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German National Accounts for the 19th and Early 20th Century
A Critical Assessment

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Introduction

When Angus Maddison invited me to present a paper at the 20th General Conference of the International Association for Research in Income and Wealth [*] we agreed on the working title of "Growth of German Net Domestic Product (NDP) and Productivity since 1820". But I had to change the title because in the meantime I realised that the available figures on German NDP, mainly based on Hoffmann, need a substantial revision in order to calculate comprehensive growth and productivity figures. Since it is beyond the scope of a single researcher, even if he had had more time, to do this thorough revision of the available data, I confined myself to describing and assessing Hoffmann's figures themselves as well as new findings either based on Hoffmann or carried out independently including some preliminary extrapolations by myself. The content of my paper, however, turned out to become rather an account of the pitfalls of the available figures and an agenda of work which has to be done in the future.

Net Domestic Product (NDP) or Net National Product (NNP) before 1850

Before 1850, the level and growth of Germany's[1] value added is still obscure, though there are some attempts to extrapolate Hoffmann's[2] figures backwards. Henning's[3] attempt reaching back to 1780 for three benchmark years is presented in Table 2 (see p. 342). In his textbook he gives no explanation of the estimation procedure. The crucial point with this type of extrapolation lies in the assumption that the level of NDP given by Hoffmann for the 1850's is more or less correct. After Hoffmann's work had been published nobody has ever tried to revise his figures within the framework of national accounts basically (on this see the next

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[*] This Conference took place in Rocca di Papa near Rome from August 23 to 29, 1987.

[1] That is the territory which later (1871) formed the German Empire excluding Alsace-Lorraine.

[2] For a reference to *Hoffmann*'s work see footnote 5 and notes on Table 1.

[3] Friedrich-Wilhelm *Henning*, Die Industrialisierung in Deutschland 1800 bis 1914, Paderborn 1984[6], p. 25.

chapter). If there are doubts whether or not Hoffmann's figures truly reflect the level of German NDP during the 1850's a Henning-type of extrapolation would not be useful for the decades prior to 1850. Instead we need an independent

Table 1

Net Value Added (NVA) in Prussia (P) and Germany (D), 1816–1849 (1913 prices)

Year	NVA/P in agriculture per head of agricultural population (marks) - 1 -	P agricultural population (1000 s) - 2 -	NVA/P total in agriculture (millions of marks) - 3 -	NVA/P in non-agriculture per head of non-agricultural population (marks) - 4 -	P non-agricultural population (1000 s) - 5 -	NVA/P total in non-agriculture (millions of marks) - 6 -
1816	187.9	7040	1322.8	274.3	3309	907.7
1822	206.9	7810	1615.9	302.1	3854	1164.3
1831	261.3	8520	2226.3	381.5	4597a)	1753.8
1840	297.9	9110	2713.9	434.9	5819	2530.7
1849	328.5	9620	3160.2	479.6	6904b)	3311.2

	NVA/P total (millions of marks) - 7 -	NVA/P per head (marks) - 8 -	D population (1000 s) - 9 -	NVA/D total (millions of marks) - 10 -	NVA/D total (1913 = 100) - 11 -	NVA/D per head (1913 = 100) - 12 -
1816	2230.5	215.5	23 759c)	5 120	10.6	29.8
1822	2780.2	238.4	25 560	6 094	12.6	32.9
1831	3980.1	303.4	28 216	8 561	17.7	41.9
1840	5244.6	351.3	31 447d)	11 047	28.8	48.5
1849	6471.4	391.6	34 562	13 534	27.9	54.1

a) total population, average 1828/1834   c) 1817
b) total population, average 1846/1852   d) 1841

Notes and sources Table 1:
1) Richard Tilly, Capital Formation in Germany in the Nineteenth Century, in: The Cambridge Economic History of Europe, vol. 7, Cambridge 1978, p. 395.
2) Ibid., p. 441. 3) (2) x (1).
4) Between net value added per head in non-agriculture and agriculture a ratio of 1.46 was applied. This ratio was calculated on the basis of Hoffmann's data for the early 1850's. See Walther G. Hoffmann, Das Wachstum der Deutschen Wirtschaft seit der Mitte des 19. Jahrhunderts, Berlin 1965, pp. 33, 35.
5) see (2). 6) (4) x (5). 7) (3) + (6). 8) (1) : [(2) + (5)].
9) Wolfram Fischer, Jochen Krengel, Jutta Wietog: Sozialgeschichtliches Arbeitsbuch, vol. 1. Materialien zur Statistik des Deutschen Bundes 1815–1870, München 1982, p. 21.
10) (8) x (9).
11) (10) : 48 480 millions of marks in 1913, see Hoffmann 1965, p. 455.
12) (8) : 723,8 marks in 1913, see ibid., pp. 174, 455.

assessment, which does not take for granted the level shown by Hoffmann's figures.

For five benchmark years between 1816 and 1849 Tilly calculated net value added for Prussian agriculture (Table 1).[4] By some simple extrapolation steps, described in the notes on Table 1, these values are converted into net value added figures for the entire German economy. Since between 1851 and 1855 German net national product (NNP) per head was only slightly higher (3.4 %) than the Prussian figures[5] the latter were multiplied by overall German population without a correction factor.

Hohorst's data on Prussian income per head[6] allow an independent check of these data. With the help of factor and regression analysis he developed a fairly complicated equation to estimate his data: For 1907 and 1913 he used regional (administrative districts = Regierungsbezirke) income data per head based on tax returns as dependent variable and combined data on population, livestock and expanse as independent variables.[7] After adjusting his data to price changes[8] (1913 = 100) they compare with the one's in Table 1, col. 8:

	Hohorst	Table 1
1816	168	216
1822	230	238
1831	301	303
1840	319	351
1849	383	392

The similarities are more striking than the deviations. Only the difference in 1816 cannot be considered as lying within the acceptable error margin.[9]

To what degree do my extrapolations differ from Hoffmann's figures? In Table 2 both sets of data are confronted. According to Hoffmann's data the German economy would have stagnated between 1850 and 1855, a rather peculiar

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[4] Tilly describes his estimation procedure in detail. Concerning building outlays, he draws on Hoffmann's level for 1850 (*Tilly* 1978, p. 399; fully quoted in notes on Table 1). This doesn't measure up to my assumption of independence from Hoffmann's data but this item is rather a small portion of net value added in agriculture, e. g. 1849 = 1.3 %.

[5] See the older work by Walther G. *Hoffmann*, J. H. *Müller*, Das deutsche Volkseinkommen 1851–1957, Tübingen 1959, p. 86.

[6] Gerd *Hohorst*, Wirtschaftswachstum und Bevölkerungsentwicklung in Preußen 1816 bis 1914, New York 1977, p. 276.

[7] Ibid., pp. 251 ff.

[8] For one year I used as he did (ibid., p. 280) a price-index calculated by Alfred *Jacobs*, Hans *Richter*, Die Großhandelspreise in Deutschland von 1792 bis 1934, Berlin 1935, pp. 78 f. The price-index-numbers of Tilly and Hoffmann are not exactly the same, however, they rely heavily on price series in Jacobs / Richter.

