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Jörg Hinze\*

## Problems of International Labour Cost Comparisons

*In the first half of the 1990s, the debate on Germany's high labour costs flared up again as part of the discussion on Germany as an industrial location. With the strong depreciation of the D-Mark in the past two years and the change of course in wage policy, this debate has now subsided again to a certain extent. However, great attention is still paid to international labour cost comparisons, particularly as they often produce quite varied results. How are these differences to be explained? What are the problems involved in making international labour cost comparisons?*

While the upward movement of wages weakened noticeably in many industrialised countries in the first half of the 1990s, there was an accelerated increase in Germany's labour costs in the wake of the reunification boom. The strong appreciation of the D-Mark against both the US dollar and major European currencies which took place at the same time further aggravated the worsening cost position in relation to other countries; even in countries such as the United Kingdom and Italy where labour costs measured in local currencies had risen more strongly than in Germany, they had actually fallen in D-Mark terms (cf. Figure 1). This development was accompanied by a loss of German suppliers' global market shares as well as a noticeable increase in foreign direct investments by German companies.

### Confusing Labour Cost Discussion

All this sparked off a heated debate on the international competitiveness of the German economy in which labour costs soon became a central issue. Some confusion was caused by the international labour cost comparisons which were quoted to underline often contrary positions, and the fact that in some cases the results of these comparisons

appeared to be contradictory. Thus, according to an international comparison computed by the Institut der deutschen Wirtschaft (IW), Germany's were the highest and most rapidly increasing labour costs in the first half of the 1990s,<sup>2</sup> while at the same time the ifo institute came to the conclusion that German unit labour costs were neither excessively high nor had they been increasing particularly fast.<sup>3</sup> Other labour cost studies also came to partially divergent results.<sup>4</sup>

The contradictory results of these studies can be explained not least by the different aims pursued by the studies and the corresponding variety of conceptual and methodical approaches applied. A number of different definitions and indicators are even used for the term "labour costs" which is sometimes interpreted only as standard or gross wages, sometimes as the entire labour costs including all non-wage labour costs, and sometimes as unit labour

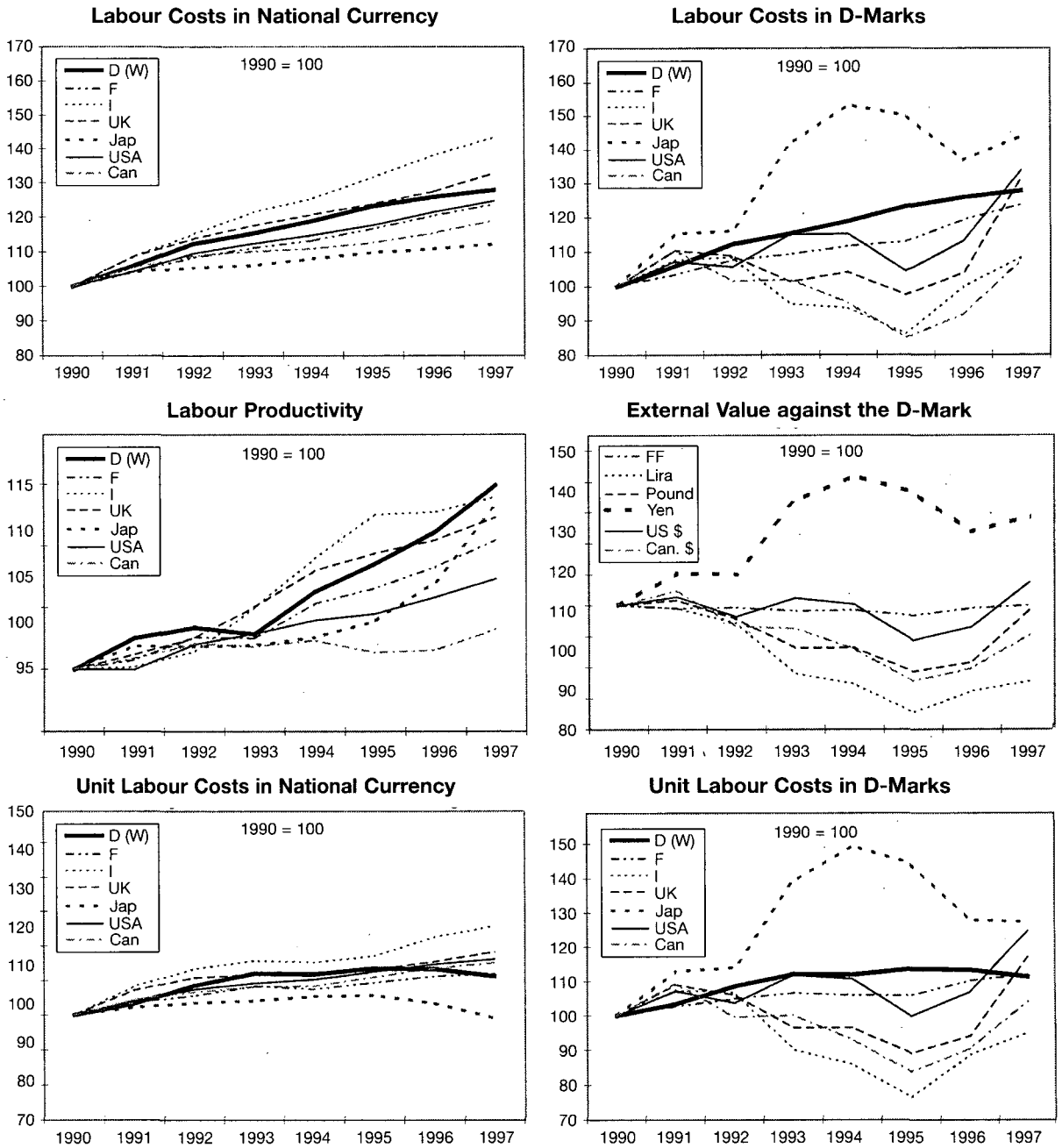
<sup>1</sup> All information and data on Germany concerns the old Federal Republic in its pre-1990 borders. Developments in the new Länder of eastern Germany are characterised by the catching-up process and can thus be regarded as a special case.

