

EGGE – EC’s Expert Group on Gender and Employment

National Reports on the Unadjusted and Adjusted Gender Pay Gap

Germany

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Report on Gender Pay Gap

Germany

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1. National measures of the unadjusted gender pay gap

In the following section I present the main findings of the most actual data analysis, which is part of the study “Bericht zur Berufs- und Einkommenssituation von Frauen und Männern”, which was published in April 2002. I cite the manuscript version provided by the scientific team.

1.1 National data sources

Studies on wages in Germany may use the following data sets:

- **German socio economic panel (GSOEP):** this is an individual household micro data panel which provides extensive information about various individual as well as household characteristics. It is a panel carried out since 1984 in West Germany, since 1990 in East Germany, too. Includes 13.000 adults in the same households, 6.600 households covered. Includes all sectors of activities, full-time, part-time, wages (gross/net) etc.. Problem: sample size may be rather small for quite detailed analysis. Data provided by DIW, Berlin
- **IAB-Beschäftigtenstichprobe (IAB employment sample):** this is an administrative event history data set, based on the monthly reports of each employer covering all employees subject to social security insurances – it therefore covers all economic sectors. It does not allow an analysis of hourly wages (no break down by working time possible) or additional wage components. The event history data include all persons who have had at least one employment spell eligible for social insurance schemes and gives information on every change in working status, including information on interruptions like parental leave. It excludes persons exclusively working marginal part-time not subject to social insurance, self-employed, civil servants, unpaid family workers and people, who are not eligible for benefits from the social security system. It is a 1 percent random sample drawn from the data files starting in 1975. East Germany in 1993. Covers in longitudinal dimension 420.000 persons, data available till 1997. Data provided by IAB Nürnberg
- **Einkommens- und Verbrauchsstichprobe (EVS):** voluntary census covering 50.000 households in West- and East Germany (all five years, last data from 1998). Questions concerning income (including other sources than employ-

ment), economic activities etc. Data provided by Federal Statistical Office Statistisches Bundesamt, Wiesbaden

- **Gehalts- und Lohnstrukturerhebung:** data reported by employers covering full-time and part-time employees (excluding marginal part-timers and highly paid employees), manual and non-manual employees in manufacturing, trade, banking and insurance, all five years, covering around 9.2% of all employed persons. Included are employers with more than 10 employees. Last data available for 1995, since 1990 including East Germany, annual cross section data. Data provided by Federal Statistical Office Statistisches Bundesamt, Wiesbaden
- **Verdienste:** quarterly reports on wages of manual and non-manual employees, covering manufacturing, trade, banking and insurance, including full-time and part-time (excluding marginal part-timers and highly paid employees). Data provided by Federal Statistical Office Statistisches Bundesamt, Wiesbaden

1.2 Main Findings of unadjusted gender pay gap

In the following paragraphs we report the main findings of the study “Bericht zur Berufs- und Einkommenssituation von Frauen und Männern” as this report presents the most comprehensive set of data on the subject (cf. WSI et al. 2001).

The report is based mainly on data taken from the IABS, special tables are taken from other sources, as the IABS data sample has limits, too. The study choose the year 1977 (for West Germany) as a starting point (data for 1975 and 1976 do have some technical problems) and 1993 for East Germany as starting point. 1997 is the latest available year. The wage gap is almost measured as women's wage as a percentage of men's wage, i.e. 75% means that women receive 75% of the relevant wage of men.

1.2.1 Development and Distribution of Wages

According to the IABS data, the wage relation of women and men developed from women's earnings being 72% of men's in 1977 to 74,8% in 1997 (West Germany), In East Germany the wage gap is much smaller: in 1993 women earned 92% of men's wages, in 1997 93,9%. As table shows is the wage gap for West Germany still rather

pronounced, but there is a big wage gap between East and West, too. This persistent east/west wage gap makes it necessary to differentiate between East and West in all following tables.

Table 1

Gross annual wage of dependent employed men and women (full-time)			
	Women in DM	Men in DM	Proportion Men to women in %
West Germany			
1977	20.656	28.695	72,0
1997	46.268	61.874	74,8
East Germany			
1993	32.879	35.735	92,0
1997	38.856	41.374	93,6
Germany			
1997	44.872	59.162	75,8

Quelle: IAB-Beschäftigtenstichprobe. Berechnungen des WSI.

The IABS sample does not allow a detailed analysis of part-time employed persons, the only data source available for a precise full-time/part-time break down is the Gehalts- und Lohnstrukturerhebung 1995. In this data, a precise full-time/part-time break-down is possible only for manual workers. In 1995, part-time employed women in West Germany earned 92% of full-time employed women, in East Germany 84%, nearly the same relation is observable for men. What is remarkable in this data is the rather big wage gap reported here for East German manual workers (in manufacturing, trade, banking and insurance): 1995 it was (in contrast to data covering all employees in all sectors in table 1) 76% for full-time female workers and 82% for part-time female workers. For West Germany the data in table 2 are nearly the same as in table 1.

Table 2

Average gross hourly wage for manual workers in DM and the wage relations in %; 1995			
		West Germany	East Germany
Gross hourly wage in DM			
Female manual	full-time	19,66	13,95
	part-time	18,16	12,55
Male manual	full-time	26,04	18,17
	part-time	24,15	15,29
Wage relations in %			
Female to male	full-time	75,50	76,77
	part-time	75,20	82,08
Part-time to full-time	female	92,74	84,15
	male	92,37	89,96
Quelle: Statistische Bundesamt (1998b), Gehalts- und Lohnstrukturerhebung. Berechnung WSI			

The report does not provide any argument to explain this difference, whether it is true to the difference in sectors covered, whether the quality of the different data sources may be a cause etc. We think that manual part-time jobs in West Germany are (to a higher degree) covered by collective agreements which permit different treatment of part-time and full-time jobs. In East Germany we observe a lower degree of collective bargained wages and a very small proportion of manual part-time jobs. These jobs may be concentrated in specific occupations/sectors/employers which pay extremely low wages.

Distribution of wages

The following table, based again on the IABS shows the employment by wage deciles for West and East Germany for the period 1977 to 1997 (twenty years West Germany) and the period 1993 to 1997 (4 years East Germany). Table 2.6 presents women's and men's proportion within the deciles, showing that men have a majority in decile 1, women in decile 2 in West Germany. In the highest deciles, women's proportion falls below 10% in 1997 but increased in 1997 up to 11,5%. In East Germany

income distribution of employed women and men is less unequal than in West Germany, at least more than one third of the employees with a high income are female in 1993 – a slight decrease happened in 1997.