[9] It should be mentioned, however, that Hohorst's values for the years 1858, 1867 and 1873 may cast some doubt on his estimation procedure. At first sight the nominal values seem reasonable, but in real terms, i. e. price adjusted with the Jacobs / Richter-index they yield rather odd results. On the other hand, this may be mainly due to the violently fluctuating price-index.

conclusion as these years lie in the heart of Germany's take-off. And moreover, Hoffmann's data do not show the cyclical pattern detected among others by Spree.[10] This is, however, not the major issue at stake. More surprising is that Hoffmann's figures for the early 1850's are still below my estimate for 1831 and far below the one I calculated for 1849. My crude estimation and Hoffmann's rather sophisticated procedure do not match at all. For 1850 Henning and Maddison match Hoffmann's figure because they draw directly or slightly modified on Hoffmann. Henning's figure for 1825, however, does surprisingly fit into the range of my estimates. Although both Maddison and me used Tilly's data as starting point his figures are significantly lower than mine. This obviously is due to the fact that he tried to link his figures to the Hoffmann level of 1850. At first sight the data of Gömmel are not useful for a comparison because he does not present real income per head of German population but yearly income per worker in industry and craft. With that caveat in mind, the levels of his index-numbers nevertheless provide a comparison. Already for the time before 1850 Gömmel detected an income level which is far higher than any estimate of NDP per head.

Table 2
Real Income per head in Germany, 1780–1860 (1913 prices), Index: 1913 = 100

Year	Fremdling	Gömmel	Hoffmann	Henning	Maddison
	(1)	(2)	(3)	(4)	(5)
1780				33.2	
1800				34.5	
1816	29.8	39			
1822	32.9	56			27.9
1825		59		35.9	
1831	41.9	54			
1840	48.5	57			33.0
1849	54.1	66			
1850		64	38.7	36.6	38.5
1851		58	38.1		
1852		45	38.6		
1853		53	38.4		
1854		44	39.2		
1855		43	38.6		
1856		52	41.6		
1857		57	43.2		
1858		64	42.6		
1859		66	42.4		
1860		60	44.0		

Notes and sources:
Except for Gömmel the value for 1913 (723.8 marks net value added) is calculated from Hoffmann 1965, pp. 175, 455.
(1) See Table 1, based on Tilly 1978, p. 395.
(2) Rainer Gömmel, Realeinkommen in Deutschland. Ein internationaler Vergleich (1810–1914). Nürnberg 1979, pp. 27f. (1913 = 1083 marks yearly income per worker in industry and craft).
(3) Calculated from Hoffmann 1965, pp. 175, 455.
(4) Henning 1973, p. 25. The figure for 1850 is apparently based on Hoffmann 1965, Henning, however, does not use Hoffmann's population figures.
(5) Angus Maddison, Phases of Capitalistic Development, Oxford 1982, pp. 169f., 1822, 1840 based on Tilly 1978 and 1850 based on Hoffmann 1965.

[10] Reinhard *Spree*, Veränderungen der Muster zyklischen Wachstums der deutschen Wirtschaft von der Früh- zur Hochindustrialisierung, in: Geschichte und Gesellschaft 5 (1979), p. 237.

This of course has something to do with the changing composition of the population (age structure, participation rate) and work force (allocation to different sectors). But still his figures do suggest a higher level of per capita income than the ones implied by Hoffmann. Although Gömmel claims that in 1850 his nominal figure is the same as Hoffmann's and thus draws on Hoffmann's figures for the 1850's[11], I think his procedure is not consistent. It cannot be true that already in the 1820's – he gives yearly figures – the level of income in this large branch of the German economy was as high as Hoffmann's figures reveal for the 1850's. Either Hoffmann is too low or Gömmel is too high, at least both figures are biased into opposite directions. I conclude that Gömmel's figures before 1850 support my hypothesis that Hoffmann's data for the 1850's are too low.

Tilly suggested that figures in 1913-prices might be very sensitive to the chosen price index.[12] Except for agriculture Hoffmann does not apply an independently calculated price index to deflate value added at current prices in order to obtain value added at 1913 prices for each year. Both series nevertheless are tied together in 1913. This was done in Hoffmann's output approach by using index numbers for real production in each year and then extrapolating backwards value figures at 1913 prices from value added in 1913.[13] Thus the low values in real terms for the 1850's are not generated by an inappropriate choice of the price index or quality changes not being reflected in the price index.[14] On the contrary, the implicit price index indicates that Hoffmann's value added figures at current and constant prices are not consistent with each other. A comparison of the implicit price index with that of Jacobs / Richter yields the following results (1913 = 100):[15]

	Hoffmann	Jacobs/Richter
1850	52	70
1851	57	72
1852	61	78
1853	65	88
1854	71	97
1855	70	101

Of course, the supposed inconsistency depends on the assumption that the Jacobs / Richter-index by and large reflects the true price level for the 1850's. In any case, the implicit price index does not tell us if the level of value added calculated by Hoffmann for the 1850's is biased downwards of upwards in ab-

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[11] *Gömmel* 1979, p. 22. (Fully quoted in notes on Table 2).

[12] *Tilly* 1978, p. 396.

[13] *Hoffmann* 1965, pp. 335 ff.

[14] Hoffmann himself had some doubts on the chosen price series for his expenditure approach (ibid., p. 168). But he did not question the estimated quantities in his output approach as well, as I do.

[15] Ibid., p. 454, 507; *Jacobs / Richter* 1935, p. 78.

solute terms, it merely indicates that the current figures are too low compared with figures at constant prices or that the latter are relatively too high.

In an earlier work Hoffmann together with Müller had generated a time series for Germany's national income based on tax returns.[16] Although the per capita figure in 1913 differs only neglectably from Hoffmann's value added figure in his 1965 book, the data for the 1850's are far apart from the later ones. For 1851, their first year, Hoffmann / Müller give a national income per head at current prices of 256 marks, whereas the corresponding figure in Hoffmann amounts to mere 157.3 marks.[17] If 256 marks is converted into real income at 1913 prices and expressed as an indexnumber (1913 = 100) either by using the implicit Hoffmann-price index or the Jacobs / Richter-price index it comes to 60.7 or 48.1 respectively. These figures are much more in line with my 54.1 guesstimated for 1849 than the low values in Hoffmann's 1965 work.

Finally let me point out that Hoffmann himself had severe doubts whether or not the level for NNP during the 1850's established by his income approach was appropriate.[18] When comparing his NNP generated by the expenditure approach with the income approach he found a difference of 1140 million marks for 1850. This he could only partly explain by the amount of indirect taxes and he conclud- ed that 766 million marks remained unexplainable. He thus conceded a downward bias in his income approach which was due to an underestimation both of capital income and more severely of labour income. On a per capita basis the 766 million marks would enlarge the 1850 income at current prices from 146.7 marks to 169.4 marks, i. e. for 15.5 per cent.

I could not and I did not undertake to revise Hoffmann's figures for the middle of the 19th century. What I wanted to do is gathering evidence that Hoffmann's figures for the 1850's are severely biased downwards. Thus any estimation procedure which takes Hoffmann's data as a benchmark in order to extrapolate backwards will contain this downward bias.

