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Thomas Weiß*

Has the Decline in the Productivity of Capital Been Halted?

On a long-term assessment, the economic situation in the industrial countries has grown more difficult. Unemployment is higher than it was in the 1960s, while growth both in the economy as a whole and in productivity is now slower. High labour costs are frequently cited as the underlying cause of these changes. This article sets out to counter (or to complement) this supposition by directing the spotlight on to what has now become a substantial decline in capital productivity in the industrial countries.

As economic growth rates around the world have steadily tailed off on a long-term view, the diagnosis usually proffered is a general deterioration in conditions on the supply side. High growth not only in wages but also in government expenditure, so this view goes, have placed too great a burden on entrepreneurial activity. The fall in the productivity of capital, another damper on profitability, is also itself felt to result from the marked rise in real wages. This article seeks to examine the problem from a different perspective, by putting it to the debate that the decline in the productivity of capital in industrial economies, rather than increased labour costs, ought to be considered the immediate cause of their problems.

The author will comment on developments and consider points that relate to the Federal Republic of Germany, the USA and Japan – three countries which between them account for about half of the world's gross domestic product (GDP), even though they only contain 9% of the world population.¹

The Situation: Unemployment, Growth, Productivity

Looking at the OECD countries as a group, their unemployment rate was still only 3.5% in 1971, but had risen to 7.4% by 1996.² These increases in

unemployment rates are a reflection of weaker world economic growth. During the 1960s, the OECD countries as a whole chalked up five-percent annual growth at constant prices, whereas their current overall growth rate is only around the two-percent mark.³

Relative to the size of the workforce, the OECD's combined growth rate at constant prices was 4% in the 1960s, but has been just 1% in the 1990s. The number of people in gainful employment has undergone differing changes from one decade to another (see Table 1). In the USA, the greatest rise in employment occurred in the 1970s, while the 1980s were the greater growth decade in Japan, Germany and elsewhere in Europe. Of the three countries under review, the USA had the highest growth in employment and the lowest growth rate in labour productivity. Employment growth was lowest in Germany.

Capital Productivity, Government Expenditure and the Tertiary Sector

In all of the countries under consideration, the amount of funds tied up in capital equipment in-

¹ Figure computed from data in: ifo-Schnelldienst 10/97. The fact that half of the world's GDP is concentrated among just one tenth of its population puts the concept of "globalization" in a rather different perspective.

² OECD Labour Force Statistics 1974–1994 and 1976–1996, Paris 1996 and 1997, pp. 32f.

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Table 1
Economic Indicators

Unemployment rate (%)	1960-69	1970-79	1980-89	1990-96
USA	4.8	6.2	7.3	6.3
Japan	1.3	1.7	2.5	2.6
Germany	0.7	2.0	5.8	5.8/7.6
Europe	2.2	3.7	8.8	10.2
Real GDP, index (%)	1960-70	1970-80	1980-90	1990-96
USA	3.8	2.8	2.6	2.2
Japan	10.5	4.5	4.0	1.8
Germany	4.4	2.7	2.2	1.7
Europe	4.8	3.0	2.4	1.4
Labour productivity, index (%)				
USA	1.9	0.8	0.8	1.0
Japan	8.9	3.7	3.1	1.1
Germany	4.2	2.6	1.7	1.8
Europe	4.6	2.6	1.9	1.8
Employment, rate of change				
USA	1.8	2.2	1.8	1.0
Japan	1.4	0.8	1.2	0.6
Germany	0.2	0.2	0.5	-0.2/-1.1
Total government expenditure, percentage of GDP	1960-69	1970-79	1980-89	1990-96
USA	28.7	34.1	38.1	38.8
Japan	18.7	25.5	32.7	34.1
Germany	36.4	44.3	47.4	48.6
Public consumption, percentage of GDP				
USA	17.5	17.5	17.6	16.7
Japan	7.8	9.0	9.6	9.4
Germany	11.9	13.4	13.6	12.4
Europe	14.0	15.8	16.3	15.5
Current government interest payments, percentage of GDP	1960-69	1970-79	1980-89	1990-96
USA	1.9	2.3	4.4	4.6
Japan	0.5	1.3	4.0	3.7
Germany	0.8	1.3	2.8	3.2
Europe	-	2.1	3.4	5.2
Adjusted share of wages and salaries in GDP (%)				
USA	65.3	66.3	66.3	66.1
Japan	69.4	72.7	70.8	67.1
Germany	62.5	65.3	64.0	61.4
Europe	65.8	67.5	65.8	62.5
Real remuneration per employee ² , index (%)	1960-70	1970-80	1980-90	1990-96
USA	2.0	0.7	0.7	0.9
Japan	7.7	5.0	2.0	1.0
Germany	4.6	2.9	0.8	1.1
Europe	4.5	3.1	1.1	1.0
Real interest rate ² (%)	1961-69	1970-79	1980-89	1990-96
USA	1.7	0.0	4.9	4.2
Japan	-	-0.7	4.4	3.8
Germany	3.2	2.3	4.4	4.5/3.8