Table 3

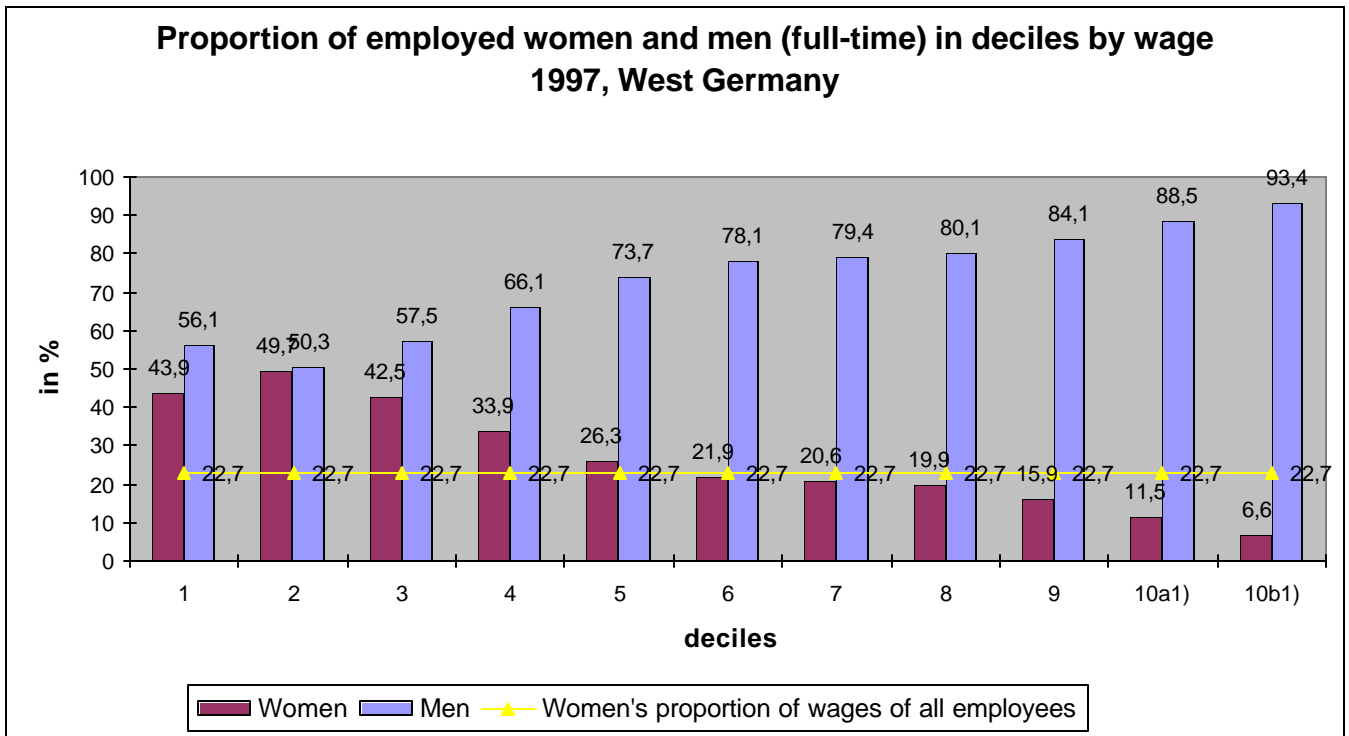
Proportion of employed women and men (full-time) in wage-deciles West Germany 1977 and 1997, East Germany 1993 and 1997									
Deciles	Full-time employed women and men in %								
	West Germany				East Germany				
	1977		1997		1993		1997		
	Women	Men	Women	Men	Women	Men	Women	Men	
1. Decile	44,42	55,58	42,32	57,68	48,04	51,96	43,54	56,46	
2. Decile	50,24	49,76	49,78	50,22	49,42	50,58	47,86	52,14	
3. Decile	39,66	60,34	42,59	57,41	37,80	62,20	38,80	61,20	
4. Decile	28,34	71,66	33,99	66,01	32,40	67,60	29,30	70,70	
5. Decile	22,56	77,44	26,32	73,68	33,00	67,00	29,60	70,40	
6. Decile	16,70	83,30	21,86	78,14	33,90	66,10	32,60	67,40	
7. Decile	17,01	82,99	20,62	79,38	36,10	63,90	37,40	62,60	
8. Decile	11,97	88,03	19,91	80,09	40,20	59,80	40,10	59,90	
9. Decile	10,21	89,79	16,00	84,00	39,26	60,74	44,70	55,30	
10. Decile	8,93	91,07	11,55	88,45	38,62	61,38	36,07	63,93	
< BMG ¹									
10. Decile	4,88	95,12	7,21	92,79	21,74	78,26	17,70	82,30	
>= BMG									
All	24,63	75,37	28,17	71,83	38,13	61,87	37,37	62,63	

BMG = Beitragsbemessungsgrenze: income threshold for social security contributions
Quelle: IAB-Beschäftigtenstichprobe. Berechnungen WSI

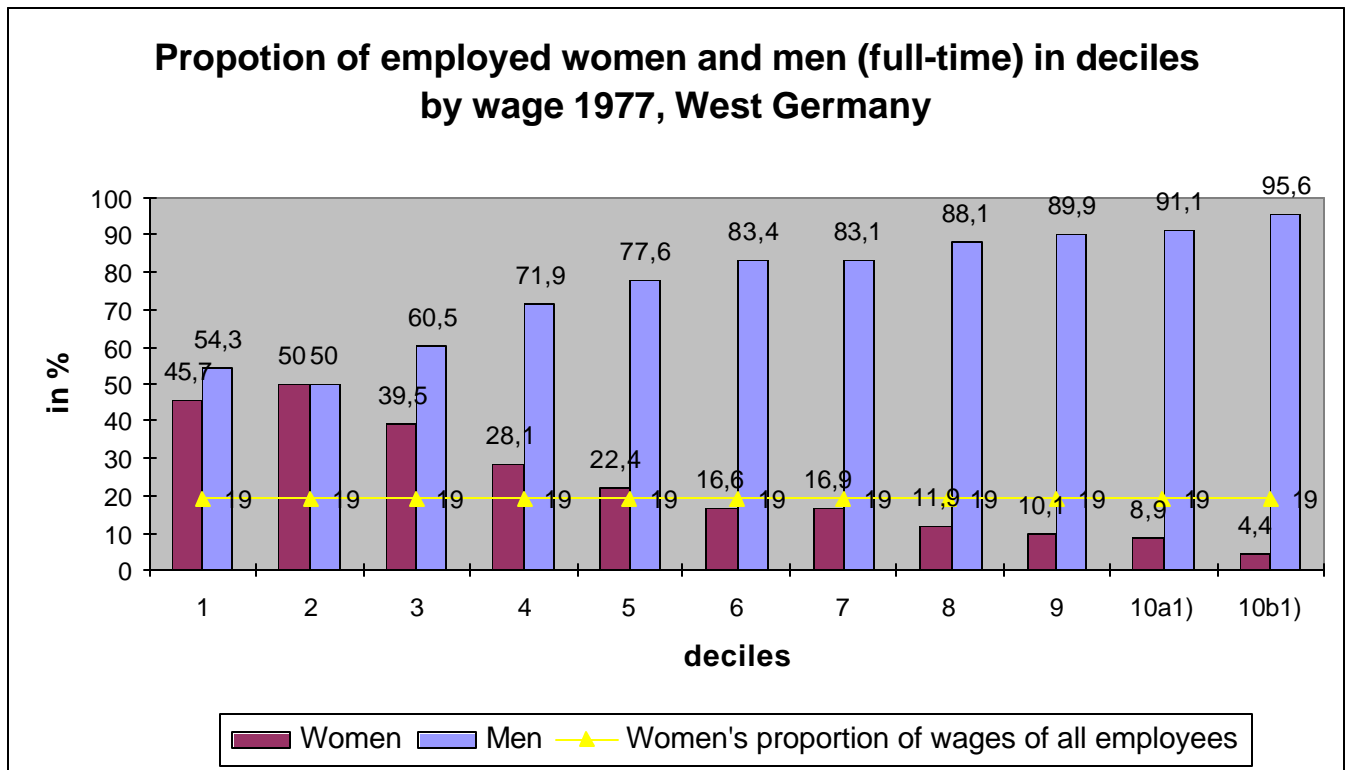
Women's full-time employment is concentrated in the lower deciles, according to the data, West German received in 1977 19% of the overall wage income of all full-time employed persons, in 1997 they received 22,7%. Within 20 years women's relative income position has only marginally increased. Within the East, income distribution is more equal, in 1993 women's wages had a proportion of 36,2% of all full-time employed persons, in 1997 the proportion dropped down to 35.9%.

¹ The IABS data include information on wage till the income threshold for social security contributions. Wages above the BMG had been calculated on base of the Einkommens- und Verbrauchsstichprobe, source WSI et al. (2001), page 47