NDP or NNP 1850–1913

Since Hoffmann had published his seminal work on the historical reconstruc- tion of Germany's national accounts in 1965 no successful attempt has been made at revising his figures in a comparable manner for the period up to World War I or the interwar years. Furthermore a critical assessment of the way Hoffmann generated his estimates is still lacking. Most researchers seem to accept his figures, which have been widely used for historical work concerning Germany. And inter- national comparisons of GNP and productivity exclusively rely on data provided by Hoffmann.

[16] See footnote 5.
[17] *Hoffmann / Müller* 1959, pp. 39 f.; *Hoffmann* 1965, pp. 175, 507, 509.
[18] See ibid., pp. 167 ff.

This contribution aims at a discussion of Hoffmann's estimation procedure which should give some hints where to detect pitfalls of his approach. Let me concentrate on Hoffmann's income and output approach and neglect his expenditure approach. To determine the level of output in 1913 Hoffmann used value figures of his estimated national income for this year. Therefore the estimation of the income approach will be discussed first.

Income Approach

Net national product at factor costs at current prices (Nettosozialprodukt zu Faktorkosten in laufenden Preisen) is given yearly between 1850 and 1913 in Hoffmann (1965, pp. 507, 509, col. 16). The figures are not reproduced here. Except for agriculture Hoffmann chose the following estimation procedure:
1. For each subsector of the economy the number of employed people was generated.
2. For the same sector the average yearly income per person was calculated. Thus the labour income for the entire economy could be computed.
3. Capital income was mostly derived indirectly by applying an average rate of return on capital stock at current prices.

Finally labour income and capital income in addition with net value added in agriculture and income from abroad constituted the net national product. Hoffmann did not try to give also gross figures. Let me discuss the three crucial steps separately.

1. Labour Force

The key figures are derived from agricultural and industrial censusses (Gewerbezählungen) taken of the German Empire in 1875, 1882, 1895 and 1907. Before 1871, the Zollverein had produced an industrial census in 1861 and 1846.[19] The industrial censusses of the German Empire are far from covering the entire work force in the respective years. The incompleteness varies over time.[20] The secondary sector is rather well covered, whereas most subsectors of the tertiary sector do not show up in the industrial census. That means that even in the census years Hoffmann had to draw on additional sources and estimation procedures. In order to test the reliability of Hoffmann's figures for the census

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[19] In 1846, however, two states (Württemberg, Brunswig) are missing, *Hoffmann* 1965, p. 186. Furthermore the Zollverein did not cover the entire territory which later formed the German Empire.

[20] See the synopsis of the VASMA-Project (Vergleichende Analysen der Sozialstruktur mit Massendaten), in: Reinhard *Stockmann*, Angelika *Willms-Herget*, Erwerbsstatistik in Deutschland. Die Berufs- und Arbeitsstättenzählungen seit 1875 als Datenbasis der Sozialstrukturanalyse, Frankfurt 1985, S. 210 ff.; also p. 112. Agriculture is also covered in those years by a special census.

Table 3
Labour Force in Industry/Craft and Mining, 1882–1950 (1000)

| | Industry/Craft | | Mining | |
	Hoffmann	VASMA	Hoffmann	VASMA
1875	5 153	4 954	286	307
1882	5 580	5 427	323	306
1895	7 524	7 366	432	393
1907	10 070	9 846	739	653
1925	11 708	11 843	743	809
1933	8 284	8 184	429	449
1950	8 035	8 176	578	570

Sources: Hoffmann 1965, p. 194, 196ff.; Stockmann/Willms-Herget 1985, p. 183. The
VASMA data were aggregated from the same subsectors which Hoffmann used.

years they are confronted with VASMA data in table 3. Both sets rely on the same sources. For the prewar years, Hoffmann's data concerning industry / craft are all along higher, ranging from 4 % in 1875 to 2.1 % in 1895. This may be due to a different delimitation of the subsectors. For 1875, Hoffmann had inflated the number of workers because of unusual cold weather conditions.[21] Concerning mining the deviations between the two accounts are unusually high. Table 3 also presents figures for 1925, 1933 and 1950. Taking all pairs together the differences change over time and above all the deviations are biased in different directions. I doubt whether this can be explained by a different composition of the subsectors.

Anyway the industrial census provides an incomplete data set and I wonder why Hoffmann did not use the occupational census as starting point. These censuses were taken in 1871, 1882, 1895, 1907, 1925, 1933, 1939 and 1950, i. e. mostly in the same years as the industrial censusses. Hoffmann used the data of the occupational census only for extrapolation purposes. His main objection raised against the occupational census is that it does not allow a proper classification of the work force according to the sector of their employment. For example a carpenter working in metallurgy would be attributed to metallurgy by the industrial census and to woodwork by the occupational census.[22] But this is what everybody expects of the two different census concepts. Hohls has now pointed out that the German occupational census is in fact also an industrial census because the work force was allocated to different subsectors according to their main employment.[23] Since the occupational census gives a complete account of the working population it is far superior to the industrial census used by Hoffmann. Drawing on Hohl's and Kaelble's reclassification of the occupational census in 1895 and 1907 I regrouped their refined set of subsectors in four broad categories to make them comparable to Hoffmann's data (Table 4). Except for agriculture in 1895 the similarities are remarkable. The pairs are much closer than

[21] *Hoffmann* 1965, p. 183.

[22] Ibid., p. 181.

[23] Rüdiger *Hohls*, Hartmut *Kaelble*, Regionale Erwerbsstrukturen in Deutschland 1895–1970, forthcoming. See also *Stockmann / Willms-Herget* 1985, pp. 22 ff., 41.

Table 4
Labour Force in Germany, 1895 and 1907 (1000)

	1895		1907	
	Hoffmann	Hohls/Kaelble	Hoffmann	Hohls/Kaelble
Agriculture	9 788	8 293	9 897	9 883
Mining	432	418	739	720
Industry/Craft	7 542	7 581	10 070	10 140
Tertiary Sector	5 661	5 818	7 460	7 320
Total	23 405	22 110	28 166	28 092

Sources: Hoffmann 1965, pp. 195ff., 205; Hohls/Kaelble, forthcoming.

in the comparison between Hoffmann and VASMA. The difference for agriculture in 1895 is due to the fact that Hoffmann inflated the labour force in this sector because in comparison to the 1907 census a large part of the agricultural work force, contributing family members beyond the age of 14 (mithelfende Familienangehörige), had not been accounted for in 1895. Thus by way of estimate Hoffmann adjusted the 1895 figure to make it comparable to that of 1907.[24] In his concept employees are accounted for even if they could not be considered as full time workers.[25] For the two essential benchmark years, 1895 and 1907, Hoffmann's labour figures are well founded and do not insert any serious bias into his estimation procedure. The questionable employment figure on agriculture for 1895 has no serious consequences for the value added in this branch because Hoffmann had calculated it independently in his output approach.

If there is any serious bias in Hoffmann's labour force figures concerning the other years between 1850 and 1913, it is beyond the scope of my assessment. Here further research is needed and for the time being we should consider Hoffmann's labour force figures to be close to reality.