¹ West Germany only.

² Calculated using a GDP deflator.

Sources: EU Commission, annual macroeconomic data, autumn 1997, own calculations.

creased more than net value-added did. In Germany's case, these figures are available from the Federal Office of Statistics, and for international comparative purposes an indication of the productivity of capital is provided by the share of GDP taken up by depreciation charges (capital consumption).⁴ That share is considerably higher nowadays than it used to be in the 1960s (see Figure 1). It is at its highest in Japan, which indicates that the country has the lowest productivity of capital.

At the same time as capital productivity has declined, the share of overall government expenditure in GDP has risen steadily (see Table 1). Among the economies being looked at here, that share is highest in Germany and lowest in Japan. The picture is slightly different if one focuses on government-sector (or public) consumption, i.e. on the direct claim on an economy's GDP made by the state. This now again accounts for a slightly lower GDP share in the 1990s than it did in the two preceding decades. The proportion of GDP used up in public consumption is highest in the USA and lowest in Japan. At the same time, interest charges serviced by the state have also increased significantly as a share of GDP. These are highest in the USA and lowest in the Federal Republic of Germany (see Table 1).⁵

Finally, economic statistics also bear out Fourastié's proposition that the service, or tertiary, sector is naturally playing an ever more important role in industrial countries. The trend has so far gone farthest in the USA.⁶

Real Wages and Government Expenditure

From a neoclassical perspective, the roots of the industrial countries' current problems lie in excessively high real wages on the one hand and an excessive ratio of government expenditure to GDP on the other. Neoclassical theory teaches that the productivity of capital will fall if real wages rise more rapidly than the improvement in labour productivity generated by technological progress. Any such "undue" increase in real wages leads firms to substitute capital for labour, and a neoclassical output