<sup>2</sup> Cf. Christoph Schröder: Industrielle Arbeitskosten im internationalen Vergleich 1970-1995, in: iw-trends 2/96, pp. 44-56 and: Industrielle Arbeitskosten im internationalen Vergleich 1980-1996, in: iw-trends 2/97, pp. 1-16.

<sup>3</sup> Cf. Ralf Köddermann, Markus Wilhelm, Marlies Hummel: Umfang und Bestimmungsgründe einfließender und ausfließender Direktinvestitionen ausgewählter Industrieländer - Entwicklung und Perspektiven, Gutachten im Auftrag des Bundesministeriums für Wirtschaft, May 1996, p. 84.

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**Figure 1**  
**Development of Labour and Unit Labour Costs in the Economies of the G7 Countries<sup>1</sup>**



<sup>1</sup> Labour costs measured as gross income per employee (on the basis of national accounts).

Sources: Deutsche Bundesbank; Statistisches Bundesamt; OECD; HWWA calculations.

costs. Thus the IW bases its opinions on Germany as the "World Champion in Labour Costs" on a comparison of absolute labour costs for workers in manufacturing industry measured in unified currency, while the ifo institute's judgement that labour costs in

the Federal Republic are by no means too high refers to real unit labour costs in the economy as a whole.

When international comparisons measure labour costs in unified currency, the level and development of these costs also depend on foreign exchange rates.

At times, the development of labour costs in unified currency is determined more by exchange rates than by wage developments. For a serious analysis of the subject it is thus important to correctly specify any factors which may influence the results. If, for example, exchange rate movements lead to a shift in the domestic labour cost position compared to other countries, it is neither reasonable nor feasible, in the case of short-term exchange rate fluctuations, to demand a "compensatory" wage policy as a result - as is indeed the case from time to time, particularly when currency appreciation has a deprimental effect on costs.<sup>5</sup> However, wage policy does need to react to more permanent shifts in exchange rate relationships in order to avoid negative effects on employment.<sup>6</sup>

### Different Aims of the Studies

Since labour cost comparisons can be used to illuminate a number of different questions which each require a specific methodical approach, it can indeed be reasonable and necessary to use different definitions and indicators. In order to judge wage policy, for example, only those labour cost components should be included for which the collective bargaining partners can be held responsible - i.e. in the main the salaries and fringe benefits formulated in the collective bargaining agreement - and these should always be quoted in the national currency. When comparing geographical locations with a view to making investment decisions for mobile capital, it is the total cost of labour which plays a decisive role. Particularly with regard to new investments where there is a possibility of "transferring productivity", the

technological standards which differ from country to country and which find their expression in the productivity statistics lose in significance.

