

NATIONAL ACCOUNTING IN EAST GERMANY¹

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I. THE PURPOSE OF THE PAPER

THE primary purpose of this paper is to give an account of national accounting as practised in East Germany.

Each country presumably draws up national accounts in order to get a realistic picture of the development of total production, of movements in particular sectors, and of changes in consumption and investment. In a planned society these data also have an immediate operational use for the planning of future developments. In my view some of the concepts used by the East German Central Statistical Office, and almost all the specific methods of compilation, lead to misleading results: they do not permit the measurement of growth in a meaningful way, whether in total or for particular sectors; they give a distorted picture of the role of investment and encourage inefficiencies. The statistics used are in fact frequently – as is now admitted – not suitable for the purposes of the planned economy itself.

Outsiders also use the national accounts of different countries in order to make international comparisons of absolute levels and rates of change of product, consumption, and the rest. It has generally been considered peculiarly difficult to make such comparisons between Communist and non-Communist countries because of a difference between the concepts of product used in the two sets of countries. My own view is that the main obstacle in the way of comparisons between East Germany and western countries is not this difference – the gap between what is considered ‘production’ in East Germany and the West still exists, but has narrowed considerably, with East Germany making the adjustment – but the utterly irrational price-weights,

¹ Since the first version of this paper was presented at the Portoroz Conference, the East German Authorities have published a new *Statistical Year Book* (Germany, Democratic Republic, 1959a) containing revised estimates for the years 1950–57. I have incorporated the new figures – which are stated still to be provisional only for the years 1950–54 – in the tables and also revised my own estimates in the light of the latest figures. Bibliographical references are given separately at the end of this paper.

which reflect neither consumers' preferences nor planners' preferences, used in the East German calculations.

When statements as sweeping as this are made they require some sort of quantification. I shall therefore in the next section give an account, taken entirely from East German sources, of the concepts and methods of estimation and valuation used in East Germany¹ and of their limitations. Finally, in Section III I shall present my own recalculations of East Germany's gross national product² at West German prices, together with reasonably comparable figures for West Germany.³ My aim is to illustrate the importance of different price conventions, rather than to compare the growth of product in the two Germanies or its allocation between different uses. But the facts which permit such comparisons are a not unwelcome by-product of the exercise.

II. EAST GERMAN METHODOLOGY

Before making any social accounting aggregation the statistician has to decide what the coverage is to be (for example, where to draw the line between production and transfers, whether to make imputations where there is no money flow), what is the permissible degree of duplication, and what system of valuation, or weighting of components, is to be adopted. I shall deal with the East German statisticians' decisions on these points in turn. But I must emphasize right at the start that their decisions are by no means always the same as those of their colleagues in other countries, who also trace their methodology back to Marx, and that in East Germany itself national accounting practice has changed considerably over the years and, judging by hints in footnotes to tables in the *Statistical Yearbooks*, may be further modified in the future.

1. *The boundary of production*

In East Germany the following branches of activity are considered to be engaged in 'material production' and so to contri-

¹ Somewhat more detail is given in Appendix I.

² More strictly, the contributions of the sectors regarded in East Germany as engaged in material production to what would be regarded in West Germany as gross national product.

³ Short notes on West German concepts and methods of estimation are given in Appendix II.

bute to the national product: industry; agriculture, forestry, and fishing; construction; transport and communications; trade; and 'water economy and other productive branches'. The branches which are considered productive in West Germany and other western countries but excluded in East Germany are personal services, banking and insurance, property ownership (as measured by money or imputed rents), and government. In 1957 the numbers employed in the excluded branches averaged 1.2 millions out of a total of 8.2 millions, or about 15 per cent; in West Germany in the same year these branches accounted for 18 per cent of the gross domestic product at 1954 prices.

Marxist theory distinguishes between the productive and the unproductive functions of trade: in East Germany, however, the contribution of trade to gross product is in fact measured by the total mark-up, for the pragmatic reason that in practice it is impossible to distinguish the two functions. The same is true of other Communist countries.

The East German treatment of transport and communications, however, differs sharply from that of other Communist countries, in that from the beginning of the Second Five Year Plan all transport and communications have been regarded as productive: earlier, only goods transport and communication services for enterprises were so regarded, and passenger traffic and the delivery of love-letters, tax notices, and the like were treated as unproductive activities.

This all-inclusiveness was not accepted without a struggle. Thus in a book published in 1957 Professor Koziolok, probably the leading East German academic authority on national accounting, seemed unaware¹ that the treatment of transport and communications had already changed and was still quite adamant that the inclusion of passenger transport would not only inflate the national product but would also open the flood-gates to all sorts of services:

'For if passenger traffic is part of material production then so is the work of masseurs, actors, nurses and physicians, etc. They all deal with nature, and satisfy by their activities the needs of human beings; but it is just as clear that none of these activities create material use-values, that is, products

¹ Doubtless the reason is that the United States is not the only country where publishing delays are very long.

which are separate from man and the rest of nature' (Koziolok, 1957: my translation).

The theoretical reason given for this change is that the function of transport is movement itself and not movement of goods, so that there is no logical reason for distinguishing between goods and passenger transport. But the real reason is clearly practical necessity. The calculations are needed for other purposes such as the allocation of investment, the existence of joint costs makes any distinction between employment in or investment for productive and unproductive purposes completely impracticable; it is better not to distinguish between them in the first place. (See Hentschel, 1957.)

2. *Double counting*

The basic social accounting concept in East Germany is that of 'gross product', by which is meant not gross national product as known in the West but something much grosser (called 'global social product' in some Communist countries) which I shall generally refer to as 'turnover'.