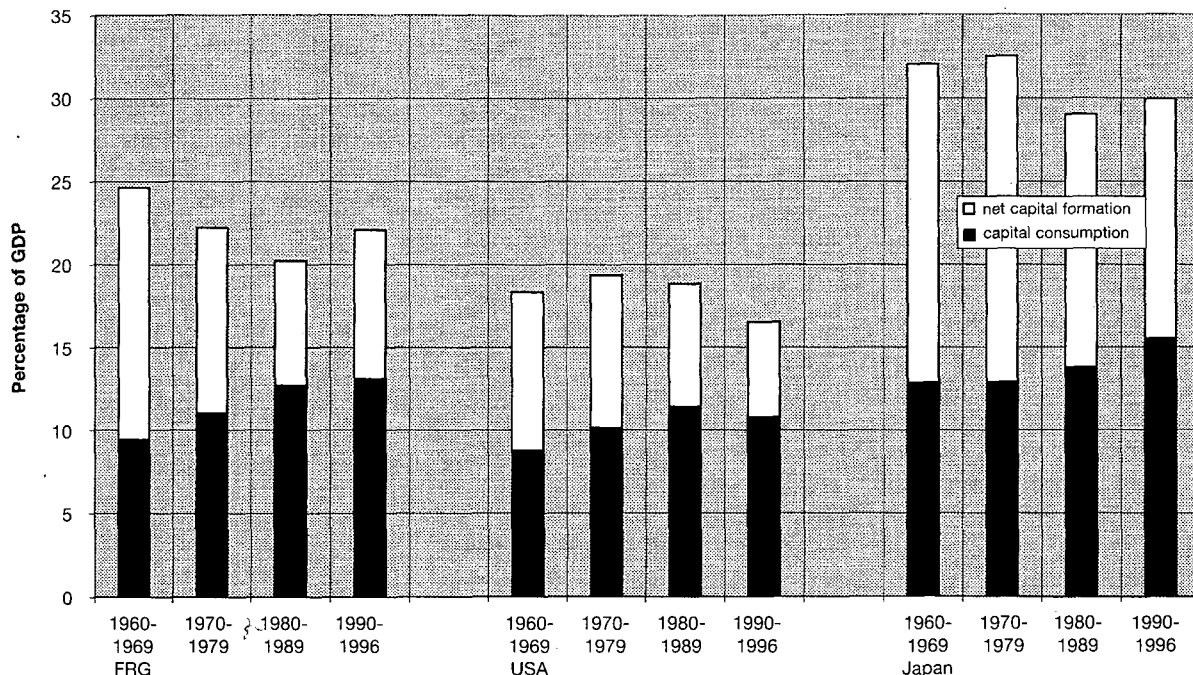
³ Cf. OECD Economic Outlook 62, Paris, December 1997, p. A4.

⁴ On net domestic product relative to the net capital stock at replacement cost for the German economy, cf. T. Weiss: Hin zu den Diensten, in: Bundesarbeitsblatt 4/1997.

⁵ The OECD publishes figures on net debt interest payments, and on this basis the USA has to pay a lower proportion of its GDP than Germany. Cf. OECD Economic Outlook 62, op. cit., p. A36.

⁶ This is shown, for example, by the make-up of the workforce; cf. OECD Labour Force Statistics, op. cit., 1996.

Figure 1
Gross and Net Capital Formation, and Capital Consumption



Source: European Commission, annual macroeconomic data, autumn 1997, author's calculations.

function presumes that increased capital intensity (i.e. the capital deployed per unit of labour) will lower capital productivity (value added per unit of capital).

Falling capital productivity exacerbates conflicts over the distribution of income, wealth and resources. Assuming that firms always aim to achieve a certain positive return on capital employed, the only way they can maintain this if capital productivity (net output per unit of capital) is sinking is to claim a greater share of their value added for their corporate profit, at the expense of wages and salaries. Under these circumstances, then, collective-bargaining policies which aim to uphold labour's existing share of national income are irreconcilable with a constant return on capital employed. One way of shoring up these returns on capital is to relieve some of the tax burden on corporate profits.

According to this view, one would expect the downward trend in capital productivity coupled with intensifying distribution conflicts to have had a telling influence on firms' propensity to invest. And indeed, in the USA private-sector investment (capital formation) has contributed a declining share of GDP since the

1970s (see Figure 1), and recent levels in Japan have been well below those of the 1960s and '70s. Capital formation as a percentage of GDP was lowest in the USA and highest in Japan. Germany lies in between the two, and has had a higher share of capital formation in GDP during the 1990s due to the large amount of investment in eastern German reconstruction.

According to the "crowding-out" hypothesis, the decline in the corporate sector's average propensity to invest has been exacerbated by the greater share of GDP being taken by the state, particularly also by public consumption. To illustrate, Japan has the highest share of private-sector investment in GDP and the lowest share of public consumption, while the picture is the reverse in the USA (see Figure 1 and Table 1).

A sagging propensity to invest coupled with persisting declines in the productivity of capital have inevitably also affected growth, overall productivity and employment. Indeed, growth has been too weak to satisfy the demand for new jobs.

