of West German data. 76/

The investment estimates are based ultimately on East German official data as interpreted by the DIW. 77/ The DIW estimates, in current prices, are deflated by separate price indexes for construction, machinery and equipment, and inventories. The price index for construction reflects the values in current prices (official figures 78/) divided by the calculated values in 1936 prices (estimated from Gleitze's base figure 79/ and the index for value added in construction). Price movements for machinery and equipment and for inventories from 1936 to 1950 are based on estimates by the DIW. 80/ From 1950 to 1955 and 1957 these movements are calculated from official indexes of production in plan (approximately 1950) prices and in current prices. 81/

The estimates in current prices for other end uses -- public consumption, administration, defense, and the balance on foreign account -- are also based in part on the DIW interpretation of official East German national income data. 82/ From these data were derived the purchases of materials by government and nonprofit organizations, to which were added personnel costs (computed from published and estimated wage bills) and military investments (computed from planned military investments in 1956-60 83/). This procedure gives the total value of public consumption, administration, and defense except for imported munitions, which are not covered in the present estimates. The balance on foreign account, as shown in official East German national accounts and estimated by the DIW, represents the difference between national income produced and national income available for domestic use. The balance reflects incomplete figures, excluding particularly invisibles, the value-added component of uranium ore deliveries, and munitions imports, but these exclusions tend to be offsetting.

Estimated public consumption, administration, and defense in current prices were deflated by separate indexes for personnel costs (by a wage index calculated from prewar and postwar wage data 84/); purchases of materials (by a wholesale price index, based on DIW estimates for 1950, 85/ and later price changes implied in gross production data 86/); and military investment (weighted index for prices of construction and machinery and equipment). The foreign balance in 1936 prices is obtained as explained below in connection with the foreign trade estimates.*

(c) Estimates for West Germany

All figures shown for West German national income and GNP are based on official calculations by the West German government or related calculations by the DIW. There are two distinct official series for West German national accounts in the postwar period. The first official series for West German national income and GNP, which appeared in the statistical yearbooks through 1956, were calculated directly in 1936 prices by the use of production indexes together with indexes for indirect taxes and depreciation. Associated series in current postwar prices were obtained by inflating the basic estimates with price indexes.** The GNP series in current prices was broken down by end use, and the resulting breakdown was deflated to 1936 prices by indexes of prices to final consumers. The latter official series, which have appeared in the statistical yearbooks beginning with 1957, were calculated in current prices and then deflated to a constant price basis of 1954 (or, in the publications of the DIW, 1950). Insofar as is known, these estimates have never been deflated to prewar constant prices.

For comparison with the present estimates of East German national income, the first West German series was used for 1950 and 1955 (it does not go beyond 1955) 87/ because it was calculated in much the same way as the present estimates for East Germany -- by applying indexes of output to net value added in the several sectors in 1936. The total West German national income in 1957 at 1936 prices was obtained by linking the new West German series in 1950 prices to the old series in 1936 prices. 88/ The further breakdown for industry was obtained from published indexes and weights, 89/ with adjustment to put the weights on a net value-added basis.

* See 3, below.

** For public services the reverse process was followed: the basic estimates were in current prices, and the estimates in 1936 prices were obtained by deflation.

For comparison with the present estimates of East German GNP, the second West German series (as revised in 1960*) was used 90/ because, like the basic estimates used in computing the present series for East Germany, it was computed directly from data in current prices. The price indexes used in deflating it reflect the official conversion of the original breakdown by end use from current prices to 1936 prices. 91/ The implied price movements were used to convert to 1936 prices the new West German GNP figures for 1950 and 1955, sector by sector, from current prices. (For the foreign account the conversion was performed separately for exports and imports.) The use of price indexes given elsewhere in the statistical yearbooks would have produced approximately the same results. The estimates for 1957 West German GNP in 1936 prices were obtained by linking the derived series in 1936 prices to the DIW series in 1950 prices, 92/ which does not reflect the 1960 revisions.