In contrast, a company's price competitiveness in its domestic and foreign markets is determined not only by its labour costs, but also by the performance of its workers - i.e. labour productivity - and by relevant foreign exchange rates. This is why unit labour costs measured in unified currency are an appropriate indicator when it comes to analysing international competitiveness in goods and services markets. What is really required in such cases is a measure based on internationally tradable goods and services. Since determining a goods-related indicator of this sort presents considerable difficulties, however, unit labour costs for the entire economy or for manufacturing industry are often applied instead; manufacturing industry is chosen in this context primarily because of its large share of foreign trade - in Germany it accounts for around 90% of goods exports, and slightly more than half of all trade in goods and services when intermediate inputs are

<sup>4</sup> For an overview of the individual labour cost comparisons, their aims and methodology see: Jörg Hinze, Christiane Brück, Rudolf-Ferdinand Danckwerts, Eckhardt Wohlers: *Aussagefähigkeit internationaler Arbeitskostenvergleiche: Methodische Grundlagen, empirische Ergebnisse und wirtschaftspolitische Schlußfolgerungen*, Hamburg 1997, pp. 88-109 (soon to be published as a book).

<sup>5</sup> Cf. Sachverständigenrat zur Begutachtung der gesamtwirtschaftlichen Entwicklung: *Jahresgutachten 1996/97*, text number 316.

<sup>6</sup> This is particularly true of fixed rate systems such as the EMS, but also in the case of permanent shifts in the exchange rate relationships between free floating currencies.

Bernhard Fischer

## Institutional Investors, Savings and Capital Markets in Emerging Economies

This book argues that institutional investors such as pension funds and life insurance companies can have an important impact on capital market development and potentially on domestic saving. A more detailed analysis is provided for the case of Chile.

1998, 100 pp., paperback, 30,- DM, 219,- öS, 28,- sFr, ISBN 3-7890-5333-3  
(Veröffentlichungen des HWWA-Institut für Wirtschaftsforschung - Hamburg, Vol. 40)

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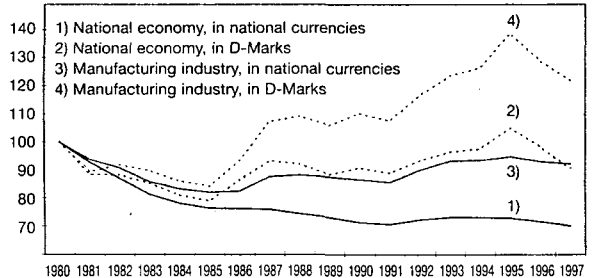
taken into consideration. If, as has often been the case in the past in Germany and in other countries, the development of labour costs in the economy as a whole diverges from that in manufacturing industry, then there can be considerable discrepancies between the two indicators (see Figure 2).<sup>7</sup>

**Problems of Measuring Unit Labour Costs**

Measuring "pure" labour costs is, in principle, relatively uncomplicated; they are defined as the sum total of the expenses borne by the employer in connection with an employment relationship.<sup>8</sup> Problems arise where the completeness and continuity of the statistics are concerned. Some non-wage labour cost items demand separate surveys and are thus ascertained infrequently and for selected industries and professions only. Gross income per employee (or man-hour), which is frequently used in lieu and which is taken from national economic statistics, already includes non-wage labour costs but is a highly aggregated, average figure which also reflects structural effects (economic structure, employment structure).<sup>9</sup> When standardising labour costs on a unified currency basis for international comparisons, the appropriate conversion method is to apply actual exchange rates.

More significant measurement and conversion problems arise in the case of unit labour costs. They are defined as the costs of the production factor labour per product unit and are thus a compound measure which is influenced by a variety of factors. The commonly used delimitation refers only to the costs of employees and thus excludes any remuneration for the entrepreneur or assistant members of his family. Where an imputed owner's salary is taken into account, it is assumed as a rule that it is equivalent to the average pay of the employees. Where just the labour costs of employees are applied, unit labour costs are often adjusted for the influence of changes and – in the case of international comparisons – differences in the employment structure (the ratio of the number of employees to the

**Figure 2**  
**Relative Unit Labour Costs in West Germany compared to the G7 countries<sup>1</sup>**  
(1980 = 100)



<sup>1</sup> Excluding the UK; weighted with shares of German exports 1995.