The 'turnover' product is the sum of the production – now generally defined as sales ('commodity production') plus change in work in progress ('unfinished production') – of all individual plants, that is, the value of all output before any inter-plant flows are eliminated.

The origin of this grossest of all concepts can be found in Marx: if Marx's $C + M + V$ is summed over plants this is the answer. But although East German economists quote in its support Marx's criticism of Adam Smith for defining the wealth of a nation as its annual net product, it is by no means clear from Marx's rather vague positive statements that he would not have preferred, as an aggregate, the gross national product as understood in the West.

Just because it is the sum of the products of all individual enterprises, there is obviously a certain administrative tidiness about it. But even so, it is not at all clear why anyone should want to construct such a measure. It will increase if the division of labour among plants increases, even though there is no increase in physical production. It creates a whole range of problems associated with the 'influence of co-operative relationships', or, in Western terminology, the effect of vertical integration, on

the size of product which seem to a western observer pseudo-problems created by an unsuitable concept.¹

The measure not only reflects imperfectly actual developments in the economy. When used for operational purposes (for example, to measure plan fulfilment or changes in labour productivity) it encourages waste of materials.²

All these criticisms would apply if the concept were consistently applied. But in fact it is not. During the period of the First Five Year Plan even *intra-plant* flows were in many instances not eliminated, and – to make matters worse – the instructions as to which commodities were to be double-counted within the same plant changed from year to year (and were, naturally, not uniformly obeyed).³

On the other hand, in agriculture there has never been any attempt to include in 'gross product' all inter-farm sales of produce.⁴ Measurement of agricultural output has chased the product rather than the producer. (There has been a change from the use of the concept of biological yield to that of barn yield – which is tremendously important – but that is a different point.) The result is that the degrees of grossness are quite different in industry and agriculture. The reasons for this asymmetrical treatment of the two branches have never been stated, but may be guessed at: in agriculture (as in retail trade) the private sector was until very recently still large, and it was probably administratively impossible to get accurate dates on the flows of intermediate goods within the sector. It is also obviously true that industry (already, before the war, the most important branch in East Germany) has received particular emphasis in planning. Whatever the reasons for the asymmetry, the effect is to exaggerate the relative importance of industry in the economy.

These criticisms do not apply to the concept of net product – gross (turnover) product *minus* intermediate goods (*Arbeitsgegenstände*) and depreciation allowances on capital goods (*Arbeitsmittel*) – which is measured in the same way in all

¹ In order to eliminate the effects of changes in the degree of vertical integration on the size of the turnover product (or 'gross gross product' as W. Malenbaum calls it) the Polish practice seems to be to have a list of 'typical semi-finished goods' which have to be counted whether they are sold to other plants or worked up within an integrated plant. As far as I can discover, this is not the case in East Germany.

² See Janakieff, 1957; Lange, 1956; Schmidt, E., 1956; and Forbrig, 1957.

³ On this see Schmidt, M., 1953.

⁴ It is not certain that this is still true: the 'enterprise method' of calculation is officially stated to apply to all sectors in post-1959 practice.

sectors and is essentially the same as the Western concept of net national product at market prices (though with a narrower coverage because of the omission of 'non-material' production). The extent to which the arbitrary and inconsistent measures of turnover mislead is thus easy to measure:

Shares in Product at Current Prices in 1957

	Turnover %	Gross value added %	Net product %
Industry	63	57	57
Agriculture	11	13	13
Other productive branches	26	30	30

East German statisticians do not themselves use the western concept of gross national product, or gross value added (turnover *minus* intermediate goods), but as figures of depreciation allowances are published it was easy to calculate the figures in the second column.¹

3. Valuation

During the period of the First Five Year Plan gross (turnover) product, 'means of production used up' and net (material) product were all calculated for the various branches at what purported to be 1950 prices. The figures were published (in millions of DM) in 1956. But it was admitted two years later (Germany, Democratic Republic, 1958, pp. 154-159) that the calculation was defective in several important respects and, in effect, the figures were repudiated. Their place was taken, not by corrected constant-price series, but by series at *current* prices.

The defects of the allegedly constant-price series were many. Gross (turnover) industrial product was estimated by applying an index of production in which the quantities were weighted by *Messwerte*, shadow prices (based in the last resort on 1944 prices, though not uniformly) fixed not for individual commodities but for groups of commodities, to the value of industrial production in 1950, when actual prices had no close or systematic correspondence with the *Messwerte*² (Koziolok, 1957, p. 95, and Germany, Democratic Republic, 1957, p. 209). The gross outputs of fishing, artisans (still important in the building industry), and

¹ See Tables IV, V, and VI.

² '... the degree of inaccuracy was enlarged by the fact that in many cases the *Messwerte* . . . did not correspond to any real price structure' (Hentschel, 1957).

transport and communications appear to have been valued at current prices. For lack of information on changes in the prices of intermediate goods the net product seems to have been distributed between different sectors in proportion to their contributions to net product at current prices (Hentschel, 1957).

Since the beginning of the Second Five Year Plan no estimates of national product, gross or net, at constant prices have been published. Estimates of agricultural output at 1955 average prices are made;¹ the same is true of transport and communications, and trade.² But though the output of construction and industry is valued at what are called 'unchanging fixed prices', it is freely admitted that these prices, their name notwithstanding, do in fact change. No estimate of the gross or net output of industry at truly constant prices is made, it seems, even for the internal use of the planners themselves.

