

Medium-term Growth Path under Threat: Inadequate Investment in West Germany

After the dramatic decline in 1993, the volume of west German investment again fell below the previous year's level in 1994. Thus the 1994 figures mark a further deterioration in the prospects for an adequate medium-term rate of economic growth. If the west German economy is to return to a medium-term growth path in excess of annual average rates of 2%, lasting investment growth of 5% p.a. throughout the enterprise sector will be required.

Record low for private sector investment

In west Germany gross fixed capital formation by the enterprise sector¹ amounted to just DM 302 billion in 1994, not even attaining the level achieved in 1989, the last year before the boom that followed German Unification. Investment as a share of value added fell to 14.6%, one percentage point lower than in the 1982 recession. Manufacturing investment contracted by 8% in 1994: in this sector, the volume of investment was just 76% of its 1989 value, and not much above the lowest figures recorded during the 1980s. Investment has been on the decline since as far back as 1992 (cf. figure 1). This phase of contracting investment is without precedent in the history of the Federal Republic. The prolonged decline in investment activity was a response by firms to the fact that the productive capacities created during the Unification boom were not being adequately utilised in the wake of falling demand, so that there was scarcely any need to invest in additional capacity.

The comparatively long investment boom at the end of the 1980s, reinforced and prolonged by the boost to demand resulting from German Unification, led to an increase in enterprise potential output of more than 4%. In view of this rapid growth of potential output resulting from the one-off impact of Unification, firms reacted to the subsequent decline in sales by cutting back investment in order to bring productive capacity into line with the normalised sales situation. The rate of

¹ Excluding housing rental.

growth of potential output fell rapidly, and in 1996 will amount to just 1%.

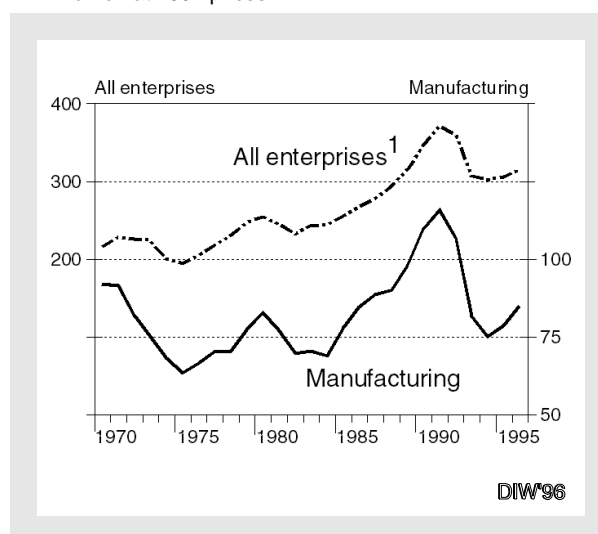
Potential output growth at the start of the 1970s was of similar strength to that during the Unification boom. At that time capacity utilisation was also very high and investment activity at a high level. The subsequent cyclical downturn that, exacerbated by the oil crisis, led to the 1974/75 recession, however, made a far less severe impact on investment activity than the decline in output after the end of the Unification boom.

The adjustment of west German potential output to sales trends has so far failed to lead to a significant improvement in capacity utilisation; capacity utilisation figures stagnated during 1995 at a low level (cf. figure 2).

Signs of an improvement in manufacturing industry

The fluctuations in potential output were far more pronounced in manufacturing industry, where, on average, productive plant tends to have a shorter working life, than in other sectors. Given the far sharper contraction of investment here, potential output is currently actually declining. In such a situation capacity utilisation is very sensitive to even minor sales growth. Even if output in 1995 only increased in line with the enterprise sector as a whole (2%), capacity utilisation will have risen by 2 percentage points. Even so, at 81% it is still significantly below the notional maximum of 90%,

Figure 1
Gross Fixed Capital Formation
in DM billion at 1991 prices



1) Excluding housing rental.

