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Value Added, Employment and Capital Expenditures in the East German Industry, 1950–2000: Data, Methods, Comparisons. An Introduction.

Gerhard Heske *

Abstract: »Wertschöpfung, Erwerbstätigkeit und Investitionen in der Industrie Ostdeutschlands, 1950–2000: Daten, Methoden, Vergleiche. Eine Einleitung«. Industry was the most important economic sector in the GDR. Of all the countries within the Eastern Bloc (Comecon), only the USSR achieved higher added value per capita than the GDR's industrial sector. The quantitative description of industrial output in the GDR nevertheless continues to be characterized by significant data gaps and a lack of comparable, long-term time series for important performance and expenditure values calculated in accordance with contemporary statistical standards. This HSR Focus presents new calculations for added value, employment and capital expenditures which close these gaps at both an overall industrial level and branch level between 1950 and 1989. The calculations take the form of backward projections carried out in accordance with the current conceptual and methodological principles of national accounting (ESA95). The incorporation of current data for the new German federal states from 1991 onwards into the data base facilitates the extension of the time horizon for the time series. This yields a comparable reflection of the development of economic indicators for the industrial sector in Eastern Germany over a 50-year period (1950–2000). The time series determined pave the way for a new, fact-based assessment of the real results achieved by the GDR economy. The presentation of the data assessed is accompanied by a thorough description of the methods and sources used. This paper serves as an outline for the entire HSR Focus.

Keywords: GDR, East Germany, value added, employment, capital expenditures, industrial sector, national accounts.

This HSR Focus is the first to present time series for a comparable backward projection of the development of selected economic indicators for industry in the GDR between 1950 and 1989 according to industrial segments and branches as an integrated component of national accounting. It is on this basis – and with the aid of current national accounting results for the new German federal states from 1991 onwards – that long-term time series for industrial activity in Eastern Germany between 1950 and 2000 have been established. The aim here

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is to quantitatively retrace the fundamental trends exhibited by the economic development of the region's industry during this fifty-year period.

From the perspective of today's conventions, existing gaps in comparable statistical series of national economic indicators for the GDR have made and continue to make it easy to arrive at miscalculations and speculation regarding the national economic results achieved in the GDR. They also prevent the inclusive, fact-based assessment of the course of economic processes and the factors they are influenced by. This HSR Focus aims to make a contribution to the closure of existing data gaps and the comparable, contextualized retracing of the development of the most important economic indicators for industry in the GDR within the context of national accounting. The course and results of economic development in this sector of the economy has been quantified with the aid of time series for the following key economic factors:

- Gross value added;
- Number of employed people;
- Gross value added per employed person;
- Gross fixed assets.

The time series determined for these indicators in the following study shed light on important facets of economic development in the GDR. The data on the development of the overall GDR economy – and in particular its industrial sector – presented in the following is based on selected indicators derived from national accounts, and reflects significant economic results achieved during the period in question. The indicators are nevertheless unable to provide insights into either the internal and external conditions under which those economic results were achieved or the difficulties and extraordinary strain to which those involved in the process were constantly exposed as a result.

From an overall economic perspective, the continuous performance deficit which characterized the GDR until 1989 – and in particular when compared with the FRG – was primarily the result of its low performance level at the time of its founding in 1949/50. This was in turn down to prevailing circumstances and prerequisites of both an economic and non-economic nature. The economic indicators identified for industry in the GDR show this to be entirely true in this specific sector of the economy, and are dealt with in greater detail in later sections of this HSR Focus. The initial deficit was simply reproduced at a progressively higher level over the years. This resulted in far-reaching negative consequences for the structure of GDP expenditure in terms of consumption, gross fixed assets and imports and exports. Despite its unfavourable overall starting situation, as well as other negative factors which arose during subsequent years, the GDR was nevertheless able to record a significant reduction in its performance deficit when compared with the FRG in the period up to 1989.

This is set against the fact that current economic-historical literature on the development of performance in the GDR from 1950 onwards regularly includes data which describes that development in reverse. In terms of GDP per capita,

for example, it is implied that the performance level achieved by the GDR deteriorated substantially between 1950 and 1989 when compared with the FRG. This in turn leads to statements about very low per-capita performance towards the end of the GDR. Depending on the calculation frameworks and methods used, some authors arrive at the conclusion that the final years of the GDR saw it achieve approximately 20-30% of the productivity witnessed in the FRG at that time.¹ In particular, this can be attributed to the systematic downgrading of the real performance of the national GDR economy using inappropriate conversion coefficients when the East German mark was converted into DM.