Empirical Findings

At first sight, this neoclassical scenario would appear to fit in very well with what has happened on the ground. In the 1960s and '70s, real wages generally increased more strongly than the GDP generated per member of the labour force (see Table 1). It was not until the 1980s that real wages began to slip back relative to this growth in per capita labour productivity. That change was partly due to lower wage settlements, but partly also due to the fact that new jobs tended to be created to a lesser extent in industry where wage levels are relatively higher and to a greater one in the service sector where they are lower.⁷ These changes during the 1980s ought to have taken the sting out of one neoclassical problem, namely excessive real wages. And there are indeed now signs that the productivity of capital has been falling at a much lower rate, and that it may have actually risen again in the 1980s and '90s (see Figure 1). One of the factors evidently yielding positive results has been the modesty of wage claims; another is that the service sector, for the time being at least,

calls for relatively lower capital inputs at a higher rate of productivity, thus enhancing capital productivity in the economy as a whole.⁸

Though the ratio of government spending to GDP is still on the increase, the growth is now much slower than it was. Likewise, consumption by the government sector appears to have taken a turn for the better (from the neoclassical point of view). Nevertheless, to give a sustained boost to growth and employment there needs to be an upturn in the share of investment in GDP, and there are no clear signs of that as yet.

High Real Interest Rates

One current phenomenon that is not immediately compatible with neoclassical explanatory approaches is the high level of real interest rates (see Table 1). In

⁷ On the German situation, see T. Weiss: *Erhebliche Unterschiede*, in: *Bundesarbeitsblatt* 3/1995.

⁸ On the German situation, see T. Weiss: *Hin zu den Diensten*, *op. cit.*

Bernhard Duijm

Die Wettbewerbspolitik der EG gegenüber vertikalen Vertriebsvereinbarungen

Exclusive dealing agreements, exclusive purchasing agreements, and selective distribution systems are highly controversially discussed in theory and practice. These vertical distribution agreements can have both pro-competitive and anti-competitive effects. They can intensify competition by facilitating market entry or they can be used to divide up markets and thus reduce competition. So, the main objective of the competition policy of the EC, the integration of the European economies, can be affected by vertical distribution agreements in various ways.

This book analyzes the policies of the European Commission concerning vertical distribution agreements from an economic point of view. It examines whether and how the Commission is pursuing the aims of the EC competition policy. It is shown that sometimes the aims are conflicting and that sometimes the Commission subordinates the competition policy to other policies, e.g. to foreign trade policy. Also the procedure of the EC competition policy can be criticized: instead of preventing restrictions of competition block exemption regulations tend to be prescriptive.

■ in German

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the countries under review, these have been around the four-percent mark in the 1990s which, though less than in the previous decade, is still considerably higher than in the 1960s and '70s. Averages of the annual figures for the USA and Japan in the 1970s show approximately zero real interest rates. Thus for two decades, in the '60s and '70s, real wages were rising substantially on the one hand (or certainly faster than per capita productivity) while real interest rates were kept low or even negative on the other, as a result of relaxed monetary policy coupled with relatively rapid price inflation (especially in the 1970s); yet the labour market still tended towards full employment during these two decades. By way of contrast, in the two succeeding decades real wages rose much less while real interest rates were high.⁹ Yet there was still no observable substitution of labour for capital, at least not to an extent that would restore earlier employment levels.

Real interest rates have not only moved unfavourably relative to labour costs, but have also been "too high" relative to real growth in GDP. According to the "golden rule" of growth theory, they ought not to exceed the annual rate of economic growth at constant prices, but they have done so in recent times in all three of the economies under review. Not only that, but at their recent level of approximately 4% they are actually well above the average real growth rate during the 1990s for the OECD countries as a whole, which has only been about 2%. Only the developing countries' economies, taken as a whole, have shown a faster growth trend of 4-5% (real GDP) during the 1990s.¹⁰ However, these countries' contribution to the world's GDP is still small, with the result that world economic growth is essentially determined by conditions in the developed economies, and is some way below the world level of real interest rates (4-5%).

The Problem of Increasing Capital Expenditure

In terms of the neoclassical scenario described above, the decline in capital productivity and its subsequent stabilization in the 1980s would be

⁹ On high real interest rates, cf. R. Guttman: *Les mutations du capital financier*, in: F. Chesnais (ed.): *La mondialisation financière*, Paris 1996; F. Chesnais: *La mondialisation du capital* (new ed.), Paris 1997, pp. 63 ff.