In order to explain this surprising situation it is necessary to digress a little on the subject of the East German price system, which – at any rate until recently – has been chaotic. The prices of agricultural produce differ considerably according as the produce is compulsorily delivered to the State, is sold under contract to the State, or is sold on the free peasant market.³ The prices of manufactured goods differ sharply according as rates of indirect tax (which vary greatly from commodity to commodity) are high or low.⁴ On the whole, the prices of materials and

¹ Estimates are also made for the various types of farm: these may not agree with the figures prepared for the national accounts. The machine tractor stations' services are measured by converting work done into 'hectares of average ploughing' and valuing these at fixed prices of the base year.

² Professor Koziolok's account is, however, so compressed that it is not clear quite how the calculation proceeds in the case of trade.

³ As compulsory deliveries from private farmers do not vary proportionately with acreage, and as different rates are fixed for each of the three possible types of co-operative farms, the average unit price received by different farms even from the State – *freie Spitzen* on peasant markets quite apart – may vary within a very wide range. Thus, in 1956, for example, when the Government was paying DM. 1,610 per ton for compulsory deliveries of pigs and DM. 5,100 (the figure of DM. 2,901 given in one source is evidently a misprint) for purchases under contract, the average price received by private farmers with holdings of 20–49 hectares was as little as DM. 2,639, while small farmers with less than 5 hectares averaged DM. 4,152 per ton. (See Wenzel, 1958, and Germany, Democratic Republic, 1957 and 1959.)

⁴ It might be supposed that variations in indirect taxes would affect only retail prices and not the ex-works prices needed for industrial production aggregates. This is so as long as the taxes are levied at the retail stage as turnover taxes (in which case they form part of the product of the sector 'trade'). But an administrative change which substitutes a production levy for a turnover tax will push the tax back a stage, and so produce a spurious rise in industrial production (and a spurious fall in the product of trade).

intermediate goods are low relatively to those of finished goods, but cases are not unknown where the prices of semi-finished goods exceed the prices of the finished goods into which they are transformed. These discrepancies arise not merely because some industries are subsidized (and in the past heavily subsidized)¹ but because the permitted rates of profit on turnover vary from industry to industry, even within the class of industries that are, in principle, unsubsidized.

Much of this could be said of any Communist economy. But there is one further complication which East Germany seems to share with no other Communist country: ex-works prices of identical industrial products may vary widely from plant to plant and appear to be fixed (within the limits permitted by the profitability rules laid down for particular industries) on a cost-plus basis.

The weaknesses of this system from the point of view of incentives and efficiency were recognized long ago, both by economists and political leaders, and in February 1953 the Council of Ministers passed a resolution which enacted that a uniform price should be fixed for each product and each quality of product. Yet we find Mr. Ulbricht complaining in 1955:

‘The field in which we are most backward in the application of economic laws is the field of price policy. . . . This exceedingly important resolution [that of February 1953] to this day remains a mere piece of paper. In the overwhelming majority of cases the basis for our price policy is the calculated cost of a plant, that is, the cost of an individual enterprise, and not the socially necessary cost of the whole branch’ (Ulbricht, 1955).²

Subsequently uniform prices became more common, but in 1958 an economist could still write that ‘the creation of a general fixed-price system continues to be the main task of price policy’.³

The gaps were evidently particularly serious in the consumer goods, chemicals, and engineering industries:

¹ In 1953 the price of domestically mined soft coal was DM. 18.99 per ton, and its average cost DM. 47.67 (Arnold, H., Borchert, H., and Schmidt, J., 1958, p. 624). The price was then raised to DM. 53.50.

² Ulbricht gave the example of a particular type of wheel whose price varied from DM. 338.31 to DM. 771.79.

³ See also Arnold, Borchert, and J. Schmidt, 1958, pp. 626–627, who explicitly state (p. 614) that cost-plus was then still being used extensively.

*Share of Total Volume of Commodity Production Covered by
Fixed Prices¹*

	Percentages
Mining, energy, and metallurgy	85
Machine construction	33
Chemical industry	28
Light industry	25
Food industry	15
Construction	50
Transport	65

The position is thus that the prices current in the period of both the Five Year Plans certainly did not reflect consumers' preferences and only in part reflected planners' preferences: they were a mixture of centrally fixed prices² and cost-plus prices fixed *ad hoc* by individual enterprises. The planners had evidently made some progress in reducing the area of irrationality, but a lot remained to be done. This provides an additional reason, if one were needed, for mistrusting index numbers of gross turnover at current prices, and makes even figures of net product of uncertain meaning.

It also helps to explain the difficulty the East German statisticians have found in constructing constant-price series. To construct a series by weighting quantities by consistent base-year prices was impossible, because there was no consistency in the base year. To construct price indices which could be used to deflate value series was almost equally difficult, because changes in prices had been of such a complicated nature.³

III. THE EAST GERMAN AGGREGATES RE-WEIGHTED

It is inherently unlikely that an outsider would be able to succeed in calculating East German price indices where professionals on the inside have failed. But in any case price information, particularly for intermediate goods, is hard to come by — not, I would suppose, because the East Germans have any

¹ Approximate figures only, because read off a bar chart in Lorentz, 1958, p. 9. Whether all the 'fixed' prices were uniform as between enterprises is unclear.

² Of these centrally fixed prices an economist writes: 'the binding fixed prices are not unchanging but are being constantly corrected' (Hentschel, 1957).

³ The Central Statistical Office is said to have calculated a price index covering about 3,000 industrial goods for a few years of the First Plan (Herr, 1957), but it has not been published. But it can legitimately be inferred from the article referred to that an index of investment goods prices is now at last under construction.

particular desire to conceal it, but because of the sheer difficulty of giving the information in a reasonably concise form. The only method of re-weighting possible, therefore, is to apply a system of weighting taken from outside East Germany to the fairly abundant quantity data available. In principle, the weighting system chosen could be that of any other country or, indeed, an invented one. I have chosen to re-weight by West German prices.