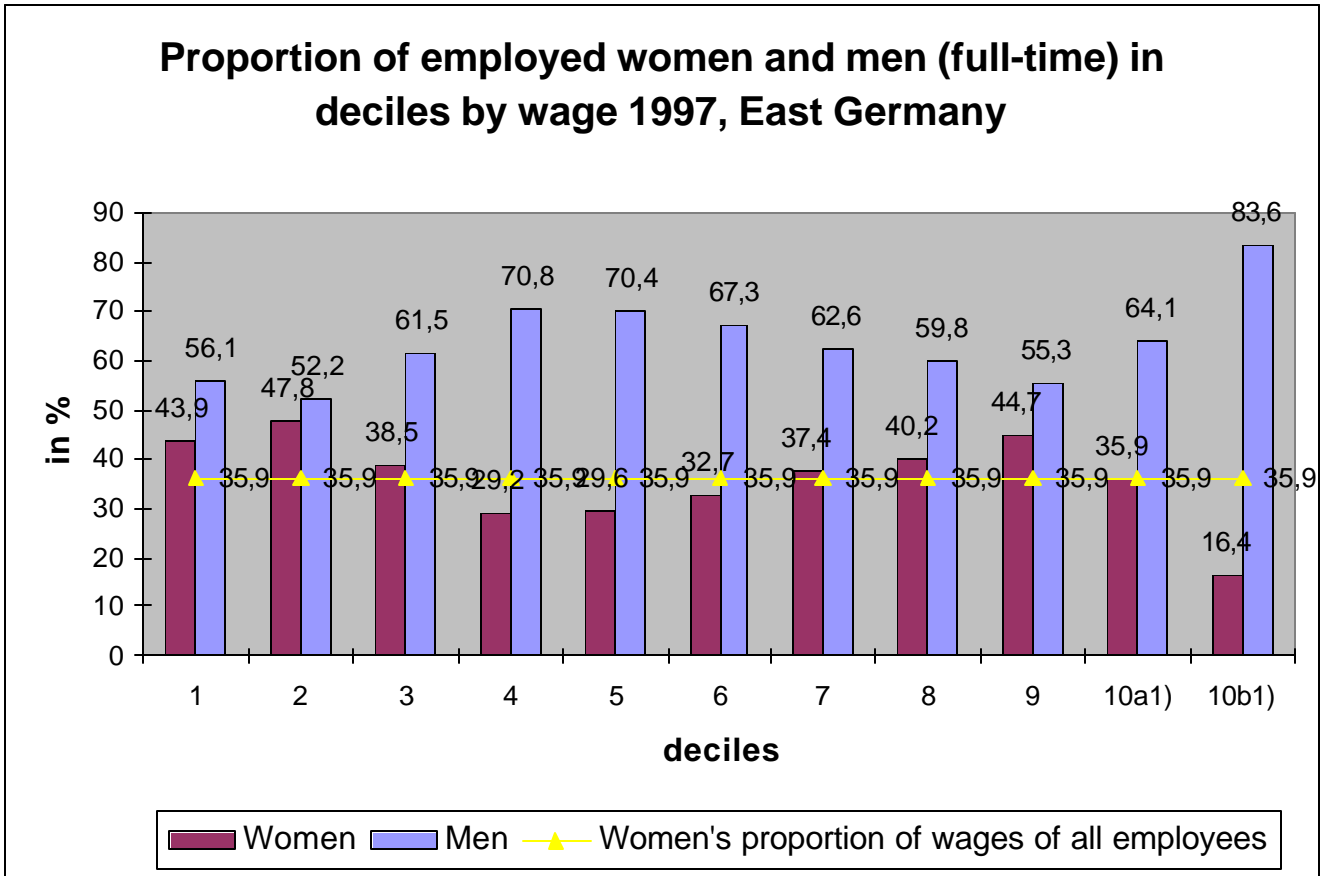
Graph 2.2



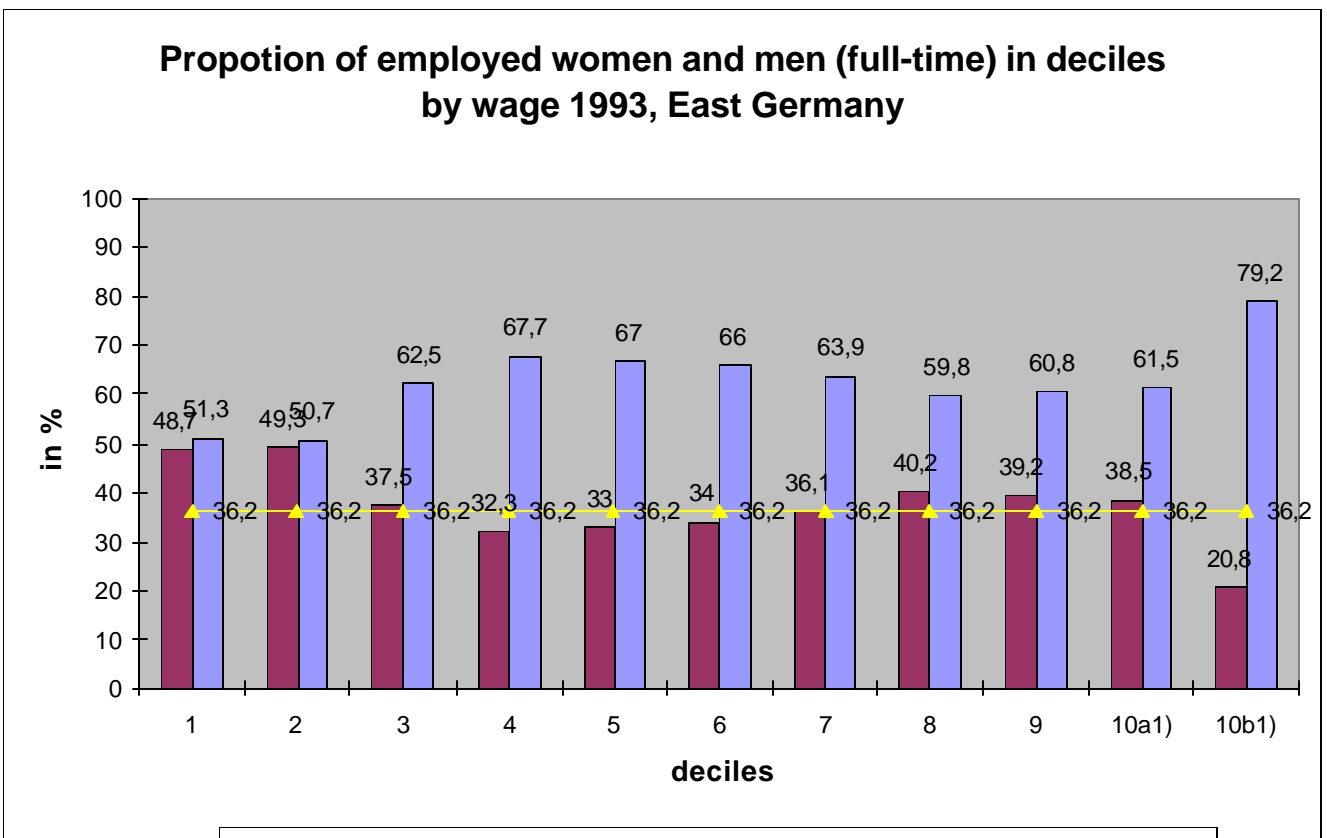
2.3



2.4



2.5



1.2.2 Wages and structural components

The report includes a series of data connecting wages and some relevant structural elements like education, economic sector etc. These are pure simple cross-tabulations, reporting the unadjusted wage gap in various dimensions. We present the results concerning the variables: job position (table 4), occupation (graph 2.6), economic sector (table 5), detailed sectoral data (graph 2.7), Size of enterprise (graph 2.8), education/training level (graph 2.9), age (graph 2.10), length of service in the same enterprise (table 6 and graph 2.11), relevance of additional wage components for special working conditions (table 7).

As women and men work in different occupations and still do have a different skill level (a detailed analysis on entry wages for young men and women with equivalent education/training will be presented in section 2 of this report), the information given on wage gaps between women and men with "equal" job positions is of some relevance.

Table 4 presents these data for four different groups: the non-skilled manual worker, skilled manual worker, foreman/master and the non-manual worker.

Table 4

Average gross annual wages of women and men (full-time) by job position West and East Germany						
Job position	Women	Men	Proportion Women/Men in %	Women	Men	Proportion Women/Men in %
	in DM	in DM		in DM	in DM	
	West Germany			1997		
	1977			1997		
Non-skilled ¹	17.128	22.957	74,6	34.523	46.198	74,7
Skilled	16.680	25.916	64,4	32.806	53.082	61,8
Master/ Foreman	24.980	36.796	67,9	43.440	75.756	57,3
Non-m.Employee	23.248	36.538	63,6	50.191	79.154	63,4
East Germany						
	1993			1997		
Non-skilled ¹	23.042	28.177	81,8	24.730	31.347	78,9
Skilled	22.056	31.141	70,8	25.354	35.221	72,0
Master/ Foreman	32.286	41.009	78,7	37.128	49.896	74,4
Non-m.Employee	36.582	46.683	78,4	43.391	56.575	76,7