¹⁰ Cf. P. Hirst and G. Thompson: *Globalisation in Question*, Cambridge, UK 1996, p. 101.

¹¹ On trends in unemployment in Germany and the USA since the 1980s, cf. A. Birk and T. Gries: *Amerikanisches Job-Wunder versus deutsches Produktivitätswunder – ein Vergleich der Arbeitsmarktstrategien*, in: *Wirtschaftsdienst* 2/1997; H. Werner: *Die Arbeitsmarktentwicklung in den USA – Lehren für uns?*, in: *Mitteilungen für Arbeitsmarkt- und Berufsforschung* 3/1997.

explained in terms of movements in real wages relative to those in labour productivity, though it should be noted that the productivity of capital remains well below its 1960s levels. Moreover, the positive outcomes one ought to expect from such changes, particularly a higher propensity to invest, faster growth rates and lower unemployment, have not so far emerged to the expected extent.¹¹ Nor do the high real interest levels compared with past periods readily fit into the neoclassical picture. Certainly, the empirical data available do not automatically rule out the possibility of there being some other potential explanations differing from those of the neoclassical model, and leading to different policy conclusions.

Specifically, one could place the spotlight on capital expenditure, which has risen more quickly than real net output (see Figure 1). As firms in a market economy compete with one another, only those that produce on an economic basis will be able to hold their own in the marketplace, and the key factor in this economical production, in the short term at least, are variable unit costs rather than unit costs as a whole.¹²

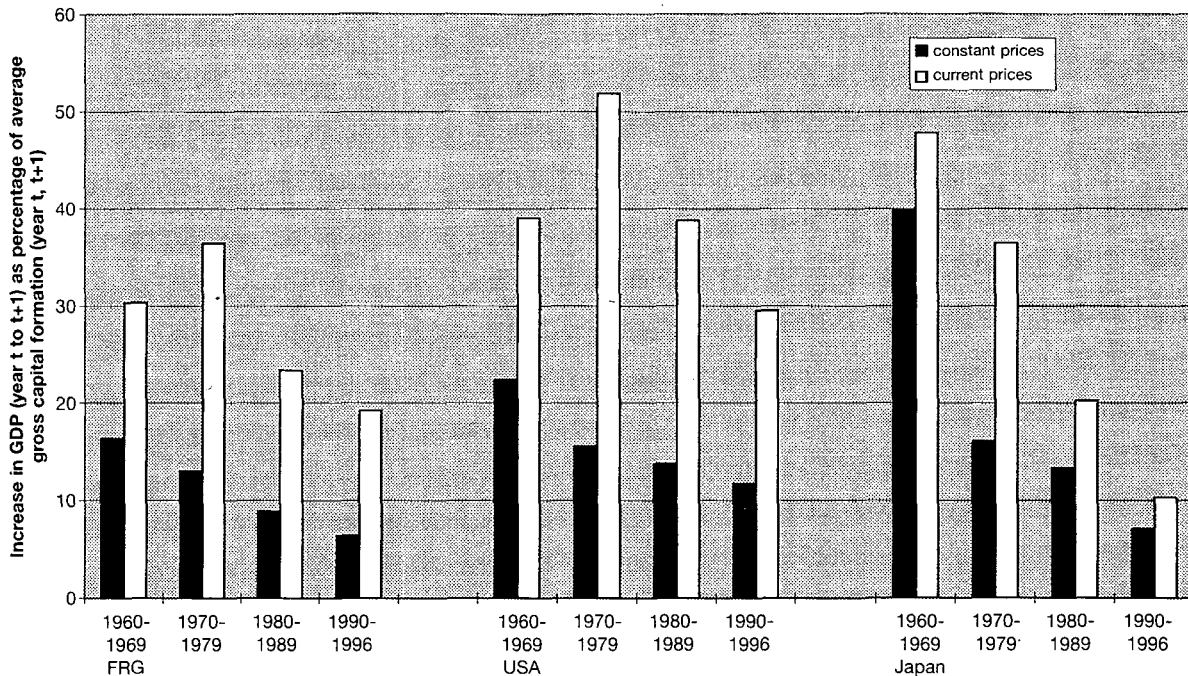
To lower variable unit costs, considerable resources are invested in rationalization, but that in turn may necessitate major capital expenditure, thus pushing up fixed costs. So the market as a whole could be said to harbour an inherent conflict between the specific rationality of an individual firm and the collective rationality of all the firms.¹³ The firms with the most expensive production plant, giving rise to the highest fixed costs, are still the best able to assert themselves in a competitive environment. Yet in macroeconomic terms, this may generate an ever-increasing burden in terms of increasing capital expenditure per job.¹⁴