2. Value of Productive Fixed Capital

Gruenig has estimated the value of fixed capital in West Germany at replacement costs in 1950 prices by major sectors for 1939, 1948, 1950, and 1955. 93/ The value of productive fixed capital in East Germany was estimated indirectly. For the prewar period, estimates for East Germany were made by comparing the assessed values used in 1936 in East and West Germany to calculate the capital assets tax. 94/ An estimate was made for the early postwar period by adjusting the prewar estimate by West German calculations of the extent of wartime destruction and Soviet dismantling. 95/ For 1950, comparisons were made for industry, agriculture, and transport. Estimates of capital assets in East German industry were made by the use of published depreciation allowances, 96/ which are based on a revaluation of capital assets in 1948 97/ and on the application of the flat depreciation rates used in East German enterprises, together with published data indicating the distribution of capital assets by type. 98/ For agriculture and transport in 1950 the same methods and sources were used, except that the distribution of capital assets by type had to be estimated roughly from physical data. A comparison of the physical data with those for the prewar period and for West Germany 99/ also supports the estimates made. The estimates made for later postwar years reflect the relation of East to West German additions to fixed capital based on the ratio of East to West German investments.

* The 1960 revision is not accompanied by the basic data for foreign trade needed for purposes of deflation, and the figures in the 1957 statistical yearbook were therefore used (see p. 47, below). The revised foreign balances are practically the same as those given in the yearbook.

3. Value of Exports and Imports

The estimates of exports and imports in 1936 Reichsmark given in the text cover only commodity trade. The figures for 1936 are as estimated by the UN. 100/ Three-eighths of the external trade of Berlin is imputed to East Berlin, and transactions between East Berlin and the rest of East Germany are netted out.

Figures for West Germany in 1950 and 1955 are the latest published official estimates in current prices for the commodity trade of the German Federal Republic, converted by the price indexes used in converting the original series (which failed to separate the trade of West Berlin from that of the Federal Republic). 101/ For 1957 the estimates are obtained by linking with the DIW series in 1950 prices. 102/

Postwar estimates for East Germany, which include both regular commercial trade and uncompensated deliveries to the USSR, are admittedly rough estimates. Those for commercial trade represent official published data in clearing rubles (for Soviet - East German trade as given in Soviet publications), 103/ converted to West German marks and deflated by the same indexes used in the official West German estimates. The conversion is above the official rate of exchange for East German exports and below the official rate of exchange for East German imports so as to allow for unfavorable terms of trade. The discounts are based on estimates of Horst Mendershausen for trade with the USSR. 104/ Comparable discounts are applied to figures for trade with Western countries except West Germany. The evidence available (for example, comparative data on subsidies of East German machinery exports in 1956 105/) suggests that the terms of trade with Western countries are at least as unfavorable as those with the USSR.

Uncompensated deliveries to the USSR are added to estimated commercial exports on the following basis. For 1950 the figure selected represents the most plausible estimate available. 106/ For 1955, uncompensated deliveries are added to estimated commercial exports in the proportion indicated by the difference between the commercial foreign trade balance at domestic prices, as estimated by the UN, and the official foreign balance at domestic prices, as estimated by the DIW. 107/ In calculating the over-all East German foreign balance in 1936 prices, as shown in the GNP estimates, transport and other services are included. 108/ The estimates in current prices are converted at the official rate of exchange and deflated by the index used in West German calculations. The net import of these services represents the difference between the foreign trade balance shown in the text and the over-all foreign balance shown in the GNP estimates.

APPENDIX C

SOURCE REFERENCES

A few scholars have made substantial contributions to the comparison of East and West German national products. The late Ferdinand Gruenig, a West German authority on national accounts, made the first comparisons of national income in East Germany and West Germany (for 1936 and 1947-49 in current prices). Bruno Gleitze, who began his postwar career as head of the East German Central Office for Statistics, did most of the basic work in breaking down the prewar German statistics according to postwar boundaries. Gruenig and Gleitze did most of their work in this field in the late 1940's and early 1950's as staff members of the Deutsches Institut fuer Wirtschaftsforschung (commonly called the DIW, West German Institute for Economic Research). Fred Sanderson of the Department of State made the first attempt to develop estimates of postwar East German national product in constant 1936 prices. A set of Sanderson's estimates (for 1936, 1948, and 1952) was published in 1955 by the Congressional Joint Committee on the Economic Report. A British economist writing under the pen name "Germanicus" made a more complete set of estimates both in current prices and in 1936 prices, covering 1936 and the years 1950-55. These estimates were published in an article appearing in 1956. Finally Wolfgang Stolper undertook for the Center for International Studies (CENIS) at the Massachusetts Institute of Technology a more exhaustive study along the same lines (for 1936 and 1950-57). This study, which has been circulated in manuscript and summarized in articles during the last 2 years and is now being published in book form, represents a major contribution to the study of East German industry and agriculture.