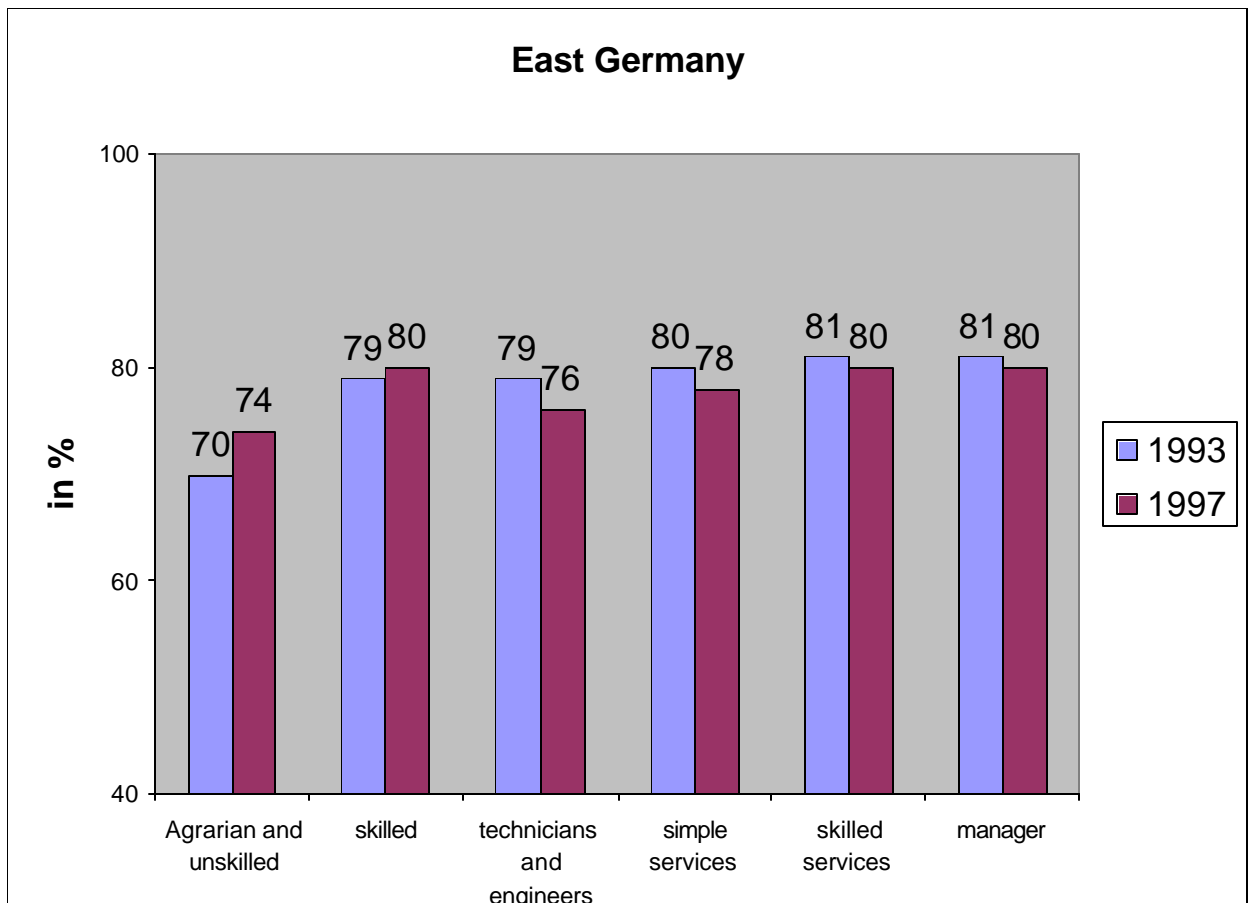
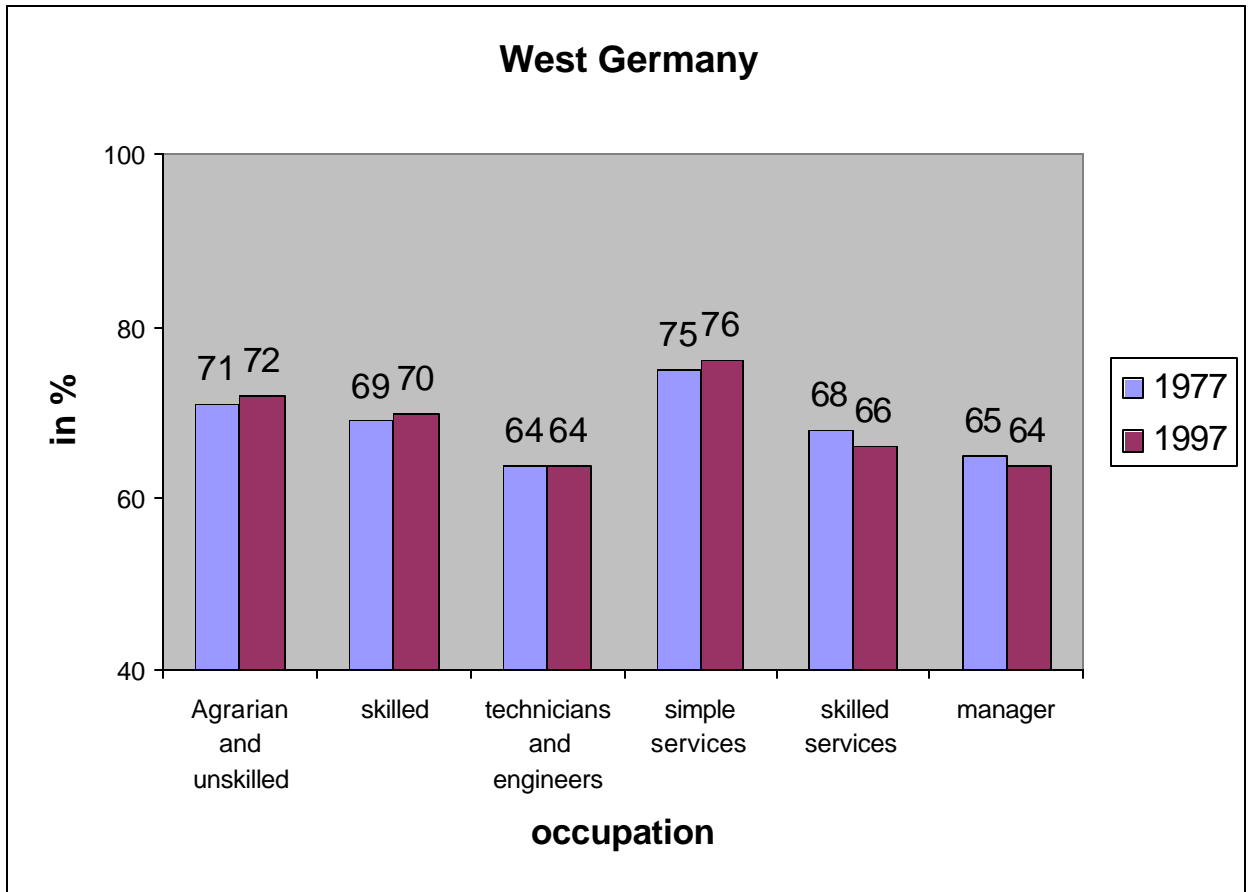
¹ The position of a non-skilled manual worker is defined by the requirements of the job and not by the skill level of the person, being employed in this job.

Quelle: IAB-Beschäftigtenstichprobe. Berechnungen des WSI.

For West Germany we observe over a period of twenty years a growing gender wage gap for skilled manual workers and for master/foremen, a stagnation for non-manual employees and a small decline in non-skilled jobs – in East Germany, where the wage gap is generally smaller, women's wages lost in comparison to men's in all job positions except skilled manual workers.

Graph 2.6 shows a more detailed picture on wage relation concerning different occupations – comparing production related occupations we observe the highest wage gap in technical jobs (West Germany 1997 64%), in East Germany agrarian and simple production related jobs had a difference of 74%, in non-manual occupations the highest wage gap is found in managerial jobs in the West (64%) and in simple service jobs in the East 80%. In all non-manual occupations in the East we observe an increase in wage inequality, whereas in the West the increase is observable in skilled service related jobs, but a decrease of the wage gap in simple service related jobs. We may conclude that women in higher skilled jobs and in technical, male dominated jobs are confronted by a high wage gap – comparing the absolute wages, female technicians earn more than female manual workers, but male technicians earn even more, an effect which leads to a growing wage gap with higher levels of qualifications/skills.