2. Yearly income per person employed

Any research following the publication of Hoffmann's work in 1965 might question his yearly income figures for certain subsectors of the economy.[26] But I do not know if Hoffmann's procedure created a general bias towards over- or underestimation. There is no evidence that Hoffmann's wage bill during the two or three decades before World War I is biased seriously in any direction. We have to wait for further research to provide an overall new account of income levels in Germany during this time. Hohls works on a Ph. D.-thesis which will present a new broad assessment of yearly incomes in Germany from 1885 onwards.[27]

[24] *Hoffmann* 1965, p. 183.

[25] Ibid., p. 181.

[26] For example my yearly income figures for railway workers are much more complete in the annual coverage and generally higher. Rainer *Fremdling*, Eisenbahnen und deutsches Wirtschaftswachstum 1840–1879, Dortmund 1985[2], p. 25; *Hoffmann* 1965, p. 474.

[27] Rüdiger *Hohls*, Löhne und Gehälter in Deutschland 1885–1985, Ph.D.-thesis, Freie Universität Berlin, forthcoming.

3. Capital Income

Hoffmann's estimation on capital income is probably flawed. For the sector "Gewerbe" which includes industry, mining, handicraft, trade, bank, insurance and transportation (with the exclusion of railways and post) he estimated a capital stock series at current prices based on a small survey; he assumed that the profit rate on this capital stock constantly amounted to 6.68 % between 1850 and 1913.[28] This is probably too low concerning the boom period of the 1890's and the years after 1900.

The empirical basis for the estimation on capital stock of "Gewerbe" is rather thin and Hoffmann himself admitted that his time series was not but a rough guess.[29] It was based on tax returns of the small state of Baden, which comprised only 3.8 % of the "Gewerbe" work force within the German Empire. Baden had a special tax on "Gewerbe" levied on fixed and working capital in that sector. The time series on Baden was taken to extrapolate backwards the value of 1913. But this on its part was based on the ratio between "Gewerbe" equipment and stock to "Gewerbe" building for 1925 / 29 and on further questionable assumptions.[30] In general Hoffmann's capital stock series depend on a pyramid of assumptions impervious to any assessment of the bias.

I don't yet understand how Hoffmann actually calculated his profit rate of 6.68 %, i. e. in which way he specified his regression equation. The underlying figures are presented in appendix 1. Moreover, the small survey Hoffmann used for this calculation is hardly representative for "Gewerbe". The data had been collected by the Prussian statistical office in order to analyse the indebtness of landowners. A particular group of landowners had made their living mainly by running a nonagricultural business, and this very sample was used by Hoffmann. But after all they had been landowners as well with quite an amount of landed property, 20 acres (Hektar) on average. Furthermore, the survey includes only natural and not juristic persons. So it seems that Hoffmann just did not account for retained profits in large joint-stock companies.[31]

To find comparable data I relied on Matthews et al. who calculated net profits in trading income for Great Britain. Trading income is domestic non-rent and non-farm income, it comes close to industrial income. The implied profit rates yield two to three times higher values in Great Britain than in Germany, which I think, is unlikely.[32]

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[28] *Hoffmann* 1965, p. 502.

[29] Ibid., p. 240.

[30] Ibid., p. 223 f.

[31] Königlich Preußisches Statistisches Landesamt, Preußische Statistik, vol. 191. Die ländliche Verschuldung in Preußen. (Berlin, 1905–1908), pass. and especially pt. 1 sec. half, p. 1205.

[32] Sources: *Hoffmann* 1965, pp. 225 f., 506 ff.; R. C. O. *Matthews* et al., British Economic Growth 1856–1973, Oxford 1982, pp. 179, 185 f., 644 n. 26.

| | 1856 | | 1873 | | 1913 | |
	D	GB	D	GB	D	GB
Net profits of trading income as share of trading income	17.95	32.7	19.13	35.1	21.78	29.8
decomposed into profit rate	6.7	15.6	6.1	17.3	6.9	14.9
and capital-output-ratio	2.69	2.10	3.11	2.03	3.15	1.99

If German industry in the 1890's and after 1900 had at least achieved comparable profit rates to the British the difference between German and British industrial productivity must have been smaller than indicated by figures based on Hoffmann. To test the influence of different profit shares I computed the German value added in "Gewerbe" by applying the British profit share to the German wage bill for the year 1913. The resulting figure is almost 9 % higher than Hoffmann's value added for "Gewerbe".

Thus it seems likely that Hoffmann's net national income at current prices is biased downwards. The downward bias would not exceed 5 % if Hoffmann's calculation was only true of the subsector "Gewerbe" within the above calculated margin. But it remains the question whether 5 % are tolerable and whether the bias was stable over time. The discussion on the bias for the 1850's above suggests an even much larger bias downwards.

Output Approach

Hoffmann's output approach is mainly based on a pyramid of index numbers with agriculture as the major exception. The physical output of 1913 is set at 100 for each sector or subsector. By drawing mainly on the value of the net national product obtained through his income approach in 1913 Hoffmann got value figures on output at 1913 prices.[33]

Let me go into some detail to describe Hoffmann's procedure. In agriculture he first calculated quantities of net production which were multiplied by current prices. In a second step he deflated these figures subbranch by subbranch in order to obtain value figures at 1913 prices.

In almost all other cases he compiled index numbers of production on a fairly low level of aggregation, for example separately for the production of hard coal, lignite, crude oil, iron ore etc. His figures give rise to two problems: 1. Especially for the first years (1850's, 1860's) there are serious gaps. Therefore the combined index numbers are often dominated by a mere fraction of the overall production of a subsector, for example the series on minerals (Steine und Erden) does not start before 1872.[34] Furthermore, at least in some cases I got the impression that Hoff-

[33] To be correct: Hoffmann only took the 1913 labour income from his income approach, whereas the 1913 capital income was based on an interwar study. This capital income is, however, almost the same as in his income approach. *Hoffmann* 1965, p. 453.

[34] Ibid., p. 345.

mann's figures are rather low for his first years. He himself mentioned the example
of mining for which Wagenführ arrived at an index number of 12.2 in 1860
whereas Hoffmann came to 6.9.[35] Concerning railways his figures for the early
1850's are clearly much below the already achieved output level.[36] It is difficult
to assess the general bias introduced by the overrepresentation of certain in-
dustries. I presume that modern sectors are better documented than traditional
ones, for example railway transport in contrast to road transport. If so, the
already achieved output level in early years would be biased downwards by Hoff-
mann's procedure. 2. When combining index numbers of particular industries for
entire sectors the crucial problem is the choice of the weights. In principle Hoff-
mann used either value added figures for 1913 or employment figures for 1861,
1882, 1907 and 1933 or 1936 to obtain sectoral index numbers. A special case
is industry / craft. For 12 branches of industry / craft he relied on the industrial
censusses of 1861, 1882, 1907 and 1933 to be representative for the work force
in certain sub-periods and then took a survey of 1936 on the value of net output
per employee in these branches to compute his weights.[37] This procedure leads to
a constant weighting scheme over long sub-periods and, moreover, a scheme that
assumes relative labour productivity among industrial branches to remain con-
stant for the whole time span, 1850 to 1959. If this assumption is true[38] there will
be no bias introduced by this procedure. But isn't it more likely that the fastest
growing industries also had the fastest growing productivity gains? If so the
1936 figures on value added per employee would inflate the weights of the
modern branches for the early decades after 1850.[39] In general this would result
in an upward bias if these modern branches already initially had a lead in labour
productivity. A downward bias, however, is also conceivable if these fastest
growing industries initially lagged behind the average in their productivity levels.
The question remains open if and to what extent Hoffmann's index numbers for
branches and subbranches are biased.