The most convenient primary sources of data on the postwar German economy are the official statistical yearbooks issued annually for West Germany since 1950 and for East Germany since 1955. For prewar data the most convenient source is a compilation of prewar German statistical yearbooks (and unpublished official records) issued in 1948 by the Laenderrat of the US Occupation Zone.

Most of the other publications cited are also German. A good deal of information about the East German economy is contained in East German periodicals, including the official journals on economic theory, finance, and statistics -- Wirtschaftswissenschaft, Deutsche Finanzwirtschaft, and Statistische Praxis, of which the first is quarterly and the last two are monthly. West German publications contain valuable studies on both economies. In addition to those of

the DIW, including its weekly report (Wochenbericht) and a quarterly review (Vierteljahrshefte zur Wirtschaftsforschung), special mention should be made of the publications of the West German Statistical Office, particularly the monthly periodical Wirtschaft und Statistik, and those of the Ministry for All-German Affairs, notably the so-called Bonn Reports from Central and Eastern Germany (Bonner Berichte aus Mittel- und Ostdeutschland).

In English, probably the most useful general source of information and comment on the East and West German economies is the Economic Survey of Europe published annually by the UN, together with the supplementary Economic Bulletin for Europe (three times a year). One US Government publication also deserves special mention, the study by Samuel Baum and Jerry W. Combs, Jr., of the Bureau of the Census on the East German labor force (International Population Statistics Report, Series P-90, No. 11).

It is believed that the basic statistical information issued by the so-called German Democratic Republic, like that issued by the Third Reich and the German Federal Republic, is accurately reproduced from official records. Interpretation of the East German materials, however, is to a greater extent a matter of inference, and the possibility of serious errors in interpretation can never be entirely ruled out.

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1. Neues Deutschland, [East] Berlin, 2 Oct 59, special supplement, "Gesetz ueber den Siebenjahrplan," p. 4.
 2. Gilbert, Milton, et al. Comparative National Products and Price Levels, Paris, 1958, p. 86.
 3. Schoerry, Otto. "Das Volkseinkommen und Sozialprodukt im Bundesgebiet im 2. Halbjahr 1950 und im Jahr 1950," Wirtschaft und Statistik (West German Statistical Office), Apr 51, no. 4, p. 146.
 4. Koziolok, Helmut. Grundfragen der marxistisch-leninistischen Theorie des Nationaleinkommens, [East] Berlin, 1957, p. 19.
 5. Gleitze, Bruno. Ostdeutsche Wirtschaft, [West] Berlin, 1956, p. 2.
 5. East German State Central Administration for Statistics. Statistisches Jahrbuch der Deutschen Demokratischen Republik 1957, p. 7.
 - West German Statistical Office. Statistisches Jahrbuch fuer die Bundesrepublik Deutschland 1958, p. 28, 477.

6. Commerce, Bureau of the Census. International Population Statistics Reports, Series P-90, no 11, The Labor Force of the Soviet Zone of Germany and the Soviet Sector of Berlin, by Samuel Baum and Jerry W. Combs, Jr., 1959, p. 6 ff, 23. (hereafter referred to as Commerce. Labor Force)
7. West German Statistical Office. Statistisches Jahrbuch fuer die Bundesrepublik Deutschland 1958, p. 9, 28.
East German State Central Administration for Statistics. Statistisches Jahrbuch der Deutschen Demokratischen Republik 1957, p. 7, 8.
Commerce. Labor Force (6, above).
8. West German Statistical Office. Statistisches Jahrbuch fuer die Bundesrepublik Deutschland 1958, p. 9, 110.
Gleitze, op. cit. (4, above), p. 153.
Laenderrat, US Occupation Zone. Statistisches Handbuch von Deutschland 1928-1944, Munich, 1949, p. 37.
9. West German Statistical Office. Statistisches Jahrbuch fuer die Bundesrepublik Deutschland 1958, p. 110.
State, Bonn. Handbook of Economic Statistics, Federal Republic of Germany, 1 May 59, p. 39.
10. East German State Central Administration for Statistics. Statistisches Jahrbuch der Deutschen Demokratischen Republik 1956, p. 154.
11. Commerce. Labor Force (6, above), p. 6-7.
12. Laenderrat, US Occupation Zone. Statistisches Handbuch von Deutschland 1928-1944, Munich, 1949, p. 470.
West German Statistical Office. Statistisches Jahrbuch fuer die Bundesrepublik Deutschland 1958, p. 441.
East German State Central Administration for Statistics. Statistisches Jahrbuch der Deutschen Demokratischen Republik 1957, p. 274-275, 279.
Bendrath, Sonja. "Die Ausnutzung der Arbeitszeit in den Betrieben der volkseigenen Industrie im 1. Halbjahr 1957," Vierteljahreshefte zur Statistik der DDR (East German State Central Administration for Statistics), 1957, no 4, p. 128-131.
13. East German State Central Administration for Statistics. Statistisches Jahrbuch der Deutschen Demokratischen Republik 1955, p. 90 ff.
14. Hentschel, Martin. "Die Berechnung des Aufkommens und der Verwendung des gesellschaftlichen Gesamtprodukts und des Nationaleinkommens im zweiten Fuenfjahrplan," pt II, Statistische Praxis, Sep 57, no 9, p. 178 ff.
15. UN. Economic Bulletin for Europe, Geneva, 1959, no 3, p. 52 ff.
16. East German State Central Administration for Statistics. Statistisches Jahrbuch der Deutschen Demokratischen Republik 1956, p. 141.
17. Gleitze, op. cit. (4, above), p. 170, 173.