Graph 2.6 Wage relations (full-time) employed women and men by occupations



Wage gaps are influenced by unequal distribution of women and men over the economic sectors, as women's employment is often concentrated within the lower paying sectors like textile, retail trade and men's employment is concentrated on automobile, steel, electronics etc. But even within the sectors, we observe relevant gender specific differences as the table 5 illustrates:

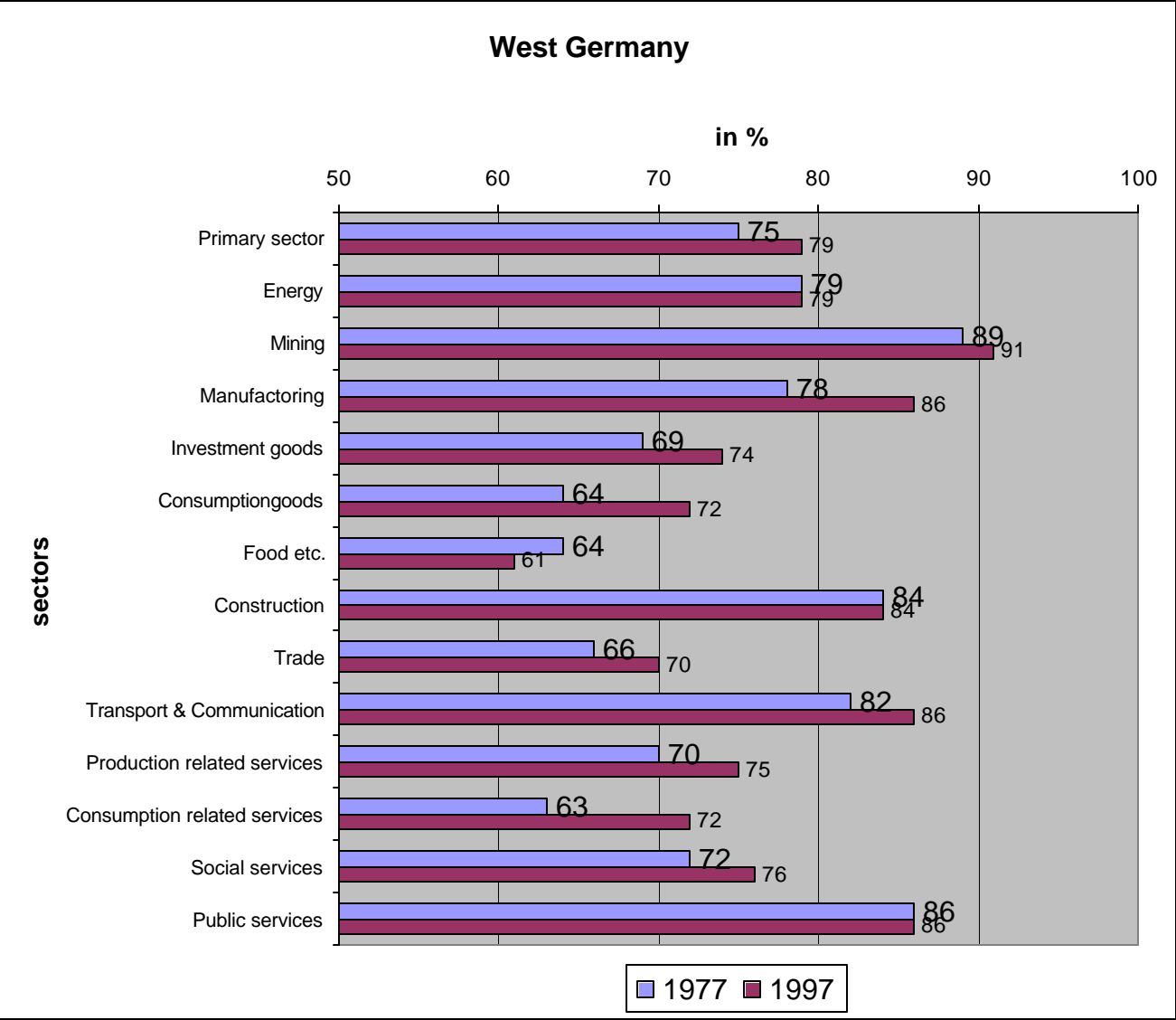
Table 5

Average gross annual wages of women and men (full-time) by main economic sector 1997			
	Gross annual wages		
	Women in DM	Men in DM	Proportion Women/Men in %
West Germany			
Agriculture	31.380	39.716	79,0
Manufacturing	47.262	62.975	75,0
Services	46.213	61.111	75,6
East Germany			
Agriculture	27.210	31.574	86,2
Manufacturing	35.638	40.393	88,2
Services	40.617	44.559	91,2
Quelle: IAB-Beschäftigtenstichprobe. Berechnungen des WSI.			

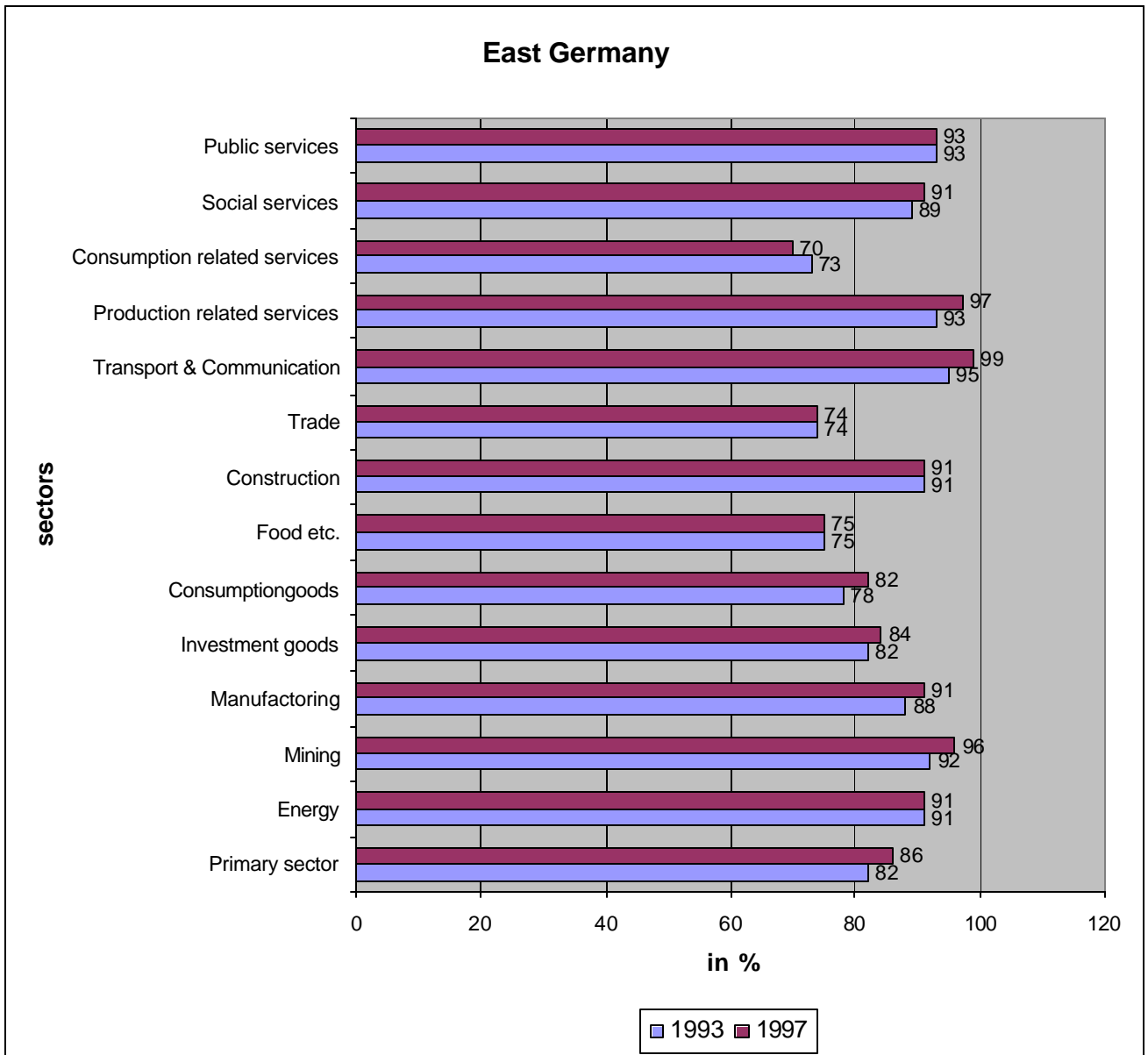
In West Germany dependent employed men and women in agriculture have relatively low wages, but the smallest gender gap (which is still high with 79%), whereas in manufacturing the wages are above the average (compare table 1) but rather unequal. In East Germany the gender wage gap is smallest in services, which do pay the highest wages, whereas agriculture with the lowest wages has a larger wage gap.