There are obvious drawbacks to using another country's weights which need not be spelt out here. But the two parts of Germany were until recently a cultural and political unit: consumer preferences are therefore unlikely to be wildly different. Moreover, though East Germany lacks coking coal, in other respects – as it happens – the resource endowments of the two countries are not very different. The procedure is thus less objectionable than it would be in other cases. And in any case the East German figures, unadjusted, are meaningless.

The question arose – for what aggregate should the attempt be made? Gross (turnover) concept was clearly out because of the arbitrariness of its coverage. I decided, in the end, to use two hybrid concepts: gross domestic product, defined in the western sense but with East German coverage;¹ and domestically disposable income.²

For a detailed description of the method used to construct the East German accounts at West German prices I refer the reader to my book, *The Structure of the East German Economy* (Stolper, 1960). Here there is only sufficient space to give an outline. In estimating the output of industry I used three methods. For coal, and for iron and steel, an input-output method was feasible. For most other products I constructed index numbers from a number of representative goods and applied them to the 1936 census base. For some industries, the most important of which are machinery and clothing, I was forced back on the measurement of output by index numbers of inputs applied to the 1936 base.

In the case of agriculture I defined gross output as in West Germany. The figures for seed requirements were obtained from technical handbooks, the allowances for harvest losses and

¹ This can be thought of as gross (turnover) product *less* intermediate goods.

² This is equal to gross domestic product *minus* exports of goods *plus* imports *minus* depreciation.

barn losses varied from crop to crop, and were suggested by West German agricultural experts and checked in the United Kingdom and the United States. All known material inputs – fertilizer, electricity, fuel used by farms and MTS, fodder imported or purchased from other sectors – were deducted.

Construction was estimated by means of an index of the available supplies of bricks, tiles, cement, cement products, and glass, which was applied to the 1936 base. The turnover of transport industry was estimated by pricing ton-miles separately for heavy low-tariff goods and other normal tariff goods and adding receipts from passenger transport *plus* a small percentage of receipts from other services such as storage. The gross value added was obtained by applying the West German *Nettoquota*¹ to this turnover. Communications and trade were assumed to move with employment in these sectors, linked to the estimated value added per employed person in 1936.

All the data of output or input in physical units that were used were taken from East German official publications. They were valued at 1936 German and 1950 West German producer prices.

I now turn to the figures. Table I gives for the 'hybrid' gross domestic product both the revised official estimates at current East German prices² and my own estimates at constant West German prices. The difference between the absolute magnitudes in the base-year 1950 are of no significance in the present context. What is of interest is that gross domestic product at constant prices as estimated by me has grown substantially less than adjusted gross domestic product at current prices, and much less than gross (turnover) product. This is especially true of the period of the Second Five Year Plan, when anomalies in the price system were being removed by upward adjustments and the coverage of the official value statistics was being improved.

Table II permits similar comparisons for industry alone. In this case the figures shown in the first two columns are published and those in the third column are derived. The position is much the same as in Table I, with the exception that the official index of gross value added, derived from official data, actually

¹ Ratio of gross value added to turnover *plus* stocks.

² Only gross (turnover) product and net product are published as such; the figures of gross domestic product at current prices are obtained by adding the official figures for depreciation to the official estimates of net product.

increases faster than the gross (turnover) product, which is simply not credible, and indicative only of distortions in price structure.

TABLE I
Official and Adjusted Estimates of the National Product of East Germany

	Gross product (East German) concept) ¹	Net Product, or National income (East German) concept) ²	Gross domestic product (Western concept Eastern coverage) ³	
	Billion DM. East at current prices			Billion DM. West at 1950 prices
1950	51-236 ⁴	30-876	32-165	20-367
1951	62-450 ⁴	37-290	39-098	23-101
1952	71-293 ⁴	42-041	43-935	25-689
1953	78-103 ⁴	44-479	46-677	27-356
1954	84-993 ⁴	48-583	50-917	29-199
1955	91-071	52-552	55-050	30-609
1956	96-196	54-713	57-418	31-904
1957	102-834	58-504	61-467	33-565
1958 ⁵	114-850	65-086	68-365	35-154
	Index numbers (1950 = 100)			
1951	122	121	122	113
1952	139	136	137	126
1953	152	144	145	134
1954	166	157	158	143
1955	178	170	171	150
1956	188	177	179	157
1957 ⁴	201	190	191	165
1958 ⁵	224	211	213	173

Sources: First three columns Germany, Democratic Republic, 1959a, p. 176, Column 4. Stolper, 1960.

¹ Material product before deducting duplication.

² Material product *less* intermediate goods and depreciation.

³ Net material product *plus* depreciation.

⁴ Officially stated to be still subject to further revision.

⁵ Preliminary.

Table III shows a similar set of data for agriculture. It will be seen that my index rises less over the seven years than the official index of net output,⁶ which itself fluctuates much more widely than the turnover, which before the revision of the figures in 1959 rose uninterruptedly.

⁶ The steep rise in 1957 is clearly in part due to price changes.