His final step to combine all index numbers into a single one is simple. For the
entire period from 1850 to 1959 he took the value added figures of 1913 as
weights to generate a general index on Germany's production. Based on value ad-
ded in 1913 the value figures for the entire economy and different sectors are
derived by extrapolating backwards and forwards according to the index
numbers for production. The result is net domestic product at 1913 prices.[40]

[35] Ibid., p. 337.

[36] Ibid., p. 399, 417; *Fremdling* 1985, p. 17.

[37] *Hoffmann* 1965, p. 389.

[38] Ibid., p. 394. He quotes two of his articles in which he found evidence for such an assump-
tion.

[39] This reasoning does not hold good if high productivity gains were passed on to consumers
through adequately declining prices.

[40] *Hoffmann* 1965, p. 451 ff.

This final step in Hoffmann's procedure has been criticized by Holtfrerich.[41] "This procedure has two weaknesses. 1. Are the production indices of each branch also representative for the development of value-added in each branch? Hoffmann was able to produce an index of value-added, i. e. production minus intermediate goods, depreciation, inventory changes, indirect taxes, only for the primary sector. 2. The above criticism of Hoffmann's calculation method for the branch indices also applies to his use of constant weights in computing the aggregate index. This is the point of departure for my following attempt to confront Hoffmann's procedure with a different method of aggregating the branch indices for the period 1850–1913 which takes into account changes in the economy's value-added structure and uses weights currently adjusted to the actual value-added shares in each year. This new procedure, of course, does not solve the problem connected with Hoffmann's use of constant weights to produce the branch indices themselves."[42] Holtfrerich emphasized that his index is not "an index in the conventional sense"[43] and thus not strictly comparable with Hoffmann's index. Nevertheless he compared the resulting different growth rates. For the take-off period between 1850 and 1874 Holtfrerich's rates are 0.2 to 0.4 percentage points higher than Hoffmann's which is the substantial difference of 11 to 13 percent. Between 1874 and 1907 the difference narrows down to 0.1 and 0.2 percentage points and disappears during the last years from 1907 to 1913 because Holtfrerich's and Hoffmann's weighting schemes converge up to 1913.

The higher growth rates of Holtfrerich's index are, of course, due to the fact that for the early years slow growing sectors such as agriculture get higher weights than in Hoffmann's index. If Holtfrerich's growth factors[44] are used to calculate an index of net domestic product it becomes clear that the implied level of production is considerably lower than Hoffmann's during the first two or three decades after 1850:

Net Domestic Product (1913 = 100)

	Holtfrerich's	Hoffmann's	Difference in percent of Holtfrerich's
1850	17.25	19.5	13.0
1860	21.56	23.9	10.9
1870	27.50	29.2	6.2
1880	35.00	36.5	4.3
1890	47.35	48.7	2.9
1900	67.54	68.4	1.3
1910	88.62	88.7	0.1

[41] Carl-Ludwig *Holtfrerich*, The Growth of Net Domestic Product in Germany 1850–1913, in: Rainer *Fremdling* and Patrick *O'Brien* (eds.), Productivity in the Economies of Europe, Stuttgart 1983, pp. 124–132.

[42] Ibid., p. 126.

[43] Ibid., p. 127.

[44] Ibid., p. 130.

At first sight the results based on Holtfrerich's weighting scheme seem to contradict my conjecture that Hoffmann's NDP-figures are biased downwards, especially in the middle of the 19th century. But this would be a rather rash conclusion because Holtfrerich does not revise Hoffmann's basic figures. In his article he relies entirely on Hoffmann's figures, which he even used to construct his – I think more reasonable – alternative weighting scheme. Any bias hidden in Hoffmann's basic figures is thus passed over to Holtfrerich's new index. But he shows how sensitive index numbers change when different weights are applied for their aggregation.

Let me conclude: Both Hoffmann's income estimates and the production estimates before World War I need a basic revision. The crucial weaknesses of the income estimates are mainly due to an inappropriate account of capital income and probably of yearly wages. The level of the output estimates is determined by the level of income in 1913. The growth rates of output between 1850 and 1959 are based on a pyramid of index numbers, which are combined to branches and even to the entire economy by rather different and varying weighting schemes. The basic index numbers should be improved and the weights need an assessment to which extent they cause biases.

NDP or NNP 1914–1924

Hoffmann and Hoffmann / Müller do not provide data for the First World War and for Germany's hyperinflation years. They are right indeed that any calculation of NNP at current prices would be meaningless.[45] Several authors however have tried to construct index numbers for national income in Germany between 1914 and 1924 expressed at constant (1913) prices. Some of their attempts have been summarized and criticized by Holtfrerich.[46] Thus I rely on his assessment. "Comparison of them discloses a consensus that national income declined during the war years and that the minimum level was reached immediately after it, in 1919. Thereafter the three series that continue (Henning, Graham, Witt) show a recovery lasting until 1922, followed by a sharp drop during the final year of the inflation." The same holds for Maddison's series, which is not discussed by Holtfrerich.[47] Holtfrerich can be agreed on considering the dating of the turning points as reliable. On the yearly changing levels of income, however, there is not consensus. According to Holtfrerich the index by Roesler based roughly on half of the industrial output cannot be regarded as representative of the entire national output. The index by Graham is rather more representative because its movement is the arithmetic mean of indexes for industrial and agricultural output and freight transport. The indexes by Witt and Henning are based on more

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[45] *Hoffmann / Müller*, p. 4; Carl-Ludwig *Holtfrerich*, The German Inflation 1914–1923, Berlin 1986, p. 225. This is a translation of the 1980 German edition.
[46] Ibid., pp. 223 ff.
[47] *Maddison* 1982, p. 174.

comprehensive calculations. Witt based his index on tax returns. But given the rapid changes in the value of money Holtfrerich finds this approach the least promising. Henning[48] based his index on production of various industrial branches, on an estimate of agricultural production and on employment figures for the tertiary sector, with adjustments made for territorial changes after 1918. Holtfrerich prefers Henning's index because it is representative for the entire economy, it builds on product-side estimates and it captures "more adequately the effects of the mushrooming of the tertiary sector". In Maddison's index[49] the level of output is determined by Hoffmann's figures for 1913 and 1925. "The pattern of movement in individual years 1914–1924 was derived from annual indices of industrial and agricultural output." These series were taken from Dessirier using Hoffmann's weights. Dessirier's index numbers are broadly based on industrial and agricultural output, adjusted by territorial changes.[50] Service output was in- terpolated according to Hoffmann's figures.