Sources: OECD; author's own calculations.

size of the active labour force); unit labour costs are then calculated as the quotient of labour costs per employee (or man-hour) and output per active member (or man-hour) of the labour force.

Due to the difficulties involved in determining real output, an international comparison of unit labour costs harbours considerable pitfalls, particularly when comparisons are made with highly aggregated figures. On the level of the national economy or a particular industry, real output is represented by gross domestic product or gross value added respectively at constant prices. As these amounts are defined in real terms, they are contingent upon the deflating method used and on the base year selected. Depending on the price base and price weighting,<sup>10</sup> different "real" output levels and thus different levels of productivity and unit labour costs can be calculated.

More direct measurement of real outputs would require actual product prices to be recorded at the producer level (so-called "unit values"). These would then have to be weighted and used to calculate "average prices" for individual industries and finally

<sup>7</sup> Cf. Jörg Hinze et al., op. cit., pp. 28 ff and p. 135 f.

<sup>8</sup> This definition was established in 1996 by the International Labour Organisation at the 11th International Congress of Labour Statistics in Geneva. On the question of the individual cost types to be included in the labour costs according to this definition, cf. Statistisches Bundesamt: Fächserie 16, Reihe 5: Löhne, Gehälter und Arbeitskosten im Ausland, 1995, p. 69.

<sup>9</sup> Strictly speaking, we should differentiate between the labour cost concept and the compensation of employees concept, but the differences in definition are small; cf. Jörg Hinze et al., op. cit., pp. 50 ff.

<sup>10</sup> Where deflators are calculated with fixed price weights, price shifts between the base years are not taken into consideration and lead to corresponding distortions in the measurement of real output. While there are approaches which take the change of relative prices into consideration by linking them to each previous year (chain-type annual weighting), they are not in common use at present; cf. Allan H. Young, Alternative Measures of Changes in Real Output and Prices, in: Survey of Current Business, April 1992, pp. 32ff. and R. P. Parker: Gross Product by Industry, 1977-90, in: Survey of Current Business, May 1993.

<sup>11</sup> Cf. Bart van Ark: Manufacturing prices, productivity, and labor costs in five economies, in: Monthly Labor Review, February 1995, pp. 26ff.; and Peter Hooper, Elizabeth Vrankovich: International Comparisons of the Level of Unit Labor Costs in Manufacturing, in: International Finance Papers, No. 527, 1995.

for the economy as a whole. While some approaches of this nature do exist for industry,<sup>11</sup> they become extremely complex even for sectoral level comparisons between even a very small number of countries, and are thus hardly suitable for examinations which require higher level aggregations.

Real output is thus still determined in all countries by deflating nominal values with the help of price indices and/or average values taken from a particular base year; the deflators used are partly based on fixed weights which do not allow for changes in volume and price structures. For international comparisons of output, productivity and unit labour cost levels, the base years at least should be identical for all the countries for the entire period under review.

**Table 1**  
**Alternative Conversion Factors for 1990**  
(National Currency Units per US \$)

	Official exchange rate	Purchasing power parity on GDP basis (OECD)	Purchasing power parity on GDP basis adjusted for trade margins and imports/exports	Purchasing power parity for Industry
USA	1.00	1.00	1.00	1.00
Japan	144.8	195.0	217.9	154.3
Germany	1.62	2.09	2.36	2.11
France	5.45	6.61	8.07	7.04
Italy	1198	1421	2005	-
United Kingdom	0.56	0.60	0.79	0.73
Canada	1.17	1.30	1.43	1.32

Source: Dirk Pilat: Labour productivity levels in OECD-Countries: Estimates for manufacturing and selected service sectors, in: OECD Working Papers, No. 86, 1996.