18. Bremen Committee for Economic Research. Am Abend der Demon-
tage, Bremen, 1951, p. 76-113.
SPD Information Service. Die Reparationen in der Sowjetzone
von 1945-1952 (Denkschriften, no 51), Bonn [1953], p. 14-16.
(hereafter referred to as SPD Information Service. Die
Reparationen)
19. West German Statistical Office. Statistisches Jahrbuch fuer
die Bundesrepublik Deutschland 1956, p. 518-521.
20. Bartels, H.; Raabe, K.H.; and Schoerry, Otto. "Das Sozial-
produkt in den Jahren 1950 bis 1959," Wirtschaft und Statistik,
Jan 60, no 1, p. 15.
21. Statistische Praxis, Apr 56, no 4, unnumbered page (Wirt-
schaftszahlen der DDR).
22. Heinrichs, Wolfgang. Der Einzelhandel und seine Planung,
[East] Berlin, 1959, p. 77.
23. West German Statistical Office. Statistisches Jahrbuch fuer
die Bundesrepublik Deutschland 1957, p. 548-549.
24. Ibid., p. 506-507.
25. Statistische Praxis, Jul 58, no 7, p. 145.
26. East German State Central Administration for Statistics.
Statistisches Jahrbuch der Deutschen Demokratischen Republik
1958, p. 385.
Statistical appendix to Gruenig, Ferdinand. "Volkswirtschaft-
liche Gesamtrechnung einschliesslich Geldvermoegensrechnung
fuer die Bundesrepublik," Vierteljahrshefte zur Wirtschafts-
forschung, 1957, no 3, p. 286.
27. West German Statistical Office. Statistisches Jahrbuch fuer
die Bundesrepublik Deutschland 1958, p. 424.
28. UN. Economic Survey of Europe in 1955, Geneva, 1956, p. C-28.
29. "Rede des Finanzministers Willy Rumpf zur Begrueudung des
Staatshaushaltsplanes 1957," Deutsche Finanzwirtschaft (East
German Ministry of Finance), 1957, no 10, p. 145.
30. Der Tag, [West] Berlin, 16 Mar 58.
31. Neues Deutschland, [East] Berlin, 1 Oct 59, special supplement,
"Der Siebenjahrplan des Friedens ... des Wohlstandes und des
Gluecks des Volkes," speech by Walter Ulbricht, p. 7.
32. German Statistical Office. Wirtschaft und Statistik, Jul 39,
no 14, p. 565 ff.
Laenderrat, US Occupation Zone. Statistisches Handbuch von
Deutschland 1928-1944, Munich, 1949, p. 601.
33. "Germanicus." "East Germany's Economic Development," Economia
internazionale, May 56, p. 307.
34. Gruenig, Ferdinand. "Volkswirtschaftliche Gesamtrechnung
fuer die sowjetische Besatzungszone," Vierteljahrshefte zur
Wirtschaftsforschung, 1950, no 1, p. 30.
Krengel, Rolf. Volkswirtschaftliche Input-Output-Rechnung,
Sozialprodukt ... in West-Berlin, [West] Berlin, 1953, p. 87.
West German Statistical Office. Statistisches Jahrbuch fuer
die Bundesrepublik Deutschland 1956, p. 18.