¹² For a detailed theoretical presentation, see G. Reuten and M. Williams: *Value-form and the State*, London, New York 1989, pp. 116 ff.

¹³ Such contradictions between micro- and macroeconomic logic are characteristically covered by "heterodox" theories – cf. E. Hein: *Geld, effektive Nachfrage und Kapitalakkumulation. Eine Betrachtung aus Marxscher, Keynesscher und post-Keynesscher Perspektive*, Berlin 1997, p. 18.

¹⁴ For the sake of comparison: Among the USA's largest 500 companies compiled by Forbes magazine, turnover (revenues) increased by an annual average of 4.5% during the 1980-1995 period, and profits by 5.2%, yet assets increased by 8.0% per annum, and market value by 11.3%. In other words, turnover and profits showed weaker growth than the amount of capital employed. Cf. J. T. Davis (ed.): *Forbes Top Companies, The Forbes Annual Review of Today's Leading Businesses*, New York 1997, p. 2; T. Weiss: *Druck der Lohn(neben)kosten oder Last des Kapitalaufwands?*, in: *Sozialer Fortschritt* 11/1997.

Figure 2
Marginal Capital Efficiency



Source: European Commission, annual macroeconomic data, autumn 1997, author's calculations.

Downward pressure on the productivity of (and return on) capital diminish the propensity to invest. In the phenomenon known by business economists as the fixed-cost trap, investments in capital equipment are only made if the additional profit the new assets will generate does not cause an erosion of at least an equal amount in the value or earning power of the firm's existing assets. In the same way, banks are liable to avoid providing finance for capital assets that will erode the value of investments they have already funded for other clients.¹⁵ As a result, the proportion of GDP devoted to investment falls, weakening the growth of the economy. In the 1970s, governments still endeavoured to counter any recessionary tendencies by applying Keynesian principles of increasing state spending and relaxing monetary policy, but that did not resolve the underlying problem of the falling productivity of capital.

In the early 1980s, industrial countries switched their policy approach. While capital productivity

stayed low, the share of value added taken by corporate profits nevertheless increased as the share taken by wages was reduced (see Table 1), by way of new forms of wage agreement, or by switching into types of activity where wages were lower, particularly services. Simultaneously, governments tended not to allow the burden of taxation and charges on businesses to grow as strongly as it had done in the past. Since the 1980s, returns on capital have thus been on the increase once more.¹⁶

Specific Indicators of Capital Productivity

If depreciation (capital consumption) as a proportion of GDP or of gross capital formation is used as the indicator of capital productivity, it is not yet possible to say that the downward trend in capital productivity has been sustainably reversed. In the countries under review, capital consumption as a proportion of GDP has generally risen from decade to

¹⁵ On the reciprocal influences between banks and firms, cf. F. Chesnais, *op. cit.*, p. 128.

¹⁶ EU Commission data on the net return on net capital stock. For a detailed enquiry into international trends in returns, see: EU Commission, Directorate for Economic and Financial Affairs: *European Economy*, Supplement A, No. 7, July 1997.

decade, the only exception being a fall in the USA in the 1990s relative to the '80s (see Figure 1). During the 1960s, capital consumption still accounted for just 40% (Federal Republic of Germany and Japan) to 50% (USA) of gross capital formation, whereas the figures in the 1990s have been 50% for Japan, 60% for Germany and 65% for the USA.