	Henning	Maddison
1914	96	85.2
1915	96	80.9
1916	92	81.7
1917	88	81.8
1918	88	82.0
1919	72	72.3
1920	74	78.6
1921	80	87.5
1922	83	95.2
1923	72	79.1
1924	82	92.6

Confronting Henning's and Maddison's figures, distinct differences will be noticed immediately. Henning's figures on the war time are considerably larger. In 1919 both are the same but after that year Maddison's figures are larger. Hen- ning's figures on the years of war seem to be closer to reality because he includes the increasing military and bureaucratic employment. But the different levels of postwar recovery still remain to be explained.

From 1925 onwards Maddison draws on figures published by the German statistical office[51], which differ from Hoffmann's estimates. Whereas Hoffmann's

[48] Henning has neither published all of his figures nor his estimation procedure. He changed ex- planatory letters with Holtfrerich.

[49] *Maddison* 1982, p. 164.

[50] Jean *Dessirier*, Indices Comparés de la production industrielle et de la production agricole en divers pays de 1870 à 1928, in: Bulletin de la Statistique générale de la France et du Service d'observation des Prix, Vol. 18, Octobre 1928, pp. 68 ff., 104.

[51] Statistisches Bundesamt (ed.), Bevölkerung und Wirtschaft 1872–1972, Stuttgart 1972, p. 260. Up to 1931 these figures are based on: Statistisches Reichsamt (ed.), Das deutsche Volkseinkommen vor und nach dem Kriege, Berlin 1932. The Statistische Reichsamt used tax returns to calculate the figures.

NDP in 1925 comes to 93.9 % of the 1913-value[52], Maddison gets an index number of 103.[53] To calculate such a high level of postwar recovery may be due to Maddison's procedure of linking his estimates from 1914 to 1924 to the series published by the German statistical office. With these remarks on the period between 1914 and 1924, which is not covered by Hoffmann, I conclude my paper. My general impression on the hitherto presented estimates of German national accounts is ambiguous. I will not deny that Hoffmann and his collaborators did fulfill an Herculean task, but there are many flaws in their time series, which simple regroupings or extrapolations of their figures will not eliminate. What we need is a fundamental revision of German historical national accounts. Given the wealth of historical studies during the last two decades and the current research this is possible. In particular the research programme of the Deutsche Forschungsgemeinschaft on historical statistics might serve as a basis for such a revision.[54]

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[52] *Hoffmann* 1965, p. 455.

[53] *Maddison* 1982, p. 174.

[54] Within this programme Andreas Kunz (FU Berlin) and myself work on historical statistics of the transportation sector, 1835–1985. Already published: Stefi *Jersch-Wenzel* and Jochen *Krengel*, Die Produktion der deutschen Hüttenindustrie 1850–1914. Ein historisch-statistisches Quellenwerk, Berlin 1984. Hugo *Ott* (ed.), Thomas *Herzig*, Ph. *Fehrenbach* and M. *Drummer*, Statistik der öffentlichen Elektrizitätsversorgung Deutschlands 1890–1913, St. Katharinen 1987.

Staat. A. Provinz Oftpreußen.

Grundsteuer-Reinertrag nach Grundsteuer-Reinertragsklassen sowie nach Einkommensgruppen im Jahre 1902.

(Noch: Tab. 1.)

Grundsteuer-Reinertragsklassen von .... ℳ	Einkommensgruppen von .... ℳ (Netto)	Zahl der Eigentümer	Fläche überhaupt ha a	Fläche durchschnittlich ha	Grundsteuer-Reinertrag überhaupt ℳ	Grundsteuer-Reinertrag durchschnittlich ℳ	Gebäudesteuer-Nutzungswert ℳ	aus Grundbesitz (Brutto) ℳ	gesamtes steuerpflichtiges Überhaupt ℳ	durchschnittlich ℳ
1	2	3	4	5	6	7	8	9	10	11

Noch: Staat.

C. Personen mit Haupterwerb aus Beamten-, Offizier- usw. Stellungen oder aus freien Berufen und Nebenerwerb aus Land- oder Forstwirtschaft.

	Einkommensgruppe	Zahl	Fläche überhaupt ha a	durchschn. ha	Reinertrag überhaupt ℳ	durchschn. ℳ	Gebäude-Nutzungswert ℳ	aus Grundbesitz (Brutto) ℳ	Überhaupt ℳ	durchschn. ℳ
C. 60 und mehr	a) bis 900	711	5 058 03	7,1	86 874	122	122 832	258 306	512 476	721
	b) über 900 bis 1 500	2 343	11 620 23	5,0	247 055	105	338 425	1 086 217	2 796 432	1 194
	c) „ 1 500 „ 3 000	2 630	20 614 85	7,8	417 779	159	636 768	1 626 691	5 699 477	2 175
	d) „ 3 000 „ 6 000	2 129	28 474 19	13,4	577 210	271	1 092 321	1 980 946	6 864 202	4 164
	e) „ 6 000 „ 9 500	892	30 934 54	34,7	438 860	492	898 229	1 403 663	6 786 792	7 609
	f) „ 9 500	1 232	109 421 49	88,8	1 604 111	1 302	3 875 678	5 295 844	38 794 007	31 489
	Summe	9 927	206 143 33	20,8	3 371 889	340	6 884 253	11 651 667	63 453 386	6 392

D. Personen mit Haupterwerb aus Gewerbebetrieb und Nebenerwerb aus Land- oder Forstwirtschaft.

	Einkommensgruppe	Zahl	Fläche überhaupt ha a	durchschn. ha	Reinertrag überhaupt ℳ	durchschn. ℳ	Gebäude-Nutzungswert ℳ	aus Grundbesitz (Brutto) ℳ	Überhaupt ℳ	durchschn. ℳ
D. 60 und mehr	a) bis 900	2 376	14 706 30	6,2	259 815	109	1 318 727	1 779 805	1 600 624	674
	b) über 900 bis 1 500	12 830	83 160 61	6,5	1 434 984	112	3 622 123	8 287 038	15 334 507	1 195
	c) „ 1 500 „ 3 000	14 198	123 728 56	8,7	2 179 870	154	7 772 162	13 655 994	30 026 755	2 115
	d) „ 3 000 „ 6 000	7 495	105 406 25	14,1	1 890 375	253	9 606 206	11 927 943	30 599 389	4 088
	e) „ 6 000 „ 9 500	2 457	57 988 36	23,6	987 686	402	5 616 729	6 448 169	18 436 258	7 504
	f) „ 9 500	4 521	492 305 83	108,9	5 792 370	1 281	42 100 981	40 640 602	308 334 510	68 201
	Summe	43 867	877 295 91	20,0	12 546 100	286	70 036 928	82 739 491	404 332 043	9 217