In order to make real output figures internationally comparable, "exchange rates" which reflect relative output prices would have to be used for conversions to a unified currency base. In most cases, however, exchange rates are used from a particular year which, as a rule, probably deviate to a greater or lesser extent from true price relationships. Another approach thus uses "output oriented" purchasing power parities in an attempt to come closer to the output price relationships between countries; this involves adjusting available purchasing power parities (on GDP basis) for the influence of trade margins, indirect taxes and subsidies, and foreign trade prices.<sup>12</sup> However, the results of all these approaches differ greatly (see Table 1). While the use of purchasing power parities (on GDP basis) as published regularly by the OECD may be a second-best solution, it nonetheless still appears

more suitable than exchange rates for certain aggregate level comparisons.

Comparative calculations demonstrate that output levels, and with them unit labour cost levels, can diverge considerably depending on the price base year and the conversion method chosen (see Table 2). If output is valued at 1995 prices and exchange rates, then West Germany's unit labour costs were among the lowest that year, despite relatively high labour costs, because the value of output in most of the other countries was rather low as a result of the unfavourable exchange rates against the D-Mark which were prevalent at the time. Converting output levels by means of purchasing power parities on the other hand puts Germany among those countries with the highest unit labour costs. This does not, however, have any influence on the development of unit labour costs; rates of change are identical irrespective of the conversion method used. Not least because of the conversion and valuation problems involved, unit labour cost statistics are usually presented as indices which only allow comparisons of respective developments.

### Wages Development and Productivity

Unit labour costs are the quotient of labour costs and productivity. For this reason it is often argued that wage increases in line with productivity increases are not detrimental to employment. However, this position ignores the interplay between wages and productivity. If companies suffer a decline in competitiveness as a result of wage costs, they will be moved to dispose of less productive jobs in order to offset the cost burden with an increase in labour productivity. The development of unit labour costs thus already reflects the companies' adjustment reactions to wage cost pressure. This pressure can emanate from both direct wage costs and non-wage labour costs.

Statistically determined productivity developments include not only increases in productivity which result from technical advances, but also a so-called substitution component which reflects the substitution of labour by capital. At most, wage increases which match the "technical advances" component could be deemed to be non-detrimental to employment. If wage costs increase at a faster rate than the productivity benefits which result from technical advances, there is an incentive to substitute labour by capital, and productivity developments adjust at the cost of employment. Statistical results do not make

this chain of cause and effect immediately apparent, and additional indicators – particularly productivity figures adjusted for employment effects – can be helpful here. Empirical studies for the Federal Republic demonstrate that in Germany in the past the change in total factor productivity, which attempts to take the technical advances component into account, was consistently lower than the statistically measured increase in productivity to the tune of an average of half a percentage point per year.<sup>13</sup>

**Improvements in Germany's Labour Cost Position**

Since the mid-1990s, wage policy has reacted with noticeable moderation to the decline in competitiveness and the deteriorating labour market situation. At just under 2% p.a., gross income per employee has increased much more slowly in the last two years than in the first half of the 1990s; labour costs have thus developed much more favourably in Germany than in many other important countries. In addition, adjustment pressure on companies has led to considerable increases in productivity such that, in contrast to most other countries, unit labour costs have actually fallen in the past few years. Taken over the 1990s as a whole and measured in each country's domestic currency, the only major industrialised

country to experience an even smaller increase in unit labour costs was Japan, which as a result of the appreciation of the yen was under even more pressure to adjust than Germany (see Figure 1).

The readjustment of foreign exchange rates has also played a considerable role in improving Germany's international labour cost position since the mid-1990s. In terms of unit labour costs incurred in the economy as a whole and measured in unified currency, the disadvantages caused by the appreciation of the D-Mark and marked cost increases in the first half of the 1990s had been largely offset again by 1997. On a unit labour costs basis, the real external value of the D-Mark has since returned to more or less the same level as at the start of the 1990s. While the deterioration of the labour cost position in manufacturing industry during the first half of the 1990s has not yet been balanced out completely, the gap should close further this year given the falling unit labour costs in Germany and slightly increasing unit labour costs in most other countries.

<sup>12</sup> For an overview of calculations of relative prices on an output level and alternative measures such as "adjusted" purchasing power parities, cf. Peter Hooper, Elizabeth Vrankovich, op. cit.

<sup>13</sup> Cf. Jörg Hinze et al., op. cit., p. 70.