Another indicator of persisting falls in the productivity of capital is provided by the development of marginal capital efficiency.¹⁷ The marginal capital efficiency attained during the 1990s has been roughly half the 1960s value in the USA, but only one sixth of the corresponding value in Japan, and one third in Germany (see Figure 2). At current prices, marginal capital efficiency actually increased in the 1970s relative to the 1960s, but this is attributable to the lax monetary policies followed at that time. As price inflation fell back in the 1980s and '90s, marginal capital efficiency expressed at current prices also declined substantially.¹⁸

Key Role of the Tertiary Sector

If the trends discussed here were to continue, an economic policy based solely on the reduction of labour costs (i.e. both wages and salaries and ancillary labour costs) would inevitably encounter the limits of its own effectiveness. For although the share of national income paid out in wages and salaries can be reduced, as it has been in the industrial countries since the early 1980s, to cushion the pressures on the return on capital employed arising from falling capital productivity, this can only alleviate the situation temporarily. If the productivity of capital goes on falling, the point will eventually be reached when a fall in wage and salary-earners' share of national income can no longer accomplish the task. A more promising outcome is an expansion of the service sector, where the productivity of capital is currently high.

The tertiary sector has a significant role to play, regardless of whether one takes the neoclassical view that wages and labour-related taxes and levies are too high, or the view that sinking productivity of capital is an inherent market tendency. A relatively larger service sector eases the burden of labour costs, since average wage levels are lower there. The share of net value added going into wages and salaries is also lower than it is for the economy as a whole. But apart from that, the tertiary sector exhibits above-average capital productivity and returns, so a larger weighting for the service sector would have the macroeconomic effect of slowing down or even reversing the overall fall in capital productivity.

Finally, some commentators believe that unemployed people could primarily find themselves work in the tertiary sector. Instead of an unemployed person receiving a government transfer payment as he or she does today, funded out of contributions being paid by those still in work, the same person might instead offer a service. Those already working would not have to make such high contributions to the social insurance fund, and the higher net incomes they would now have at their disposal could be partly used to purchase the new services being offered. At least in statistical terms, net output, and hence also the productivity of capital, would now be higher. What was previously a social insurance contribution then converts into higher net income, and what was previously a government welfare payment received converts into the income received from marketing a service. The money from the employed person now flows directly to the previously unemployed person, instead of via the intermediary of the state unemployment benefit.

However, when putting forward such considerations it is essential to distinguish between a situation in which a previously unemployed person provides a genuine service and one in which he/she is compelled by circumstances to offer "any old service" simply to make up for the loss of government benefit.¹⁹ This dilemma has been well addressed by the discussion of the "bad jobs" and "working poor" associated with the USA's "employment miracle". Suggestions have been made in Germany that we ought to allow jobs such as shoe-shine and rickshaw "boys" to develop freely.²⁰ A sustainable improvement in the performance of the economy can only be achieved, however, if employment opportunities in the tertiary sector are created which are tailored to genuine needs and are not simply social stopgaps.

¹⁷ This is defined as the increment in GDP from year t to year $t+1$ (in billions of currency units) divided by the average gross capital formation in years t and $t+1$ (also in billions of currency units).

¹⁸ Cf. P. Salama: *La financiarisation excluante: Leçons des économies latino-américaines*, in: F. Chesnais (ed.), op. cit., p. 227.

¹⁹ Cf. H.-J. Stadermann: *Arbeitslosigkeit im Wohlfahrtsstaat*, Tübingen 1995, pp. 131 ff. Here, the author has the original idea that, in times past, great artists or composers such as Haydn or Schubert were able to have their work funded out of the high net incomes of citizens who were not saddled with the cost of contributing to state welfare systems. So, Stadermann believes, cuts in welfare benefits and associated contributions would generate a new golden age of privately-funded culture.

²⁰ On the latter, cf. Kommission für Zukunftsfragen der Freistaaten Bayern und Sachsen: *Erwerbstätigkeit und Arbeitslosigkeit in Deutschland, Part III: "Massnahmen zur Verbesserung der Beschäftigungslage"*, Bonn, November 1997, pp. 137 f.