A more detailed analysis of economic sectors and comparing 1977 to 1997 is given in graph 2.7

Graph 2.7. Annual gross wages by detailed economic sectors, full-time employed women and men
West Germany 1977 and 1997



East Germany 1993 and 1997



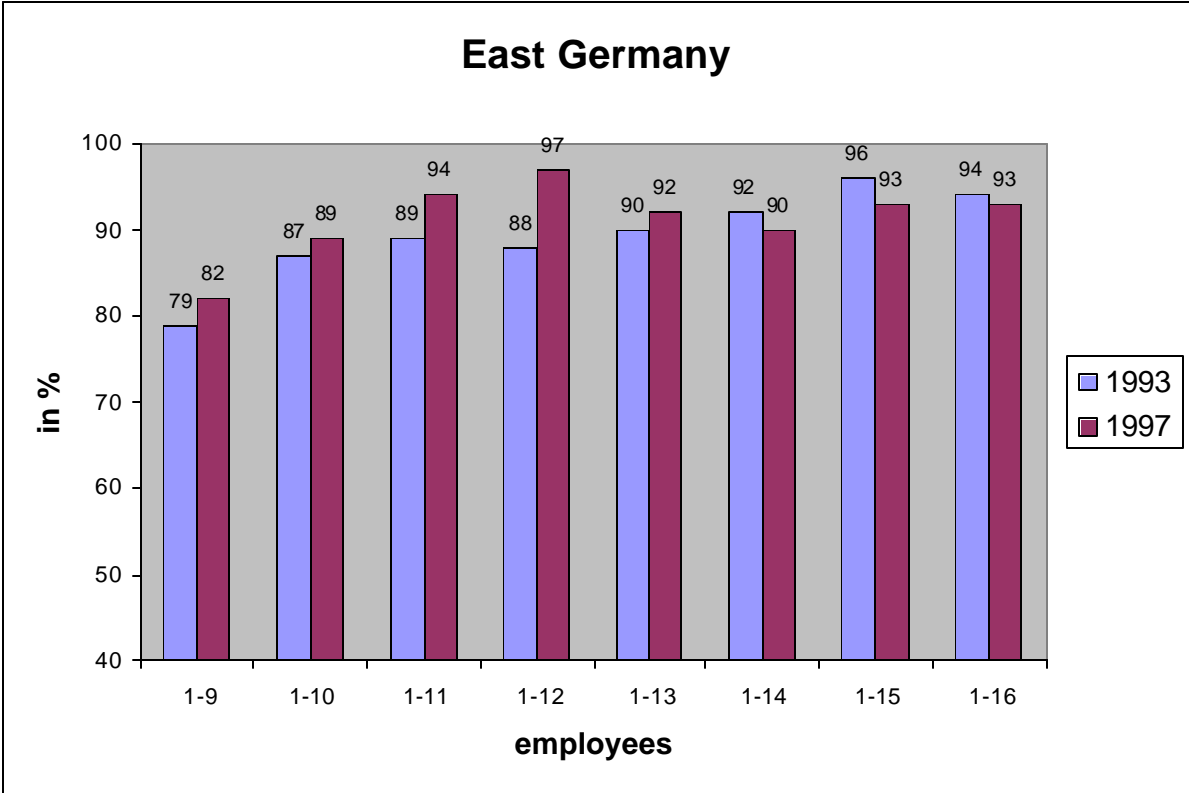
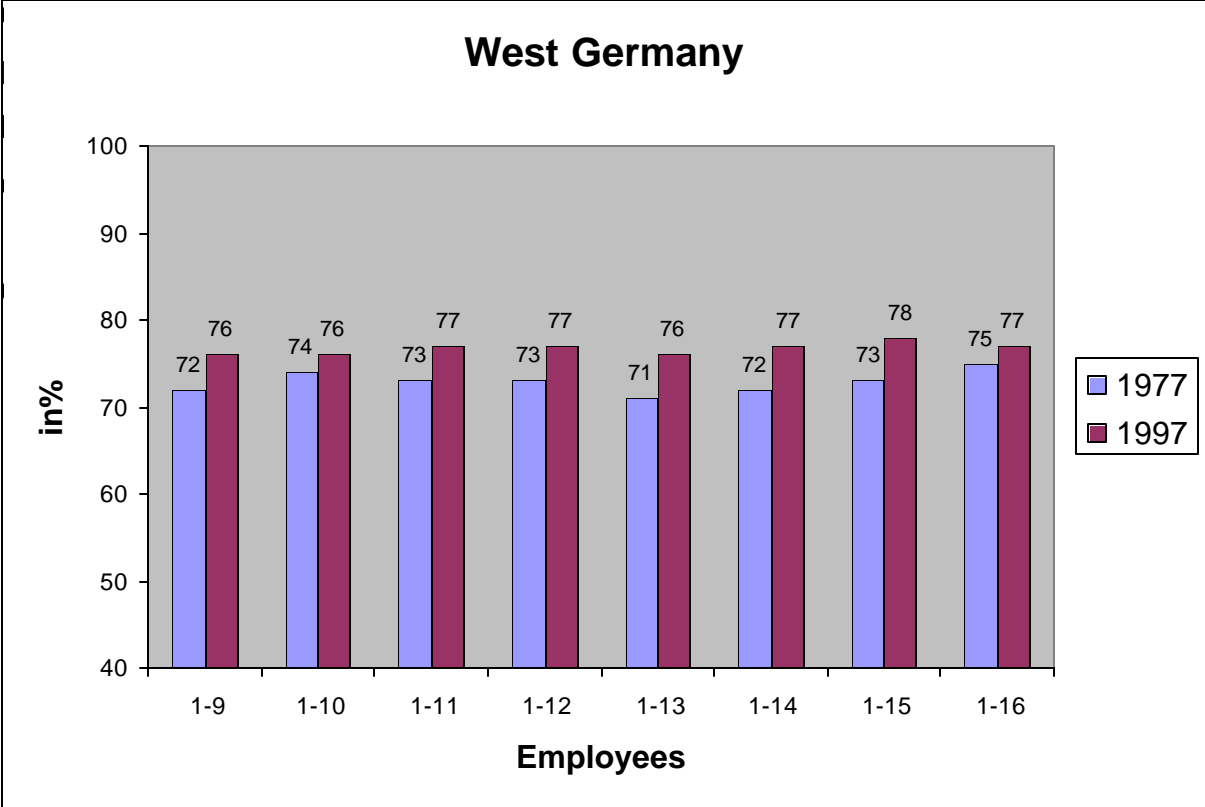
The graphs shows that we observe a modest narrowing of the gender wage gap during the last twenty years in nearly all sectors in West Germany (except food producing industry), with the food industry having 1997 the highest wage gap (64%) and the mining industry the lowest (91%) – data given on absolute wages in these sectors show, that full-time employed women in mining earned an annual gross income of about 60.000 DM (men 66.100DM), whereas food production had in absolute terms the second lowest women's wages with 32.456 DM (men 52.808 DM). Lower wages had only been paid in agriculture (WSI et al, Materialband Tabelle A.2.7.a). In East

Germany only a few sectors had a widening of the wage gap (like food production and private services), some had no change and in all other sectors there is a decrease of the wage gap. In 1997, the smallest gap was observed in transport and communication (98.9%), the biggest wage gap was in private services (69.8%). Compared to West Germany the best paying sector (in absolute terms) was for women and men the energy sector (gross annual income 53.017 DM/ 58.301 DM), the least paying sector is the food industry with 25.282 DM for women and 33.930 DM for men (WSI et al, Materialband Tabelle A.2.7.b). Food industry is in both parts of Germany characterized as a highly feminised sector which employs in West Germany 2.3% of the female workforce and 1.5% of the male workforce, in East Germany 2.2% of the female and 1.1% of the male workforce. Important sectors in terms of employment numbers like trade or the public service do have less extreme gender wage gaps and less extreme absolute wages.

Graph 2.8 illustrates the relation between firm size and wage gap: in general we may state that absolute wages increase with growing firm size. The bigger the firm the higher the wages. Comparing gender specific relations we observe for West Germany a stable wage gap over all groups of firms, nearly irrespective of firm size is the gender wage gap 77%, sometimes 76% sometimes 78%. In all groups the gap has narrowed over time, but this process was more pronounced in firms which started with bigger gaps (5 %points in the size 100 to 900 employees, middle sized firms), whereas the decrease of the gap was modest in big firms.

In East Germany smallest firms do have the biggest gap (82%), whereas big firms do have a small gap (93%), the smallest gap is to be found in small firms with 50 to 99 employees (97%). In small firms the gap narrowed over time, in big firms it increased.