In Table IV I give my own estimates of the various types of expenditure on gross domestic product at 1950 West German prices. I estimated fixed investment¹ by calculating the volume of construction at West German prices and adding estimates of investment in equipment based on published East German

TABLE II
Official and Adjusted Estimates of the Product of Industry in East Germany

	Gross product of industry (East German concept)	Net product of industry (East German concept)	Gross domestic product attributable to industry (Western concept)	
	Billion DM. East at current prices			Billion DM. West at 1950 prices
1950	28-489	14-668	15-331	10-472
1951	34-926	18-467	19-258	12-242
1952	40-826	21-660	22-582	13-407
1953	45-581	22-739	23-867	15-573
1954	52-535	27-266	28-521	16-944
1955	56-658	30-028	31-344	17-770
1956	60-778	31-747	33-188	18-634
1957	64-129	33-462	35-044	19-685
1958	74-385	39-377	41-163	20-797
	Index numbers (1950 = 100)			
1951	123	126	126	117
1952	143	148	147	128
1953	160	155	156	149
1954	184	186	186	162
1955	199	205	204	170
1956	213	216	216	178
1957	225	228	229	188
1958 ^a	261	269	268	199

Sources: As for Table I.

^a Preliminary.

ratios and the advice of West German experts. I assumed changes in stocks to have the same ratio to fixed investment as is shown in the official East German figures at current prices. Consumption I estimated from the wage-bill, adjusted for other earnings, social security benefits, and saving; the whole being deflated to 1936 prices by an *East* German retail price index and

¹ Including housing and social investment - both treated as consumption in East Germany.

inflated to 1950 prices by the *West* German price index. 'Other expenditure' is a pure residual.¹ These methods are admittedly very rough and ready. But at least the results are, in principle, in terms of a consistent set of prices.

TABLE III

Official and Adjusted Estimates of the Product of Agriculture in East Germany

	Gross product (East German concept)	Net product (East German concept)	Gross domestic product (Western concept) originating in:		
			Agriculture (including forestry)		Agriculture (excluding forestry)
	Billion DM. East at current prices			Billion DM. West at 1950 prices	
1950	7.020 ²	5.174	5.336	4.164	3.648
1951	7.640 ²	5.015	5.245	4.847	4.248
1952	8.320 ²	5.332	5.586	5.526	5.036
1953	8.310 ²	5.194	5.480	4.636	4.116
1954	9.460 ²	6.130	6.440	4.697	4.206
1955	9.924	6.455	6.769	4.873	4.414
1956	9.586	6.095	6.411	4.368	3.945
1957	11.225	7.280	7.619	4.752	4.338
1958 ²	12.047	7.732	8.108	4.879	4.467
Index numbers (1950 = 100)					
1951	109	97	98	116	116
1952	117	103	105	133	138
1953	118	100	103	111	113
1954	135	119	121	113	115
1955	141	125	127	117	121
1956	137	118	120	105	108
1957	160	141	143	114	119
1958 ²	172	149	152	117	122

² Preliminary.

Table V shows the figures of Table IV as percentages of gross domestic (material) product, and also the corresponding percentages for West Germany.³ It will be seen that the shares in the two countries, widely different in 1950, had become very

¹ Containing the export surplus (which must have been negative in 1958) government consumption and some personal consumption (e.g. meals in canteens and consumption through social institutes). For details of the calculations see Stolper, 1959 and 1961.

³ Derived from Table VIII below.

TABLE IV
Expenditure on Gross Domestic (Material) Product of East Germany at 1950 West German Prices

	Author's estimates Billion DM. West								
	1950	1951	1952	1953	1954	1955	1956	1957	1958
Personal consumption	7-948	10-334	12-797	14-603	17-353	18-634	18-800	19-188	20-568
Gross fixed investment	3-089	3-831	4-123	5-309	5-737	6-739	8-296	9-508	10-467
Changes in stocks	1-891	2-691	2-746	2-565	0-483	0-896	1-030	1-603	4-209
Gross domestic investment	4-980	6-522	6-869	7-874	6-220	7-635	9-326	11-111	14-676
Other expenditure (residual)	7-439	6-245	6-023	4-879	5-626	4-340	3-778	3-266	-0-090 ²
Total ¹	20-367	23-101	25-689	27-356	29-199	30-609	31-904	33-565	35-154

¹ Identical with the last column of Table I.

² Implying an import surplus.

TABLE V

Distribution of Expenditure on Gross Domestic Material Product in the Two Parts of Germany at Constant West German Prices

	Percentages								
	1950	1951	1952	1953	1954	1955	1956	1957	1958
East Germany (1950 prices)									
Gross domestic investment:									
Fixed	15.2	16.6	16.0	19.4	19.6	22.0	26.0	28.3	29.8
Change in stocks	9.3	11.6	10.7	9.4	1.7	2.9	3.2	4.8	12.0
Total	24.5	28.2	26.7	28.8	21.3	24.9	29.2	33.1	41.8
Personal consumption	39.0	44.7	49.8	53.4	59.4	60.9	58.9	57.1	58.5
Other expenditure (residual)	36.5	27.1	23.5	17.8	19.3	14.2	11.9	9.8	-0.3
West Germany (1954 prices)									
Gross domestic investment:									
Fixed	25.0	22.9	22.9	24.4	25.7	27.1	27.4	26.2	26.6
Change in stocks	4.7	5.1	4.5	1.8	1.4	3.7	1.6	2.5	2.4
Total	29.7	28.0	27.4	26.2	27.1	30.8	29.0	28.7	29.0
Personal consumption	61.0	58.2	62.0	60.1	60.0	58.2	59.5	59.1	59.4
Other expenditure (residual)	9.3	13.8	10.5	13.4	12.9	11.0	11.5	12.1	11.6
of which:									
Balance of payments surplus	(3.6)	(4.5)	(4.0)	(4.6)	(4.3)	(3.4)	(4.4)	(4.9)	(4.0)

Sources: For East Germany Table IV; for West Germany Table VIII.