Table 1
Indicators of Capacity Utilisation in West Germany
 All enterprises excluding housing rental

	Unit	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995 ^{p)}	1996 ^{p)}
at 1991 prices																			
Gross fixed capital formation	DM bill.	247	254	244	232	243	244	256	267	277	293	315	346	372	359	307	302	306	314
Scrapping	DM bill.	110	115	121	126	131	140	143	146	150	154	160	164	168	173	183	187	191	196
Gross fixed assets ¹⁾	DM bill.	3758	3891	4016	4124	4227	4328	4429	4538	4654	4778	4915	5073	5254	5438	5587	5706	5823	5939
Potential capital productivity ²⁾	DM	463	459	453	447	441	435	430	424	419	415	413	416	420	423	424	422	419	416
Potential output ¹⁾	DM bill.	1739	1785	1820	1845	1864	1881	1902	1925	1949	1981	2031	2110	2207	2299	2367	2409	2439	2470
Gross value added	DM bill.	1515	1520	1514	1493	1519	1568	1608	1649	1667	1741	1816	1932	2036	2067	2016	2062	2101	2150
Capacity utilisation	%	87.1	85.1	83.2	80.9	81.5	83.4	84.5	85.7	85.5	87.9	89.4	91.6	92.2	89.9	85.2	86	86	87
change on previous year																			
Gross fixed capital formation	%		2.9	-3.8	-5.3	5.0	0.3	4.8	4.6	3.8	5.7	7.5	9.9	7.3	-3.4	-14.6	-1.6	1.5	2.5
Scrapping	%		4.5	5.3	4.2	4.3	6.7	2.2	1.8	2.8	2.5	4.2	2.4	2.4	3.2	5.4	2.3	2.3	2.3
Gross fixed assets	%		3.5	3.2	2.7	2.5	2.4	2.3	2.5	2.6	2.7	2.9	3.2	3.6	3.5	2.7	2.1	2.1	2.0
Potential output ²⁾	%		-0.9	-1.2	-1.3	-1.4	-1.4	-1.2	-1.3	-1.3	-1.0	-0.3	0.7	1.0	0.6	0.2	-0.4	-0.8	-0.7
Productive potential	%		2.7	2.0	1.4	1.0	0.9	1.1	1.2	1.3	1.6	2.5	3.9	4.6	4.2	3.0	1.8	1.3	1.3
Gross value added	%		0.3	-0.4	-1.4	1.8	3.2	2.5	2.6	1.1	4.4	4.3	6.4	5.4	1.5	-2.5	2.3	1.9	2.4
Capacity utilisation	%		-2.3	-2.3	-2.7	0.7	2.3	1.4	1.4	-0.2	2.7	1.7	2.4	0.7	-2.5	-5.3	0.5	0.6	1.1

p) Provisional estimate. — 1) Annual average values. — 2) Potential per 1000 units of gross fixed capital.

defined as "full capacity". This constellation of capacity utilisation, output growth and investment resembles that during the mid-1980s. Then, against the background of virtually stagnant growth of potential output, the capacity utilisation figures initially improved (in 1984), and this was followed in 1985 by a sharp rise in investment.

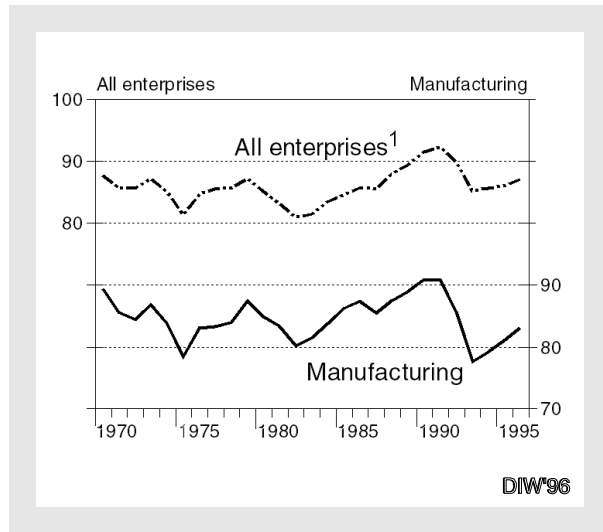
In order to analyse the relationship between investment activity and capacity utilisation, the DIW estimated investment functions for the various branches of manufacturing industry in which capacity utilisation, the demand situation and enterprise profitability are considered as explanatory variables. The macroeconomic investment climate, which is dependent in complex fashion on macroeconomic indicators such as interest rates, exchange rates, the rate of inflation and corporate taxation, is allowed for by using investment by all firms in plant and equipment as an explanatory variable in the investment function.

The results show how firms have reacted to these factors. The level of capacity utilisation in the year in

question proved to be of overwhelming importance for firms' investment decisions. In many branches the degree of explanation is improved if, in addition, capacity utilisation the previous year and sales trends are taken into consideration. Sales play a role, but almost exclusively in combination with capacity utilisation. The higher the capacity utilisation, the greater, the impulse to invest induced by a rise in sales. In more than half of the branches of manufacturing industry, enterprise profitability is also shown to exert an influence. Equally frequent is the influence of macroeconomic investment in plant and equipment, and thus the level of macroeconomic activity is represented by this variable. It is rare, however, for both factors to be of significance.