**Table 2**  
**International Comparison of Unit Labour Cost Levels for the Entire Economy**  
**Alternative Calculations on the Basis of Exchange Rates and Purchasing Power Parities**

				in D-Marks						Changes in %			
	1995	1990	1985	1995	1990	1985	1995	1990	1985	1995/90	1995/85	1995/90	1995/85
	Output on a 1991 price basis and at 1991 exchange rates			Output on a 1995 price basis and at 1995 exchange rates			Output on a 1995 price basis and at 1995 purchasing power parities			in D-Marks		in national currencies	
Germany West	65.8	58.4	54.0	58.6	52.1	48.1	58.6	52.1	48.1	12.6	21.8	12.6	21.8
Belgium	74.7	64.3	60.0	66.0	56.9	53.1	58.4	50.3	47.0	16.1	24.4	15.5	26.9
France	65.3	61.9	61.8	62.0	58.7	58.7	56.9	53.9	53.9	5.5	5.6	9.1	20.5
Italy	45.2	59.1	50.1	57.8	75.6	64.1	39.1	51.2	43.4	-23.6	-9.9	17.0	57.4
Netherlands	74.4	64.9	61.6	68.0	59.3	56.2	61.0	53.2	50.4	14.6	20.9	14.0	20.1
Austria	68.4	57.8	51.6	60.2	50.8	45.4	58.3	49.2	44.0	18.4	32.5	18.4	32.7
Spain	52.6	58.4	48.0	60.2	66.8	54.9	41.8	46.4	38.1	-9.9	9.6	24.3	64.7
United Kingdom	55.1	61.0	57.8	63.3	70.2	66.5	46.4	51.4	48.7	-9.7	-4.7	14.8	59.4
Japan	88.9	61.1	66.4	70.0	48.1	52.3	91.0	62.6	68.0	45.4	33.8	6.3	7.9
USA	58.3	58.3	88.6	61.1	61.2	92.9	42.3	42.4	64.3	-0.1	-34.2	12.6	35.0
Canada	50.8	60.7	79.2	64.6	77.2	100.7	40.1	47.9	62.5	-16.3	-35.8	11.0	32.6
Portugal	71.7	56.1	48.3	66.1	51.6	44.5	37.2	29.1	25.0	27.9	48.5	51.7	166.9
Greece	62.3	62.2	111.4	59.8	59.7	107.0	37.2	37.2	66.6	0.1	-44.1	65.0	238.9
Denmark	62.3	60.8	53.4	58.8	57.4	50.4	62.7	61.2	53.7	2.4	16.7	4.6	26.7
Finnland	53.7	67.7	58.3	63.0	79.4	68.3	60.0	75.6	65.1	-20.6	-7.7	2.1	33.3
Norway	49.9	56.1	57.1	53.5	60.1	61.2	54.8	61.6	62.7	-11.0	-12.6	1.6	32.2
Sweden	49.2	61.3	52.5	60.9	75.9	64.9	59.0	73.5	62.9	-19.7	-6.1	8.9	59.4
Ireland	54.9	63.4	67.4	59.0	68.1	72.4	42.5	49.2	52.2	-13.5	-18.6	0.7	10.3
Luxembourg	67.9	61.4	56.8	60.7	54.9	50.8	56.7	51.3	47.5	10.6	19.5	10.1	21.9

Sources: OECD; national figures; author's own calculations.