TABLE VI

Distribution of Net Domestic Expenditure on Material Product in the Two Parts of Germany at Current Market Prices

	Percentages								
	1950	1951	1952	1953	1954	1955	1956	1957	1958 Preliminary
East Germany									
Accumulation:									
Fixed investment ¹	4.5	4.9	5.4	6.8	6.4	11.3	14.4	14.3	15.1
Change in stocks ²	3.2	3.9	4.2	3.9	0.8	1.5	1.7	3.1	5.3
Total	7.7	8.8	9.6	10.7	7.2	12.8	16.1	17.4	20.4
Consumption:									
Personal ³	84.8	84.2	83.8	82.5	84.4	77.5	74.1	73.2	70.7
Social	8.8	8.5	8.1	8.3	9.4	9.7	9.7	9.5	8.9
Total	93.6	92.7	91.9	90.8	93.8	87.2	83.8	82.7	79.6
West Germany									
Accumulation:									
Fixed investment	12.4	12.6	12.9	15.3	17.4	19.9	20.4	18.7	18.3
Change in stocks	2.8	2.9	6.4	3.2	1.0	3.7	1.1	2.6	2.9
Total	15.2	15.5	19.3	18.5	18.4	23.6	21.5	21.3	21.2
Consumption:									
Personal	74.8	73.3	69.0	70.8	71.4	67.3	70.0	70.0	69.7
Social	10.0	11.2	11.7	10.7	10.2	9.1	8.5	8.8	9.2
Total	84.8	84.5	80.7	81.5	81.6	76.4	78.5	78.8	78.9

¹ Excluding expenditure on the building of and major repairs to houses in the years 1950-54. The amounts included in the later years are: 1955, 3.9; 1956, 4.3; 1957, 4.5; 1958, 4.2.

² Including the net growth of forests.

³ Including expenditure on the building of and major repairs to houses in the years 1950-54.

TABLE VII

Adjustment of West German Figures of Income and Expenditure to East German Concepts in Billion DM-West at Current Prices

	1950	1951	1952	1953	1954	1955	1956	1957	1958
	Income								
Gross national product	97-200	119-600	134-200	143-750	153-950	175-600	193-400	209-600	222-300
Services therein: ¹									
Banking and insurance	2-442	3-066	3-369	3-747	4-301	5-091	6-015	7-013	8-000
House ownership	2-861	2-861	3-036	3-425	3-776	4-149	4-636	5-066	5-500
Government	7-533	8-610	9-944	10-798	11-633	12-845	14-404	15-718	16-600
Other	5-774	6-666	7-611	8-506	9-311	10-659	12-089	13-121	14-000
Total services	18-610	21-203	23-960	26-476	29-021	32-744	37-144	40-918	44-100
Material product therein ²	78-590	98-397	110-240	117-274	124-929	142-856	156-256	168-682	178-200
Less Stock appreciation	1-800	2-900	— 900	—1-050	650	800	1-100	500	—
Surplus on balance of payments	—1-171	2-259	3-437	5-506	5-343	4-264	6-572	8-300	8-900
Depreciation	10-095	12-040	13-317	13-463	13-992	15-428	17-605	20-084	22-200
Total	10-724	17-199	15-854	17-919	19-985	20-492	25-277	28-884	31-100
Domestically disposable income	67-866	81-198	94-386	99-355	104-944	122-364	130-979	139-798	147-100

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TABLE VII—continued.

Adjustment of West German Figures of Income and Expenditure to East German Concepts in Billion DM-West at Current Prices

	1950	1951	1952	1953	1954	1955	1956	1957	1958
	Expenditure								
Personal consumption of goods ¹	50·768	59·515	65·095	70·389	74·940	82·441	91·720	97·800	102·500
Accumulation:									
Gross fixed investment	18·455	22·260	25·470	28·665	32·205	39·770	44·300	46·100	49·200
Change in value of stocks	3·721	5·243	5·122	2·129	1·724	5·306	2·590	4·200	4·200
Gross domestic investment	22·176	27·503	30·592	30·794	33·929	45·076	46·890	50·300	53·400
Less Depreciation	-10·095	-12·040	-13·317	-13·463	-13·992	-15·428	-17·605	-20·084	-22·200
Less Stock appreciation	- 1·800	- 2·900	+ ·900	+ 1·050	- ·650	- ·800	- 1·100	- ·500	—
Total accumulation	10·281	12·563	18·175	18·381	19·287	28·848	28·185	29·716	31·200
Social consumption ⁴ (residual)	6·817	9·120	11·116	10·585	10·717	11·075	11·066	12·282	13·600
Domestic expenditure	67·866	81·198	94·386	99·355	104·944	122·364	130·979	139·798	147·100

¹ As measured by their contribution to gross domestic product.

² Net product (East German concept) plus depreciation.

³ Personal consumption (Western concept) less the contribution to gross domestic product of banking and insurance, house ownership, and other non-government services.

⁴ After deducting social investment.

Source: Germany, Federal Republic, 1959, pp. 482 ff.