35. Gleitze, op. cit. (4, above).
36. Ibid., p. 153.
37. Gruenig, op. cit. (34, above).
38. "Germanicus," op. cit. (33, above).
39. Library of Congress, Legislative Reference Service. Trends in Economic Growth: A Comparison of the Western Powers and the Soviet Bloc, prepared for the Joint Committee on the Economic Report, 83d Congress, 2d Session, 1955, p. 292.
40. Stolper, Wolfgang. "The National Product of East Germany," Kyklos, 1959, no 2, p. 133.
41. Stolper, Wolfgang. The Structure of the East German Economy, MSS, Cambridge, Mass., 1958-59, p. 145 ff.
42. East German State Central Administration for Statistics. Statistisches Jahrbuch der Deutschen Demokratischen Republik 1955, p. 126.
Ibid., 1956, p. 329-330.
Ibid., 1957, p. 180, 254.
43. West German Statistical Office. Statistisches Jahrbuch fuer die Bundesrepublik Deutschland 1956, p. 230.
Ibid., 1958, p. 173, 212-213.
44. Stolper, Wolfgang, op. cit. (41, above), p. 499 ff, 563a.
45. UN. Economic Survey of Europe in 1955, Geneva, 1956, p. C-28.
46. Stolper, op. cit. (41, above), p. 404 ff.
47. Laenderrat, US Occupation Zone. Statistisches Handbuch von Deutschland 1928-1944, Munich, 1949, p. 461, 607.
48. Stolper, op. cit. (41, above), p. 525 ff.
49. Ibid., p. 526-28.
Seidel, Wolfgang. Verkehrswirtschaft und Verkehrspolitik in der Sowjetzone (Materialien zur Wirtschaftslage in der sowjetischen Zone), Bonn, 1954, p. 34.
50. Statistische Praxis, Apr 56, no 4, unnumbered page (Wirtschaftszahlen der DDR).
51. East German State Central Administration for Statistics. Statistisches Jahrbuch der Deutschen Demokratischen Republik 1957, p. 216.
52. Faber, Dorothea. Die Wohnungswirtschaft in der sowjetischen Besatzungszone (Bonner Berichte aus Mittel- und Ostdeutschland), Bonn, 1953, p. 7.
53. UN. Economic Survey of Europe in 1958, Geneva, 1959, chap iv, p. 15.
54. East German State Central Administration for Statistics. Statistisches Jahrbuch der Deutschen Demokratischen Republik 1957, p. 334.
55. Gleitze, op. cit. (4, above), p. 153.
56. West German Statistical Office. Statistisches Jahrbuch fuer die Bundesrepublik Deutschland 1956, p. 516 ff.
Ibid., 1957, p. 561.

57. Ibid., 1953, p. 548-549.
58. West German Institute for Economic Research. Wochenbericht, 23 Apr 54, no 16/17, p. 67-68.
Kalus, Hellmuth. Wirtschaftszahlen aus der SBZ, Bonn, 1958, p. 94-96.
59. West German Statistical Office. Statistisches Jahrbuch fuer die Bundesrepublik Deutschland 1956, p. 520.
60. Ibid., p. 17-18.
61. Trends in Economic Growth, op. cit. (39, above).
62. "Germanicus," op. cit. (33, above).
63. Stolper, op. cit. (41, above), p. 563a.
Stolper, op. cit. (40, above), p. 133.
64. Trends in Economic Growth (39, above), p. 292.
65. Statistisches Kompendium ueber die sowjetische Besatzungszone, [West] Berlin, 1953, p. XXII/3. (reprinted from Vierteljahrshefte zur Wirtschaftsforschung, 1950, no 4, p. 254)
66. "Germanicus," op. cit. (33, above), p. 307.
67. Stolper, op. cit. (41, above), p. 563a.
68. East German State Central Administration for Statistics. Statistisches Jahrbuch der Deutschen Demokratischen Republik 1957, p. 208 ff.
69. Commerce. Labor Force (6, above).
Baum, Samuel. The Labor Force of East Germany 1939-1957, MS, Mar 59.
70. Neues Deutschland, [East] Berlin, 19 Nov 57, p. 3.
71. Heinrichs, op. cit. (22, above), p. 74, 77.
72. Statistische Praxis, Apr 56, no 4, unnumbered page (Wirtschaftszahlen der DDR).
Keck, Alfred. Die Bilanz der Geldeinnahmen und -ausgaben der Bevoelkerung, [East] Berlin, 1956, p. 80.
73. Wochenbericht, 21 Jun 57, no 25, p. 101-102.
74. UN. Economic Survey of Europe in 1958, Geneva, 1959, chap iv, p. 15.
75. East German Finance Ministry. Preisbestimmungen fuer Grundstuecke, Mieten und Pachten, [East] Berlin, 1954, p. 155.
76. West German Statistical Office. Statistisches Jahrbuch fuer die Bundesrepublik Deutschland 1957, p. 498, 504, 548-549.
77. Wochenbericht, 22 Aug 58, no 34, p. 135.
East German State Central Administration for Statistics. Statistisches Jahrbuch der Deutschen Demokratischen Republik 1957, p. 160.
78. Ibid., p. 154.
79. Gleitze, op. cit. (4, above), p. 172.
80. Wochenbericht, 23 Sep 55, no 38, p. 152.
Statistisches Kompendium ueber die sowjetische Besatzungszone, [West] Berlin, 1953, p. XXII/3. (reprinted from Vierteljahrshefte zur Wirtschaftsforschung, 1950, no 4, p. 254)