**More Flexible Cost Structures Required**

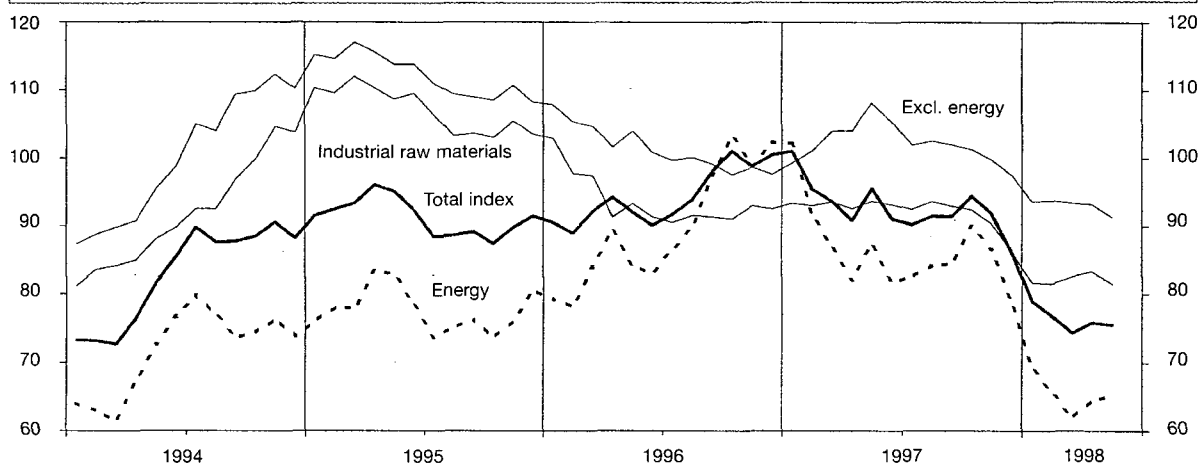
Without doubt, Germany's high wages compared to other countries are in many cases covered by correspondingly high levels of productivity. The high level of unemployment is nonetheless an indication that, under current conditions, average labour costs across the German economy as a whole are clearly too high. One problem here is the high level of non-wage labour costs; a cost disadvantage arises for Germany in the cumulation of high wages and high non-wage labour costs. Other countries with similarly high wage levels to Germany often have relatively low non-wage labour costs, albeit also because social security is largely either tax-funded or privately financed. In Germany, the non-wage labour costs for which the state is responsible have, in particular, continued to rise in the past few years; indeed those resulting from collective bargaining or internal company agreements have partly been reduced – if

only as a result of government "pressure" as in the case of continued wage payments in case of illness.

However, a severe problem is also posed by the lack of wage structure flexibility. In Germany, the wage differential by industry and qualification is relatively narrow, particularly compared to countries such as the USA, and during the 1990s has tended to become even narrower compared to other countries. While collective bargaining agreements which are geared more closely to the requirements of individual companies and which also allow pay to fall below standard wages in certain cases are gradually finding their way into Germany's collective bargaining scene, these developments must be intensified if endangered jobs are to be saved and new ones created, particularly for poorly qualified workers. Should this result in income dropping below a socio-politically desired minimum, this level of income could be safeguarded by means of state transfer payments.

**HWHA Index of World Market Prices of Raw Materials<sup>1</sup>**

(1990 = 100)



Raw Materials and Groups of Materials <sup>1</sup>	1997	Nov. 97	Dec. 97	Jan. 98	Feb. 98	March 98	April 98	May 98 <sup>2</sup>
Total Index	92.7 (-1.7)	91.8 (-7.1)	86.1 (-14.3)	78.9 (-21.9)	76.8 (-19.5)	74.3 (-20.6)	75.8 (-16.5)	75.5 (-21.0)
Total, excl. energy	102.3 (0.8)	99.8 (1.2)	97.5 (-0.2)	93.6 (-5.7)	93.8 (-7.2)	93.4 (-10.3)	93.2 (-10.5)	91.3 (-15.6)
Food, tropical beverages	132.0 (12.5)	127.9 (10.8)	130.9 (15.8)	129.1 (10.4)	130.1 (3.9)	125.4 (-7.3)	122.4 (-11.5)	120.9 (-19.9)
Industrial raw materials	92.3 (-1.5)	90.3 (-2.8)	86.2 (-6.8)	81.6 (-12.5)	81.5 (-12.3)	82.6 (-11.7)	83.3 (-10.0)	81.4 (-13.1)
Agricultural raw materials	92.6 (-3.5)	92.4 (-4.6)	87.7 (-8.2)	81.0 (-14.4)	81.5 (-12.6)	82.9 (-10.8)	83.9 (-9.8)	81.8 (-11.8)
Non-ferrous metals	89.8 (2.0)	83.5 (-1.8)	78.9 (-8.4)	76.4 (-15.3)	74.9 (-18.1)	75.3 (-19.6)	76.0 (-15.8)	73.6 (-22.0)
Energy	86.5 (-3.5)	86.6 (-12.4)	78.7 (-23.2)	69.4 (-32.1)	65.7 (-28.3)	61.9 (-28.7)	64.5 (-21.5)	65.2 (-25.4)

<sup>1</sup> On a US dollar basis, averages for the period; figures in brackets: percentage year-on-year change.

<sup>2</sup> Up to and incl. 22th May.