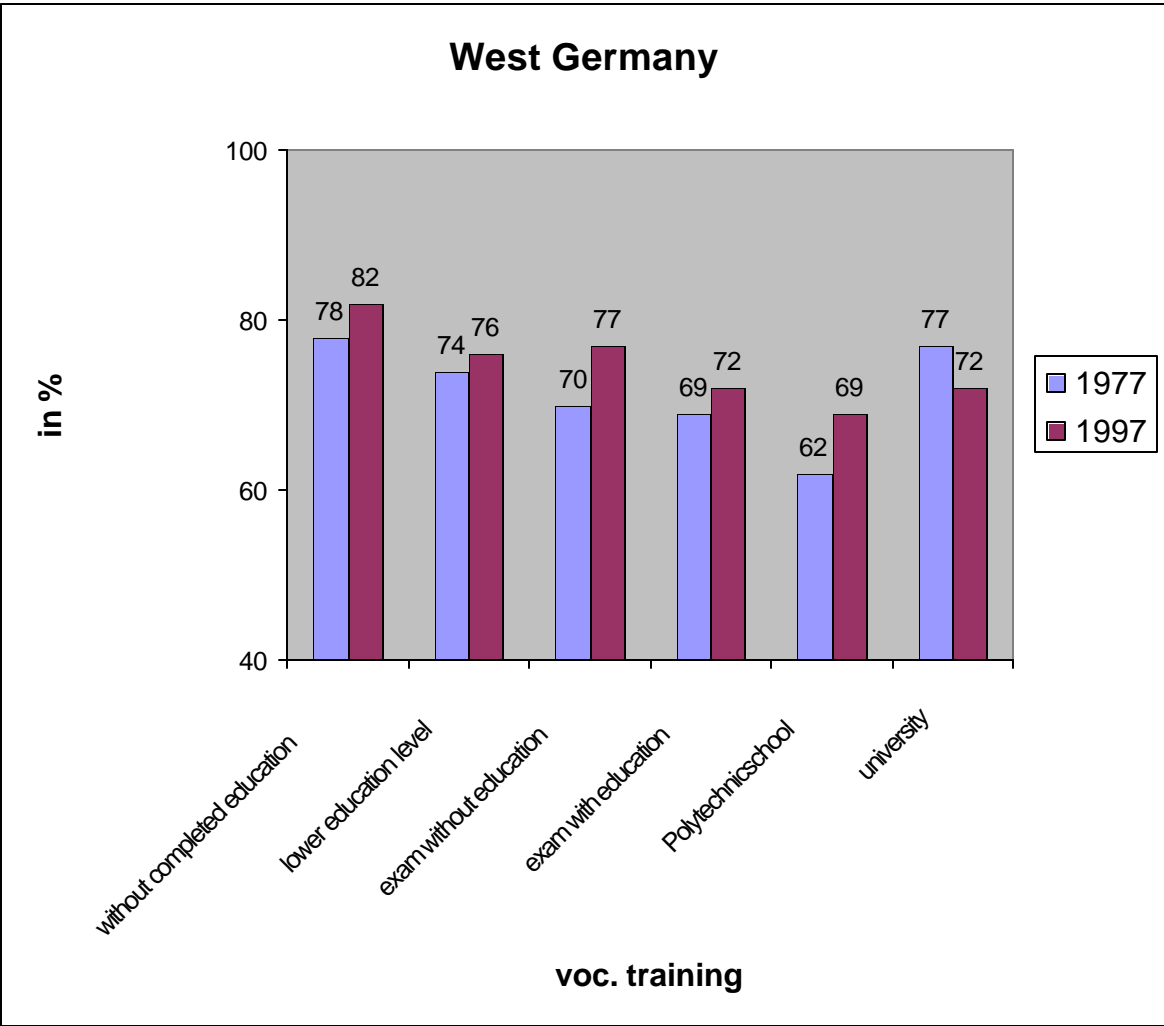
Graph 2.8 Wage relations by firm size

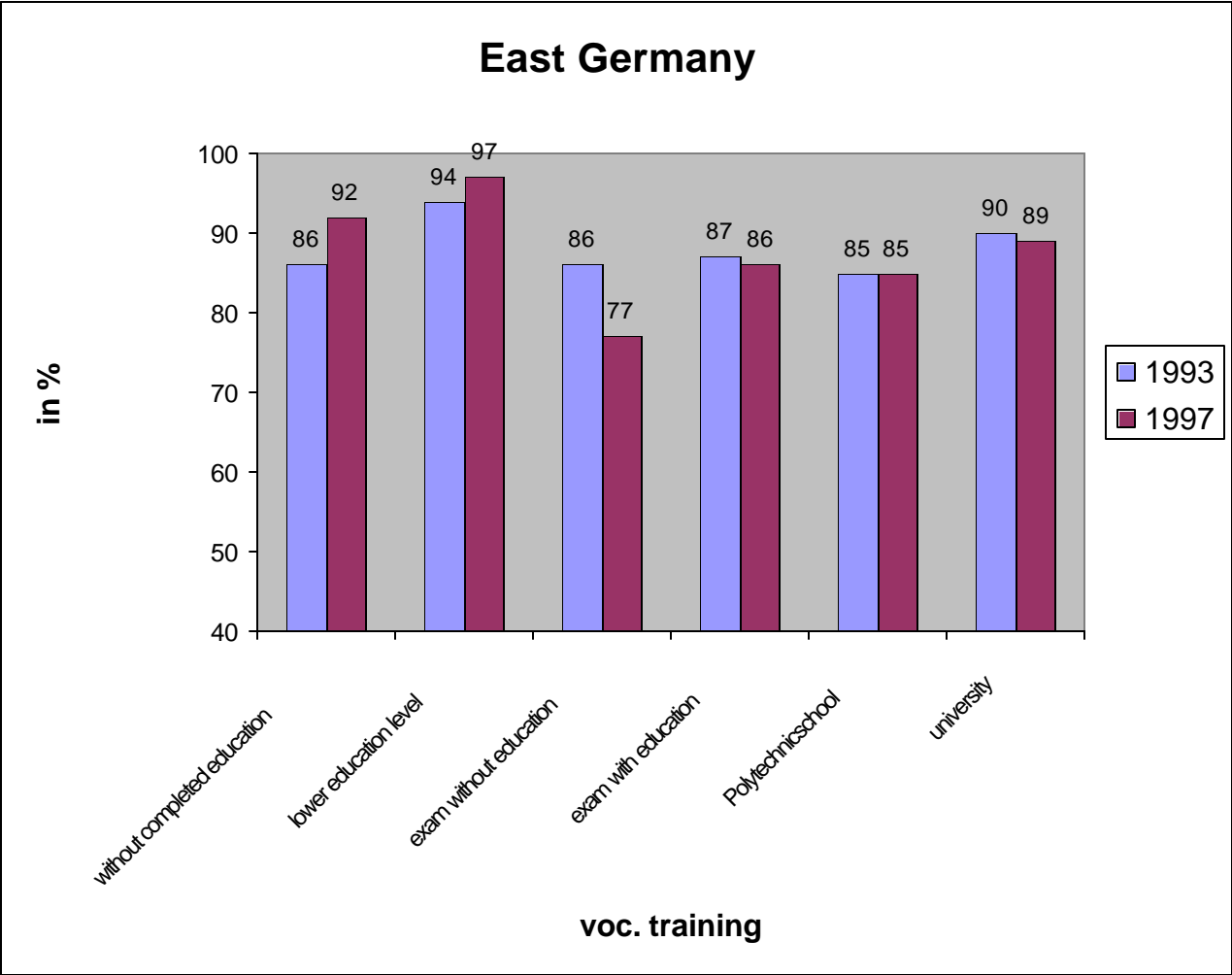


Source: WSI et al. (2001) p. 59

The level of vocational training of the person may be influential for the wage level – as is argued by human capital theory the level of general and vocational training may increase productivity and allow higher wages. Graph 2.9 documents the relation between level of training and the gender specific wage gap. Again we can generally state that wages are increasing with growing qualifications both in West and in East Germany, and that women with a completed university degree do have higher wages than women with no completed training. But due to the gender specific wage gap West German women with a university degree had – in absolute terms – an annual income of 70.130 DM in 1997, whereas men with Abitur and vocational training (no university degree) earned 75.616 DM. The wage gap in the university degree group even increased during the last twenty years from 77% in 1977 to 72% in 1997. Women in West Germany with a polytechnics degree are faced with the highest gap (69%), a finding which corresponds with the finding, that women in technical and engineering jobs do have high wage disadvantages. In east Germany, again, the overall wage gap is not as big as in the West, but it increased in the higher skill levels during the last years.