- Kupky, Helmut. "Die langfristige Entwicklung der Brutto-Anlage-Investitionen der mitteldeutschen Industrie von 1924 bis 1955," Vierteljahrshefte zur Wirtschaftsforschung, 1957, no 4, p. 396 ff.
81. East German State Central Administration for Statistics. Statistisches Jahrbuch der Deutschen Demokratischen Republik 1958, p. 172, 178, 262-263.
Wochenbericht, 18 Apr 57, no 16, p. 67-68.
82. East German State Central Administration for Statistics. Statistisches Jahrbuch der Deutschen Demokratischen Republik 1958, p. 182.
Wochenbericht, 22 Aug 58, no 34, p. 135.
83. Neues Deutschland, [East] Berlin, 1 Apr 56, p. 5.
84. East German State Central Administration for Statistics. Statistisches Jahrbuch der Deutschen Demokratischen Republik 1957, p. 210-211.
Laenderrat, US Occupation Zone. Statistisches Handbuch von Deutschland 1928-1944, Munich, 1949, p. 481, 549.
85. Wochenbericht, 23 Sep 55, no 38, p. 152.
86. East German State Central Administration for Statistics. Statistisches Jahrbuch der Deutschen Demokratischen Republik 1958, p. 172, 178, 262-263.
87. West German Statistical Office. Statistisches Jahrbuch fuer die Bundesrepublik Deutschland 1956, p. 516 ff.
88. Statistical appendix to Gruenig, Ferdinand. "Volkswirtschaftliche Gesamtrechnung einschliesslich Geldvermoegensrechnung fuer die Bundesrepublik," Vierteljahrshefte zur Wirtschaftsforschung, 1958, no 1, p. 40.
89. West German Statistical Office. Statistisches Jahrbuch fuer die Bundesrepublik Deutschland 1955, p. 227.
Ibid., 1956, p. 223.
90. Bartels, H.; Raabe, K.H.; and Schoerry, O. "Das Sozialprodukt in den Jahren 1950 bis 1959," Wirtschaft und Statistik, Jan 60, no 1, p. 15.
91. West German Statistical Office. Statistisches Jahrbuch fuer die Bundesrepublik Deutschland 1956, p. 516-521.
Schoerry, Otto. "Volkseinkommen, Sozialprodukt und Zahlungsbilanz des Bundesgebiets im ersten Marshallplanjahr 1948/49," Wirtschaft und Statistik, Dec 49, no 9, p. 256. ff
Schoerry, Otto. "Das Volkseinkommen und Sozialprodukt im Bundesgebiet im Jahre 1949," Wirtschaft und Statistik, Jul 50, no 9, p. 108-111.
Schoerry, Otto. "Das Volkseinkommen und Sozialprodukt im Bundesgebiet im 1. Halbjahr 1950," Wirtschaft und Statistik, Dec 50, no 9, p. 324 ff.
Schoerry, Otto, and Hoppe, Hans. "Das Volkseinkommen und Sozialprodukt im Bundesgebiet im 2. Halbjahr 1951 und im Jahre 1951," Wirtschaft und Statistik, May 52, no 5, p. 189. ff.