TABLE VIII

Expenditure on the Material Product of West Germany at 1954 Prices in Billion DM-West

	1950	1951	1952	1953	1954	1955	1956	1957	1958
Derivation of Estimates of Material Product									
Gross national product	111.80	124.95	133.45	143.80	153.95	172.10	183.05	192.25	197.70
Less Services therein: ¹									
Banking and insurance	2.68	3.09	3.50	3.91	4.30	4.77	5.22	5.69	6.10
House ownership	2.91	3.04	3.23	3.45	3.78	4.14	4.46	4.84	5.20
Government	10.11	10.49	11.11	11.17	11.63	12.13	12.48	13.24	13.50
Other	7.15	7.62	8.20	8.86	9.31	10.03	10.97	11.62	11.90
Total services	22.85	24.24	26.04	27.39	29.02	31.07	33.13	35.39	36.70
Material product therein ²	88.95	100.71	107.41	116.41	124.93	141.03	149.92	156.86	161.00
Expenditure on Material Product									
Gross domestic investment:									
Fixed	22.00	23.10	24.65	28.40	32.21	38.20	41.02	41.13	42.90
Change in stocks	4.20	5.10	4.80	2.10	1.72	5.20	2.46	3.90	3.90
Total	26.40	28.20	29.45	30.50	33.93	43.40	43.48	45.03	46.80
Personal consumption of goods ³	54.29	58.62	66.67	69.95	74.94	82.11	89.24	92.78	95.60
Surplus on balance of international payments	0.32	4.58	4.35	5.38	5.34	4.80	6.60	7.63	6.40
Other expenditure on material product (residual)	7.94	9.31	6.84	10.18	10.72	10.72	10.60	11.42	12.20

¹ As measured by their contribution to gross *domestic* product.

² Net product (East German concept, i.e. restricted to material production) *plus* depreciation.

³ Personal consumption (Western concept) *less* contribution to gross domestic product of banking and insurance, house ownership, and other non-governmental services.

Source: Germany, Federal Republic, 1959, pp. 482 ff.

similar by 1956, as fixed investment in East Germany increased and reparations came to an end.

Finally, Table VI shows the percentage breakdowns of *net* domestic expenditure on material product as officially recorded¹ – or, as it would be put in East Germany, the ‘use of domestically disposable income’ – in the two Germanies. Net investment is bound to be a smaller proportion of disposable income than gross investment is of gross domestic product. Nevertheless, the differences between the East German figures and those in Table V are extraordinarily large. For myself I have no doubt that the official calculations, made at inconsistent prices, greatly understate the share of accumulation in East Germany. The higher figures suggested by my calculations make it easier to understand both the rates of growth of the economy and the continuing complaints about the insufficiency of supplies of consumer goods.

¹ Adjusted only by the transfer of social investment and, in 1955 to 1957 (the only years for which figures are available), investment in housing from consumption to investment.

APPENDIX I

DEFINITIONS OF EAST GERMAN CONCEPTS

Gross (turnover) product: 'gross value of material production at final selling prices, including turnover taxes and excise duties, and excluding subsidies'.

Net product: gross (turnover) product *minus* intermediate goods duplicated therein and depreciation. Not quite identical with the 'national income produced' of other Communist countries because it makes no allowance for differences between the domestic and foreign-exchange prices of exports and imports.

Domestically disposable income: net product *plus* imports *minus* exports, both valued at the domestic prices received (for imports) or paid (for exports) by East German foreign-trade enterprises. More or less identical with the 'disposable' or 'distributed' income of other Communist countries. Equal to consumption *plus* accumulation.

Consumption

Personal consumption: goods sold to consumers ('the population') by the retail trade (including artisans and restaurants) and by peasants *plus* electricity, gas, and water delivered to the population *plus* farm families' consumption of their own produce *plus* the working up of customers' materials, repairs, etc., and construction performed for consumers in so far as it is indirectly paid for by them *plus* 'material services' provided by the social insurance scheme *plus* meals provided by factory canteens, schools, and other community kitchens, and (only since the beginning of the Second Five Year Plan) income in kind from industry and agriculture *plus* transport and communication services to consumers *plus* goods consumed by enterprises providing 'non-material' services to consumers *plus* construction and maintenance of houses.

East Germany is the only Communist country in which not merely the depreciation of houses but also net investment (as most would say) in houses is included in consumption.

Collective consumption: goods currently consumed for the purposes of society as a whole by institutions outside the production sphere *plus* expenditure on non-productive assets by collective institutions not financed by productive enterprises *plus* imports *minus* exports, each valued at domestic prices.

East Germany is the only Communist country where net additions and capital repairs to publicly owned non-productive assets (schools, hospitals, etc.) are treated as consumption.

Accumulation: increase in the total stocks of capital – whether or

not it is intended to 'serve material production' – of productive (and only productive) enterprises (including state reserves). Calculated by deducting opening stock from closing stock of capital, both, in the case of fixed capital, being valued after the deduction of depreciation. Divided between 'increase in basic funds' (completed fixed investment) and 'increase in unfinished investments', on the one hand, and increases in 'circulating capital' stocks and work in progress – including standing timber and livestock – on the other.

East Germany has an unusually narrow definition of accumulation, in that it is restricted to those additions to assets which will assist 'expanded reproduction' and excludes additions to the stock of houses and additions to the assets of 'non-productive' institutions (including general government).

Branches of material production

Industry: includes the output of artisan producers other than those classified as building artisans. (During the First Five Year Plan their trade make-up was allocated to 'trade', any building work done by them to 'construction', and so on. Since then the whole of their output has been allocated to industry: the change is important for artisans making ceramics and glass for the building industry.) Gross (turnover) product is defined as the sum of individual plant sales ('commodity production') and changes in work in progress ('unfinished production') valued at cost. (During the First Plan intermediate goods produced in a plant and then further processed in the same plant were also included. Such double-counting is still practised for some commodity groups in the 'industrial' statistics, where the emphasis is on particular commodities irrespective of their uses, but not in the national accounts.)