Analysis of the current conditions for investment in manufacturing industry in the light of these results suggests that little stimulus to investment is being generated by the still very low level of capacity utilisation in most branches and the hesitant increase in economic activity. In a number of branches in which potential out-

Figure 2
Capacity Utilisation
in %



1) Excluding housing rental.

put is stagnant or actually declining, however, firms will have to expect a sharp rise in capacity utilisation even if sales rise only slightly or even merely remain stable. Profits, which rose strongly in 1994, continued to increase in a number of branches in 1995. These factors suggest that in 1995 manufacturing investment probably increased for the first time for three years; moreover, the increase was greater than that forecast for the enterprise sector as a whole.

In view of the particularly sharp curb on investment activity in the export-oriented branches of the investment-good sector, it is expected that the still above-average sales expectations make their impact felt on investment. In the consumer-good sector and food, drink and tobacco, on the other hand, the constellation of factors with a bearing on investment does not suggest an imminent rise in investment. The growth of fixed capital formation in manufacturing industry as a whole is, however, insufficient to halt the decline in overall potential output.

Continued decline in capital productivity

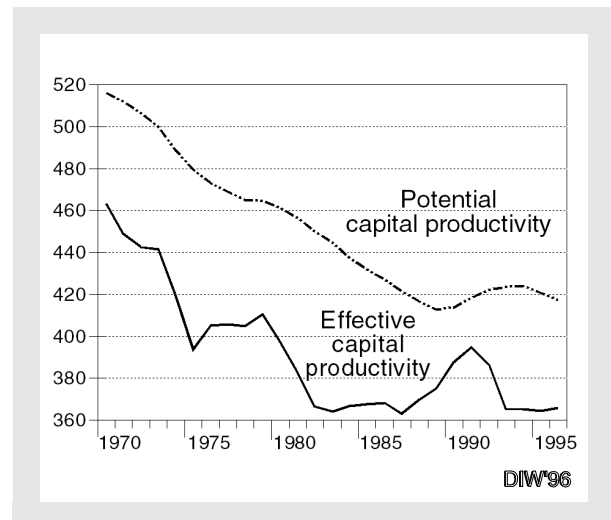
The evaluation of the development of potential capital productivity, the relation between potential output and total fixed assets, is subject to a number of uncertainties. In the past it has been declining at a rate that has itself been falling, as a significant proportion of investment activity has aimed not to expand potential

output, but to replace the input of labour with that of capital. Profitability was only maintained at a stable medium-term level because at the same time wage and salary incomes, as a proportion of value added, declined. In the course of the rise in sales following German Unification, productive plant was used more intensively, with additional shifts and overtime being worked. The extended plant operating times generated a rise in effective capital productivity far beyond the level typical of full capacity. This has knock-on effects on potential capital productivity.

The nature of these effects depends on the extent to which firms' experiences with the extension of plant operating times during the Unification boom will continue to exert an impact in future.