Writing long before reunification in a study which is still worth reading, Leptin made the following comments on the differentiated, fact-based assessment of the results of economic activity in the GDR and the evaluation of various influencing factors:

When assessing post-war economic development in both parts of Germany, and in particular when comparing the results of that development, it is generally their different economic systems that are the focus of interest. The eastern planned economy, the “command economy”, is often apportioned sole blame for the poor results of economic recovery in the GDR. There are two points to be made here: On the one hand, it is not a given from the outset that the result of economic recovery in the GDR is weaker than in the Federal Republic of Germany. Though it is possible to demonstrate [...] that the economic situation in the Federal Republic of Germany is better than that in the GDR in nearly all sectors, a comparative statement on their respective recovery cannot be based on an arbitrarily selected point at the end of a development phase alone, and must instead also factor in the differences which prevailed at the time. On the other hand, economic development and the results thereof cannot be attributed to one factor alone (in this case the economic system). The system has naturally exerted both positive and negative influences on development, and probably erred towards the negative rather than the positive in that regard. There are nevertheless a plethora of other factors – some of them economic factors which cannot be influenced, some of them non-economic – which have been decisive to the course of development.²

The recalculation of the generation and expenditure of GDP in the GDR between 1950 and 1989 published in 2009 essentially adhered to the national accounting conventions currently applied by the European Union.³ This created a broad, comparable base for data of the entire GDR economy. The backward projections of the GDR’s national accounts carried out included the structural, methodical, price-based determination of approximately comparable values for the key components required for calculations of the generation and expenditure of GDP. This yielded essential basic data – including for the GDR’s industrial sector – which facilitated the definition of time series for important economic

¹ Schwarzer 1999, 166.

² Leptin 1980, 51.

³ Heske 2009.

indicators for industry between the years of 1950 and 1989 within the framework of a structure characterized by deeper classification of industrial segments.

The following periods were of relevance to the way in which statistic source material for the period under investigation (1950-2000) was used:

- *1950 to 1989/90*: This period starts with the governmental and economic division of Germany into the former FRG and the former GDR and ends with reunification.
- *1990/1991 to 2000*: This period spans the first decade after reunification, which witnessed a gradual move back to a unified German economic area.

Statistical data on economic activity in the industrial sector during each of these periods exhibits varying degrees of comprehensiveness. It was primarily gathered and processed by the *Statistisches Bundesamt* (western zones and the former FRG), the *Staatliche Zentralverwaltung für Statistik* (eastern zone and the former GDR), the unified *Statistisches Bundesamt* and various statistical offices run by the German federal states (unified Germany from 1990 onwards in both cases). The data gathered for the industrial sector by the aforementioned statistical offices may be based on different structural and methodological foundations, but nevertheless exhibits definitional similarities. This makes it possible to identify certain connections and correlations between the various data sets, which in turn appears to facilitate longer-term studies characterized by a sufficient degree of accuracy.

For methodological and data-related reasons, the basis for continuative calculations took the form of periods with separate, chronologically comparable data sets which were subsequently grouped together with the aid of appropriate statistical procedures in order to form long-term time series for the entire period between 1950 and 2000. The backward projection of economic indicators for the industrial sector in Eastern Germany over the lengthy period from 1950 to 2000 began with the analysis and evaluation of existing calculations of historical time series for the aforementioned time periods. This included an assessment of their suitability for use within the framework of the present research. Restrictions in the source material meant that comparable data could be identified neither for all indicators during the entire period nor all industrial segments.

Long-term studies of economic and social indicators are unable to match the accuracy, reliability and detail exhibited by contemporary analyses of shorter periods (e.g. one year). It is common knowledge that determinations of long-term time series encounter considerable difficulties in the case of all economic-statistical indicators, and that the longer the period under investigation is, the greater those difficulties become. In particular, this can be attributed to constant fluctuations within statistical infrastructure caused by continuous changes both at national and international level and within the social and political spheres. Such fluctuations had – and continue to have – a significant impact on the content and

scope of the statistical information gathered. This is especially true in the case of industry, although it is to be noted that, due to its importance to the country, German economic activity in the sector is described in relatively extensive statistical detail. Though this may be helpful in terms of the availability of historical data sets for the calculation of lengthy time series, it by no means solves the problems which characterize the methodological, structural and price-related comparability thereof.

This HSR Focus represents a direct continuation and consolidation of the 2009 findings on the generation and expenditure of GDP in the GDR at comparable DM (Euro) prices from 1950 to 1989 (GDR only) and 1970 to 2000 (GDR and Germany's new federal states) respectively.⁴ The focus of the earlier publications mentioned in the footnote was the first ever presentation of comprehensive, comparable national accounting data for the GDR and corresponding comparisons with the former FRG. They also attempted to extend the time horizon of the time series up to the year 2000. Data was presented at an overall economic level, with a breakdown of GDP generation according to economic sectors (including industry as a whole) also provided.