E. Personen mit Haupterwerb aus Handwerk oder Lohnarbeit und Nebenerwerb aus Land- oder Forstwirtschaft.

	Einkommensgruppe	Zahl	Fläche überhaupt ha a	durchschn. ha	Reinertrag überhaupt ℳ	durchschn. ℳ	Gebäude-Nutzungswert ℳ	aus Grundbesitz (Brutto) ℳ	Überhaupt ℳ	durchschn. ℳ
E. 60 und mehr	a) bis 900	9 491	32 598 40	3,5	806 745	86	731 217	2 952 655	6 664 800	707
	b) über 900 bis 1 500	12 404	48 198 36	3,9	1 203 064	97	1 844 650	5 771 916	14 078 993	1 135
	c) „ 1 500 „ 3 000	3 492	18 732 35	5,4	467 550	134	1 536 527	2 843 198	6 898 974	1 976
	d) „ 3 000 „ 6 000	520	3 724 22	7,2	97 627	188	598 169	771 276	2 033 324	3 908
	e) „ 6 000 „ 9 500	38	376 45	9,9	12 309	324	92 688	107 925	280 018	7 369
	f) „ 9 500	7	171 95	24,8	1 863	266	28 811	25 592	94 877	13 554
	Summe	25 882	103 801 73	4,0	2 589 158	100	4 832 062	12 472 562	30 049 986	1 161

F. Personen mit Haupt- oder Nebenerwerb aus Land- oder Forstwirtschaft.

	Einkommensgruppe	Zahl	Fläche überhaupt ha a	durchschn. ha	Reinertrag überhaupt ℳ	durchschn. ℳ	Gebäude-Nutzungswert ℳ	aus Grundbesitz (Brutto) ℳ	Überhaupt ℳ	durchschn. ℳ
F. 60 und mehr (A bis E zusammen)	a) bis 900	223 327	2 301 199 41	10,3	29 912 904	134	21 002 471	185 551 307	141 994 100	636
	b) über 900 bis 1 500	291 437	5 335 283 91	18,3	70 766 827	243	43 549 979	386 677 117	333 337 585	1 140
	c) „ 1 500 „ 3 000	143 872	5 008 457 94	34,8	81 159 562	564	44 181 111	318 925 847	292 020 202	2 030
	d) „ 3 000 „ 6 000	39 556	2 621 060 49	66,3	48 912 055	1 237	29 533 193	150 574 305	156 771 115	3 963
	e) „ 6 000 „ 9 500	9 029	1 031 265 23	114,2	18 357 448	2 033	13 782 169	52 587 915	67 342 209	7 458
	f) „ 9 500	12 846	5 505 807 33	428,6	77 645 290	6 044	74 548 751	217 450 183	607 915 912	47 323
	Summe	720 067	21 803 073 87	30,3	326 764 086	454	226 657 674	1 311 766 674	1 598 371 123	2 220

Provinzen.

Noch: II. Verschuldung und sonstige wirthschaftliche Verhältnisse der Grundeigentümer mit mindestens 60 ℳ Grundsteuer-Reinertrag und mit

(Noch: Tab. 2.)

Grundsteuer-Reinertrags-Klassen von ... ℳ	Verschuldungsgruppen	Zahl der Eigentümer	Durchschnittl. Umfang des Grundbesitzes (ha)	Durchschnittl. Grundsteuer-Reinertrag (ℳ)	Durchschnittswert des Grundbesitzes (Brutto) (ℳ)	Durchschnittl. Gesamt-(Brutto-)Vermögen (ℳ)	Betrag der Schulden (ℳ)	Verschuldung vom Hundert des Gesamt-(Brutto-)vermögens	Durchschn. Einkommen aus Grundbesitz (Brutto) (ℳ)	Durchschnittl. Gesamt-Einkommen (Netto) (ℳ)	Von den Eigentümern gehörten zur Einkommensgruppe (Sp. 3) von ... ℳ (Netto)					
											bis 900	über 900 bis 1500	über 1500 bis 3000	über 3000 bis 6000	über 6000 bis 9500	über 9500
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17

A. Provinz Ostpreußen.

Klasse	Verschuldungsgruppe	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
I. 60—90	ohne Schulden	700	12,0	73	8133	9202	—	—	713	724	571	123	5	1	—	—
	mit Schulden im Betrage von ... Sum des Ges.-(Brutto-)Vermögens — unter 5	205	14,0	74	8659	10500	289	2,8	789	800	136	63	5	1	—	—
	5 bis 10	291	13,8	74	8672	10095	776	7,7	784	721	231	54	6	—	—	—
	10 " 25	1383	14,0	74	8436	8836	1567	17,7	795	642	1183	194	6	—	—	—
	25 " 50	2452	14,1	74	8541	8741	3219	36,8	831	596	2200	250	2	—	—	—
	50 " 75	1349	13,6	74	8684	8793	5326	60,6	865	551	1236	113	—	—	—	—
	75 " 100	421	13,5	74	8599	8665	7353	84,9	891	514	397	22	2	—	—	—
	100 u. mehr	131	11,5	73	8349	8441	10227	121,2	894	483	123	8	—	—	—	—
	Summe	**6932**	**13,7**	**74**	**8515**	**8915**	**3160**	**35,5**	**820**	**613**	**6077**	**827**	**26**	**2**	**—**	**—**
II. 90—150	ohne Schulden	628	18,8	115	11094	13689	—	—	908	950	302	295	25	6	1	—
	unter 5	317	19,5	118	11498	14146	373	2,6	985	1010	137	162	16	1	—	—
	5 bis 10	410	21,7	117	12060	12824	966	7,5	1024	867	204	195	11	—	—	—
	10 " 25	1738	22,2	116	11846	12372	2194	17,7	1052	821	1059	661	18	—	—	—
	25 " 50	3455	21,3	117	11912	12197	4509	37,0	1085	751	2390	1033	32	2	—	—
	50 " 75	1859	20,4	117	12357	12655	7590	60,0	1147	695	1417	434	8	—	—	—
	75 " 100	552	20,5	116	11985	12124	10195	84,1	1167	630	455	94	3	—	—	—
	100 u. mehr	153	16,4	114	11223	11301	13214	116,9	1158	540	137	16	—	—	—	—
	Summe	**9112**	**20,9**	**117**	**11919**	**12503**	**4573**	**36,6**	**1079**	**770**	**6101**	**2890**	**113**	**7**	**1**	**—**
III. 150—300	ohne Schulden	556	28,9	211	18432	21955	—	—	1305	1366	75	323	151	5	1	—
	unter 5	497	34,3	215	19399	21820	575	2,6	1396	1351	46	311	137	2	1	1
	5 bis 10	529	34,4	213	19177	20335	1539	7,6	1440	1214	61	392	76	—	—	1
	10 " 25	2092	33,3	211	19193	20157	3609	17,9	1459	1139	388	1475	222	7	—	—
	25 " 50	4428	33,0	215	19451	19973	7467	37,4	1517	1012	1259	2951	215	3	—	—
	50 " 75	2614	32,4	215	19599	20034	12109	60,4	1611	919	1068	1467	77	1	—	—
	75 " 100	698	32,6	214	19713	20191	16965	84,0	1714	852	365	313	19	—	—	—
	100 u. mehr	155	27,8	213	18487	18820	22323	118,6	1730	754	99	52	4	—	—	—
	Summe	**11569**	**32,7**	**214**	**19374**	**20209**	**7664**	**37,9**	**1523**	**1042**	**3361**	**7284**	**901**	**20**	**2**	**2**