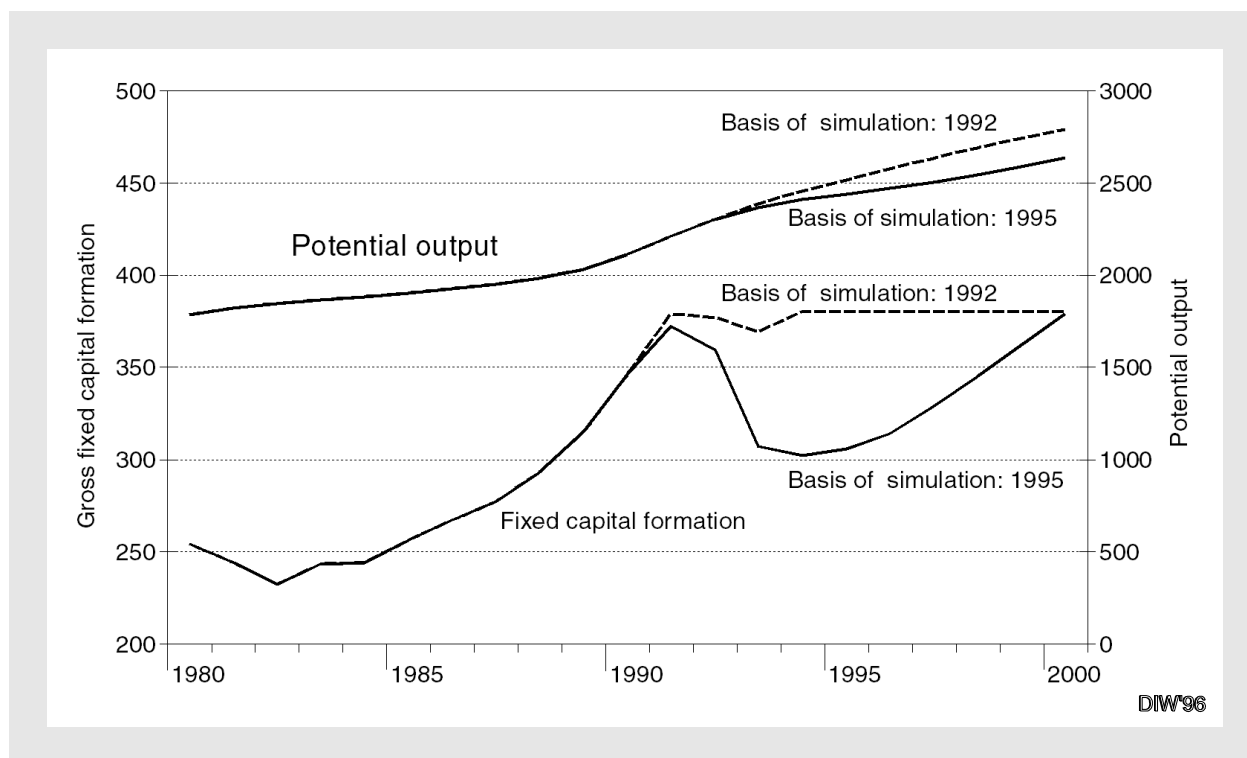
The extended plant operating times will only be reduced if the extension is associated with no additional costs that are not justifiable. Recent developments show, however, that German firms are now attempting to reduce the costs incurred due to the extension of plant operating times by reaching collective agreements so as, for instance, to reduce the bonus payments for overtime and non-standard working hours. By this means, extended plant operating times may well remain profitable over the longer term. Such a strategy cannot, however, be repeated at will. West German potential capital productivity will, therefore, once again begin to decline in the course of the normalisation, as it had done prior to Unification. Nevertheless, its level received an upward boost in the years following 1991 due to Unification (cf. figure 3), reducing the necessity for firms to invest in order to expand their potential output.

Figure 3
Capital Productivity
in DM billion at 1991 prices



1) Excluding housing rental.

Figure 4
Investment and Potential Output
 in DM billion at 1991 prices



1) Excluding housing rental.

Adequate growth of productive potential requires additional investment

The above considerations pose the question as to the long-term consequences of the low level of investment for the growth path. As recently as 1992 the findings were very different. In simulations using the DIW's potential output model it was shown at the time that no further significant impulses were expected from economic growth on investment activity up to the year 2000. Given the then prevailing level of investment, the growth trend of potential output would have permitted economic growth of 2% p.a. to the year 2000 at a constant level of investment (cf. figure 4). Economic development at this constant high level of investment, which had been largely due to the Unification boom, was considered optimistic even at the time, however. Doubts were raised whether, in the face of declining capacity utilisation in the wake of falling sales, the high level of investment could be maintained. Rather it was expected that potential output in a phase of secular decline in investment would return to a lower growth path. This is precisely what has in fact occurred, raising the question as to the volume of investment necessary to accelerate the growth of potential output in such a way that, once

the reserves of existing capacity have been utilised, it returns to a satisfactory medium-term growth path.

In 1995 west German firms expanded their investment by just 1% to 2%. In the current year investment growth is expected to be of the order of one percentage point higher. Given growth rates of this order of magnitude, west German investment is set to remain at a level such that a further weakening of the growth of potential output to under 1% is to be expected.

This means that far higher rates of investment growth are required if the west German economy is to return to a satisfactory medium-term growth path. In this context it must be taken into account that the higher average plant operating times mean that the capacity effect of investment activity is higher. According to the most recent simulations, investment must achieve sustained annual growth rates of 5% p.a. if the growth of potential output is to exceed 2% a year. This rate of expansion was achieved in the past over medium-term upturn phases. An increase in the rate of investment growth is most likely to occur in manufacturing industry. At the same time it is necessary that investment in other areas of the economy also recovers.

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