It was therefore natural that the experience gained during the backward projection of national accounts, the methods applied and the comprehensive data sources made available should be used to consolidate and add detail to the national accounts data presented for the period from 1950 to 2000. It was for practical and data-related reasons that this was carried out for the aforementioned key economic indicators for the industrial sector. As already underlined, available statistical information for the industrial sector during the respective periods was gathered using different statistical systems. These systematic differences – for example in terms of industrial segment classification – dictated that the degree of detail exhibited by each data set was not necessarily comparable with that of other sets. In order to fully exploit the data included in each set of comparable statistical data and visualize the specifics of each period, it was expedient to present the industrial development trends during each of the three periods in a temporally separate way before attempting to integrate them across the whole period at the level of potential comparability.

The following passages briefly sketch out the structure and content of the HSR Focus:

The introduction is followed by a summarized overview of national economic data for the period between 1950 and 1989 in *Section A*. This ensures the quantitative characterization of the generation and expenditure of GDP in the GDR. The description is based on the categories used in national accounting, and applies the aforementioned findings of a backward projection of na-

⁴ Heske 2009; Heske 2005.

tional accounts in the GDR between 1950 and 1989, which were published in *Historical Social Research* in 2009.⁵

Section B contains a short textual description of the level and development of the numerical results arrived at for the aforementioned economic indicators for industry in the GDR between 1950 and 1989. The backward-projected data facilitates the adequate description of the fundamental results achieved through industrial activity in the GDR over the course of its existence. In some cases, comparisons with backward-projected data for the industrial sector in the former FRG are used to enhance result classification and assessment. This was possible because the corresponding data for the GDR was determined according to almost identical methodological and economic-systematic principles within the framework of the backward projection of national accounts.

New calculations of industrial development in East Germany between 1950 and the year 2000 are presented in *Section C* of the HSR Focus. The data calculated for economic indicators for the industrial sector in the GDR prior to 1989 is used as a basis for an attempt to extrapolate the data up to the year 2000. In addition to the results for the GDR in the period up to 1989 presented in Section B, it was also possible to base time series on statistics published by the *Statistisches Bundesamt* and the various statistical offices run by the new German federal states from 1991 onwards; these are classified according to industrial segments and in some cases industrial branches. Unfortunately, the regionalized data on employed persons and gross fixed assets in the industrial sector published by official statistics offices within the framework of national accounting is not fully subdivided into more specific industrial branches, thus restricting the level at which the data can be presented.

Section D contains a detailed description of the conceptual, methodological and data-related foundations of the numerical results presented. The calculation of the long-term time series for selected economic indicators for industry in the GDR and East Germany presented in this HSR Focus necessitated the processing and definition of a range of important content-related and conceptual points of origin. In addition, the gathering and processing of the data material in question was accompanied by complex methodological problems which had to be solved. As calculations for the industrial sector were carried out within the framework of an overall project aimed at the backward projection of the national accounts of the GDR, in some cases it was expedient to refer back to the ground-breaking publications from 2005 and 2009 on the country's national accounts in order to gain an understanding of the overall concept and adapt it for application to the industrial sector.⁶

In terms of data, it is *Section E* that represents the core of the HSR Focus. It contains extensive statistical overviews (in tabular form) including detailed

⁵ Heske 2009.

⁶ Heske 2009; Heske 2005.

data. Selected results yielded by the backward projection of the aforementioned economic indicators for the industrial sector in the period between 1950 and 1989 are presented for the former GDR and the former FRG in the form of time series. These series are classified according to industrial branches and verified across all years under analysis. The same applies to the time series for Eastern Germany between 1950 and the year 2000. In order to reflect temporal changes, the individual indicators are generally described as indexed series with a fixed basis (e.g. 1950 = 100 or 1989 = 100).

Clear numerical presentation is ensured by showing data with a single decimal point. This approach does not aim to suggest that the factual results within the number range are accurate. Absolute data in either Euros or other units is in some cases the result of the rounding up or down to the respective full unit or to the full numerical value without a decimal point.

It would be in the interest of a more comprehensive description of the topic at hand to present the data material used in an extended form. The same applies to additional comparisons with the findings of other authors, which would support specialist discussion in this field. It would also be of interest to carry out a more detailed study of the statistical methods used to measure industrial production in the GDR. This unfortunately had to be omitted due to a lack of capacity.

In separate chapters of this HSR Focus, comparisons between macroeconomic data and corresponding results for the economic sector of the total industry are carried out. These comparisons resulted from the previously mentioned publications from 2005 and 2009, which recalculated the GDP in the GDR from 1950 to 1989. The newest extrapolation of this industrial data can be further broken down by industrial sector, which is further represented in the new totals. Thus, there are small numerical differences in comparison to the results presented in 2005 and 2009. On the level of industry as a whole, however, the slight numerical differences do not lead to any new interpretations of industrial development in the GDR.

The tables provided in this HSR Focus are also available online for further use in GESIS' database "Historical Time Series" (HISTAT): <<http://www.gesis.org/histat>>, Search category *Konjunktur*, author *Heske*, Studiennummer *ZA8568*.

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