Agriculture, forestry, and fishing: gross output of agriculture includes only compulsory deliveries, contractual sales to the State, sales on the peasant markets, consumption of their own produce by farm families, and the services of the machine tractor stations; i.e. inter-farm sales are excluded. Sales to the State are valued at the prices actually received by farmers, sales on peasant markets at average prices realized, and farmers' own consumption by the weighted average of the prices paid for compulsory deliveries and contractual sales to the State. (During the First Plan farmers' consumption – perhaps 20 per cent of total production in the case of animal produce – was valued at the very low prices paid for compulsory deliveries.) The gross output of forestry includes lumber, bark, resin, berries, mushrooms, venison, and changes in the value (how assessed is not clear) of standing timber.

Construction: gross output includes the output of all artisans

classified as builders, as well as that of the large building organizations. The cost of waiting periods and other involuntary stoppages of work enters into the value of output, as do such incidental costs as architects' fees. (This was not the case during the First Plan.)

Transport and communications: gross output includes the transport of passengers as well as of goods, services of post and telegraph and such other 'productive' services as storage. (During the First Plan the transport of passengers and communication services for first consumers – government and population – were excluded.)

Trade: gross output is measured by the total trade mark-up, including turnover taxes and excise duties – unless they enter into the selling prices of industry.

Water economy and other branches: gross output of the 'water economy' includes the output of water-works and the repair of flood damage (not included during the First Plan). Among the other productive branches are publishing houses, whose gross output is measured by their turnover.

Disposable income: net (material) product *minus* exports *plus* imports, each valued at domestic prices. It is equal to consumption (personal and collective) *plus* accumulation.

APPENDIX II

DEFINITIONS AND METHODS OF ESTIMATION IN WEST GERMANY

Gross national product: defined more or less as in the OEEC Standardized System. Until 1955 estimates were made by applying index numbers of output to part of the GNP of Germany in 1936 which was estimated to have originated in the present area of the Federal Republic. Since 1956 direct estimates have been made which are carried back to 1950. Equal to personal (private) consumption *plus* government consumption *plus* gross fixed investment and changes in stocks *plus* the surplus on the balance of payments.

Personal consumption: differs from East German personal consumption in the following respects: it includes (i) rents of houses, whether cash or imputed and (ii) expenditure on 'non-material' services whether by individuals or by non-profit organizations, and excludes (iii) expenditure on housing construction and (iv) 'material services' provided to consumers by the State. The main source of information used is the turnover tax statistics (adjusted, of course, for differences between true turnover and taxable turnover): direct estimates were made for 1950 and 1954, figures for the years in between being interpolated.

Government consumption: government expenditure on goods and services not resold and currently consumed. (Defence construction is treated as current consumption.) It differs from East German collective consumption in the following respects: it includes expenditure on 'non-material' services (civil servants, members of the Armed Forces, police, etc.) and excludes the building of hospitals, schools, government offices, etc. (In this last respect it thus has a narrower coverage than the corresponding concept in the United States' national accounts, which still do not admit that governments can invest.)

Fixed investment: covers expenditure on means of production lasting more than a year (other than small tools) and on all new construction other than defence works. Includes major repairs and such ancillary costs as lawyers' and architects' fees. The main difference from East German practice is that house construction is included.

Changes in stocks: the value of the change and not the change in the value of stocks (exactly as in East Germany). Coverage is somewhat narrower than in East Germany: the net growth of forests is not included.

Foreign balance: difference between sales of goods and services to foreign countries (including West Berlin as well as East Germany) plus government transfers in cash or kind to other governments for 'civilian' purposes (e.g. restitution payments to Israel) and purchases of goods and services from foreign countries (defined as above) plus government 'civilian' transfers to the Federal Government. Military transfers and such private gifts as CARE packages are not routed through the balance of payments, but are treated as positive or negative elements in government and personal consumption.

'Non-material' branches of activity: banking and insurance, house ownership, government and non-profit organizations, and 'other services' (professions, personal services, movies, etc.) appear to be the only branches excluded in East Germany. It is easy enough to eliminate them from the West German figures in the interests of comparability.

'Material' branches of activity

Agriculture, forestry, and fishing: agriculture's contribution to the GNP is calculated by deducting outlays on fertilizers, gasoline, etc., as well as imputed house-rents, from gross output, as measured by quantities produced, valued at producer prices, minus fodder, seeds, and losses due to deterioration (*Schwund*). The main differences from East German practice are: (i) gross output is smaller than in East Germany, where only harvest losses are deducted; (ii) rents are deducted.

Other 'material' branches: called *gewerbliche Wirtschaft* in West Germany – mining, gas and electricity, industry proper, construction, trade, and transport and communications. The basic source for estimates of sales, changes in stocks and plant and equipment produced by enterprises is again the turnover tax statistics, adjusted by means of sample surveys and partial censuses. (The reporting unit is thus the enterprise (*Unternehmen*) and not the establishment (*Arbeitsstätte*), which is bound to imply a somewhat different industrial classification from that of East Germany.) Purchases from other branches or sectors are known rather exactly for 1950 (by plants) and 1954 (by enterprises). For the intermediate years the 1950 ratios of gross value added to turnover *plus* stock changes the so-called *Nettoquoten* – 'net' in the sense that the numerator is net of current purchases but not of depreciation – were assumed to hold for each branch.

Constant-price series: obtained by the Federal Statistical Office either by applying indices of volume to 1954 values or by deflating value series (for both gross output of each branch and for inputs) by Paasche price indices. The calculation was made for gross domestic product in considerable detail; depreciation allowances, however, were deflated only for the economy as a whole, so that net product at constant prices is not available for particular branches. (See Bartels, Raabe, and Schörry, 1957a and 1957b.)

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