4

IV. **300—750 . .**	ohne Schulden		320	52,2	450	35 539	41 785	—	—	2 179	2 306	5	38	226	48	2	1
	mit Schulden im Betrage von . . . Hundertteilen des Geſamt- (Brutto-) vermögens	unter 5	487	54,1	454	37 885	46 423	1 079	2,3	2 286	2 439	4	66	344	69	2	2
		5 bis 10	348	51,3	454	35 595	39 546	2 939	7,4	2 234	2 040	2	76	244	22	3	1
		10 „ 25	1 357	49,6	436	34 597	36 867	6 618	17,9	2 212	1 777	20	468	820	48	1	—
		25 „ 50	3 479	50,9	454	36 073	37 349	14 105	37,8	2 310	1 525	168	1 804	1 458	45	3	1
		50 „ 75	2 684	54,4	469	38 161	39 492	24 181	61,2	2 508	1 315	290	1 681	695	16	2	—
		75 „ 100	856	61,2	488	42 171	43 103	36 044	83,6	2 847	1 163	166	565	121	3	1	—
		100 u. mehr	140	56,2	472	35 925	36 703	41 277	112,5	2 753	980	52	81	6	—	1	—
	Summe . . .		**9 671**	**52,9**	**459**	**37 039**	**39 059**	**16 662**	**42,7**	**2 397**	**1 552**	**707**	**4 779**	**3 914**	**251**	**15**	**5**
V. **750—1 500 .**	ohne Schulden		62	91,1	989	73 280	85 880	—	—	3 638	4 030	—	—	12	44	6	—
	mit Schulden im Betrage von . . . Hundertteilen des Geſamt- (Brutto-) vermögens	unter 5	41	94,0	974	74 188	98 254	2 269	2,3	3 687	4 184	—	1	16	20	3	1
		5 bis 10	46	93,7	976	96 405	133 926	9 493	7,1	3 760	4 484	—	1	17	23	3	2
		10 „ 25	192	85,1	973	72 418	83 095	15 373	18,5	3 624	3 158	1	6	94	86	4	1
		25 „ 50	697	91,6	1 001	73 399	79 097	30 749	38,9	3 852	2 549	1	66	458	164	5	3
		50 „ 75	959	99,4	1 038	78 459	81 839	51 612	63,1	4 209	1 977	14	274	585	82	4	—
		75 „ 100	580	118,3	1 075	85 658	87 662	73 688	84,1	4 859	1 627	20	268	269	23	—	—
		100 u. mehr	68	131,4	1 091	83 213	83 784	91 788	109,6	5 334	1 466	3	36	29	—	—	—
	Summe . . .		**2 645**	**100,9**	**1 030**	**78 513**	**83 790**	**46 650**	**55,7**	**4 215**	**2 250**	**39**	**652**	**1 480**	**442**	**25**	**7**
VI. **1 500—3 000**	ohne Schulden		8	193,4	2 140	161 876	258 614	—	—	5 758	9 802	—	—	—	3	2	3
	mit Schulden im Betrage von . . . Hundertteilen des Geſamt- (Brutto-) vermögens	unter 5	10	159,8	2 058	148 453	223 801	4 785	2,1	6 244	7 921	—	1	—	3	2	4
		5 bis 10	8	219,8	1 986	149 921	339 686	23 911	7,0	6 685	14 185	—	—	—	4	1	3
		10 „ 25	28	176,1	1 928	145 280	215 037	40 797	19,0	5 706	6 817	—	—	1	13	8	6
		25 „ 50	172	202,8	2 029	151 047	175 058	68 403	39,1	6 393	4 671	—	5	43	85	28	11
		50 „ 75	445	213,4	2 055	157 643	167 792	107 590	64,1	7 208	3 089	1	28	202	201	10	3
		75 „ 100	387	222,9	2 098	160 024	164 840	139 058	84,4	7 975	2 325	8	76	224	74	5	—
		100 u. mehr	45	235,2	2 114	148 263	150 589	165 952	110,2	8 771	1 842	2	11	28	4	—	—
	Summe . . .		**1 103**	**214,4**	**2 066**	**156 645**	**170 800**	**110 886**	**64,9**	**7 353**	**3 284**	**11**	**121**	**498**	**387**	**56**	**30**
VII. **3000 u. mehr**	ohne Schulden		18	622,7	8 148	511 491	636 415	—	—	15 225	18 878	—	—	—	1	2	15
	mit Schulden im Betrage von . . . Hundertteilen des Geſamt- (Brutto-) vermögens	unter 5	14	1 255,6	11 755	1 067 759	1 956 904	36 854	1,9	29 995	60 239	—	—	—	2	1	11
		5 bis 10	12	2 954,4	24 669	1 858 165	2 237 315	162 083	7,2	40 493	50 623	—	—	—	1	—	11
		10 „ 25	43	1 614,2	13 660	960 166	1 172 834	199 110	17,0	27 691	26 253	—	—	1	5	3	34
		25 „ 50	183	930,1	8 576	622 107	751 653	279 306	37,2	21 037	15 882	—	—	4	29	41	109
		50 „ 75	304	583,5	5 838	409 885	440 892	280 845	63,7	16 446	6 778	1	3	25	148	73	54
		75 „ 100	242	517,7	5 224	361 926	371 942	309 454	83,2	16 201	4 379	4	17	47	133	29	12
		100 u. mehr	17	321,4	4 060	247 383	250 928	271 071	108,0	12 358	2 417	1	3	7	6	—	—
	Summe . . .		**833**	**731,7**	**7 019**	**501 780**	**578 621**	**272 519**	**47,1**	**18 428**	**10 789**	**6**	**23**	**84**	**325**	**149**	**246**
A. **60 und mehr** **(1 bis VII zuſammen)**	ohne Schulden		2 292	31,2	266	21 521	25 945	—	—	1 326	1 426	953	779	419	108	13	20
	mit Schulden im Betrage von . . . Hundertteilen des Geſamt- (Brutto-) vermögens	unter 5	1 571	48,0	386	33 727	46 946	1 047	2,2	1 855	2 188	323	604	518	98	9	19
		5 bis 10	1 644	55,1	424	35 238	41 631	3 061	7,4	1 764	1 730	498	718	354	50	7	17
		10 „ 25	6 833	41,8	317	26 140	29 025	5 147	17,7	1 614	1 322	2 651	2 804	1 162	159	16	41
		25 „ 50	14 866	47,1	385	31 260	33 953	12 775	37,6	1 895	1 300	6 018	6 109	2 212	326	77	124
		50 „ 75	10 214	64,1	570	44 871	47 086	29 430	62,5	2 593	1 302	4 027	4 000	1 592	449	89	57
		75 „ 100	3 736	99,6	900	69 404	71 193	59 652	83,8	3 875	1 354	1 415	1 355	685	234	35	12
		100 u. mehr	709	58,1	514	38 423	38 970	43 608	111,9	2 702	880	417	207	74	10	1	—
	Summe . . .		**41 865**	**54,7**	**462**	**36 986**	**40 112**	**18 778**	**46,8**	**2 172**	**1 359**	**16302**	**16576**	**7 016**	**1434**	**247**	**290**