92. Statistical appendix to Gruenig, Ferdinand. "Volkswirtschaftliche Gesamtrechnung einschliesslich Geldvermoegensrechnung fuer die Bundesrepublik," Vierteljahrshefte zur Wirtschaftsforschung, 1958, no 1, p. 40.
Ibid., 1959, no 1, p. 58.
93. Gruenig, Ferdinand. Versuch einer Volksvermoegensrechnung der Deutschen Bundesrepublik (DIW Sonderhefte, Neue Folge No. 41, Reihe B), West Berlin, 1958, p. 46.
94. West German Statistical Office. Statistisches Jahrbuch fuer die Bundesrepublik Deutschland 1956, p. 18.
95. SPD Information Service. Die Reparationen (18, above). Bremen Committee for Economic Research, op. cit. (18, above), p. 86-87.
96. East German State Central Administration for Statistics. Statistisches Jahrbuch der Deutschen Demokratischen Republik 1958, p. 176.
97. Arnold Hans, et al. Oekonomik der sozialistischen Industrie in der Deutschen Demokratischen Republik, East Berlin, 4th ed, 1958, p. 299.
Tannhaeuser, Siegfried. "Zum materiellen und oekonomischen Verschleiss der Arbeitsmittel in der sozialistischen Industrie," Wirtschaftswissenschaft, 1957, no 2, p. 228.
Kupky, op. cit. (80, above), p. 397.
98. Haufschild [no first name]. ABC der Abschreibungssaetze, East Berlin, 1957, p. 49 ff.
Thamm, Johannes, et al. Der Betriebsplan des volkseigenen Industriebetriebes, East Berlin, 1952, p. 258.
Arnold, et al., op. cit. (97, above), p. 295, 297.
99. West German Statistical Office. Statistisches Jahrbuch fuer die Bundesrepublik Deutschland 1956, p. 135-136, 304 ff, 541, 545.
100. UN. Economic Bulletin for Europe, Geneva, 1949, no 3, p. 26.
101. Schoerry, Otto, and Hoppe, Hans. "Das Volkseinkommen im Bundesgebiet im 2. Halbjahr 1951 und im Jahre 1951," Wirtschaft und Statistik, May 52, no 5, p. 194.
Schoerry, Otto. "Das Sozialprodukt im 2. Halbjahr und im Jahre 1955," Wirtschaft und Statistik, Apr 56, no 4, p. 187.
West German Statistical Office. Statistisches Jahrbuch fuer die Bundesrepublik Deutschland 1957, p. 561.
102. Statistical appendix to Gruenig, Ferdinand. "Volkswirtschaftliche Gesamtrechnung einschliesslich Geldvermoegensrechnung fuer die Bundesrepublik," Vierteljahrshefte zur Wirtschaftsforschung, 1958, no 1, p. 40.
103. East German State Central Administration for Statistics. Statistisches Jahrbuch der Deutschen Demokratischen Republik 1957, p. 514.

- US Joint Publications Research Service. JPRS/DC-349, Foreign Trade of the USSR 1956 (tr of Vneshnyaya trgovlya SSSR za 1956 god), 1958.
- Ibid., JPRS/526-D, Foreign Trade of the USSR 1957 (tr of Vneshnyaya trgovlya SSSR za 1957 god), 1959.
104. Mendershausen, Horst. "Terms of Trade Between the Soviet Union and Smaller Communist Countries 1955-57," Review of Economics and Statistics, May 59, no 2, pt I, p. 114, 117.
105. Frankfurter Allgemeine Zeitung, Frankfurt am Main, 10 Aug 57, p. 7.
106. SPD Information Service. Die Reparationen (18, above), p. 24 and passim.
Gruenig, op. cit. (34, above), p. 33.
107. UN. Economic Survey of Europe in 1957, Geneva, 1958, chap 6, p. 29.
Wochenbericht, 22 Aug 58, no 34, p. 135.
108. Quietzsch, Eberhard. "Kommerzielle Dienstleistungen im Aussenhandel der DDR," Der Aussenhandel (East German Foreign Trade Ministry), Mar 58, no 4/5, p. 145-146.
Wochenbericht, 6 Dec 57, no 49, p. 197.
Vorwaerts, [East] Berlin, 11 Nov 57, p. 3.