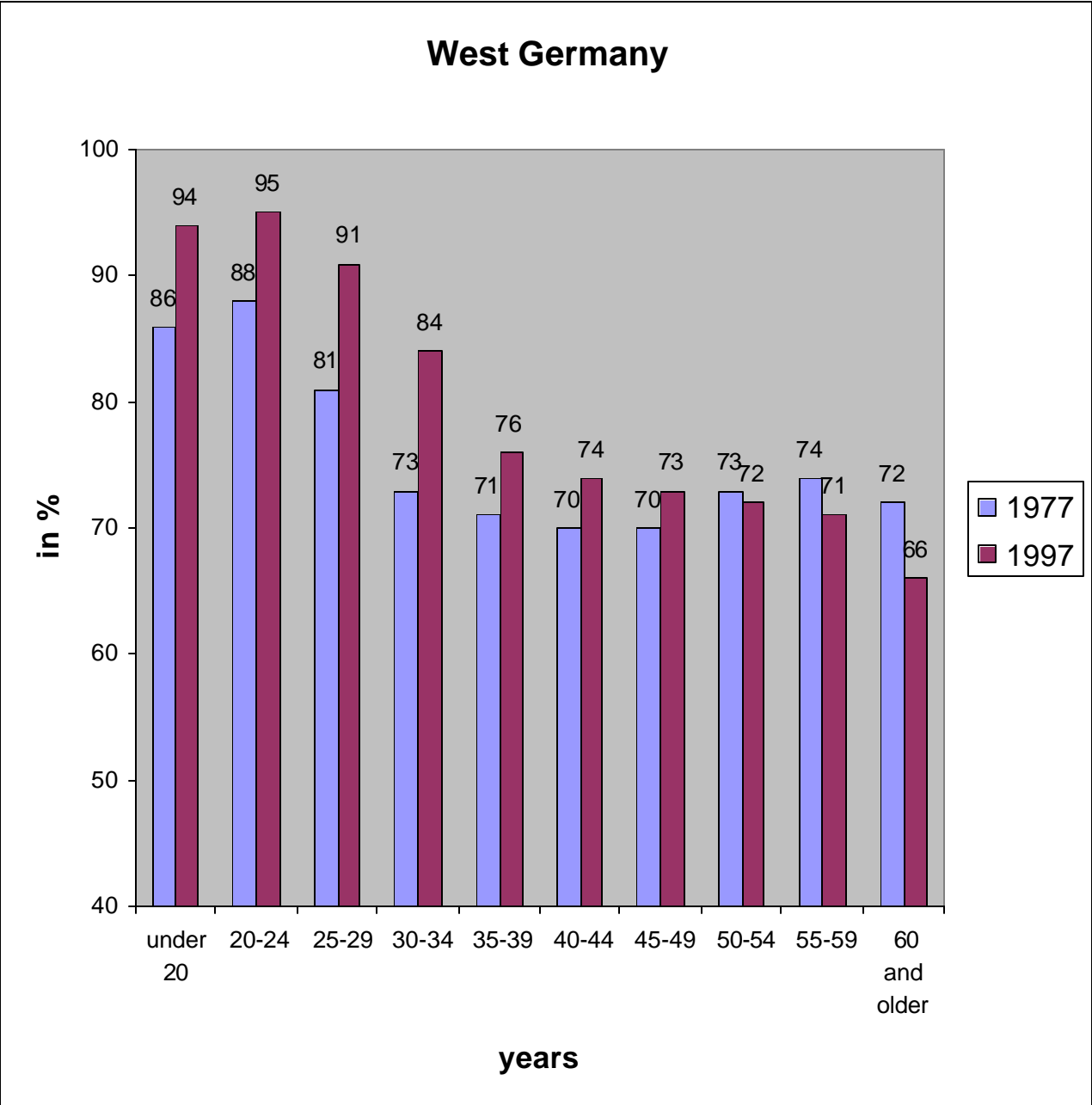
Graph 2.9 Wage relations (full-time) by vocational training level



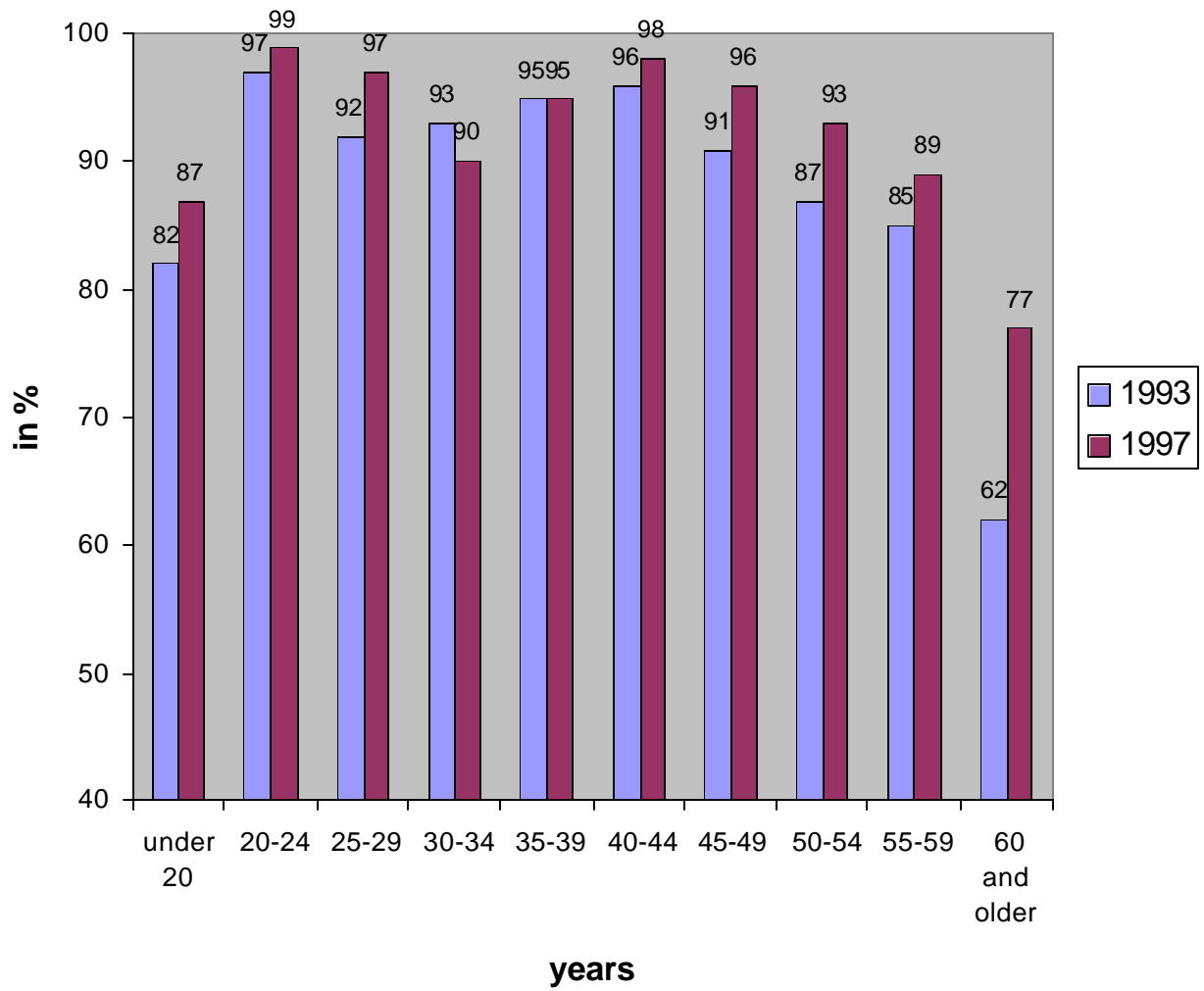


Age may be an important component of wage levels – following not only the human capital theory but the real practice of wage agreements in collective bargaining and on firm level. Both employers and trade unions accept that age (and length of occupational experience) does have a positive correlation to level of wages. In IABS data this is clearly seen, both women and men do have higher wages with higher age. But the gender wage gaps is the other way round: it is for West Germany smallest in the early years of employment (age groups under 24 have the lowest gender wage gap with 95%), and widens in older age groups. In the age effect the specific German model of women's interrupted employment careers is reflected, and female returners do have much lower wages than men in the same age group. This effect is documented by other, more complex studies as well.

Graph 2.10. Age related wage gaps (fulltime) employees



East Germany



In many countries wages depend on seniority rules and therefore on the length of service within the same firm. This is true for Germany as well. In table 6 we present the length of service of men and women in 1995 based on the Gehalts- und Lohnstrukturerhebung (IABS data did not fit). This data cover only a limited number of the economic sectors, like manufacturing, trade, banking and insurance.

Table 6

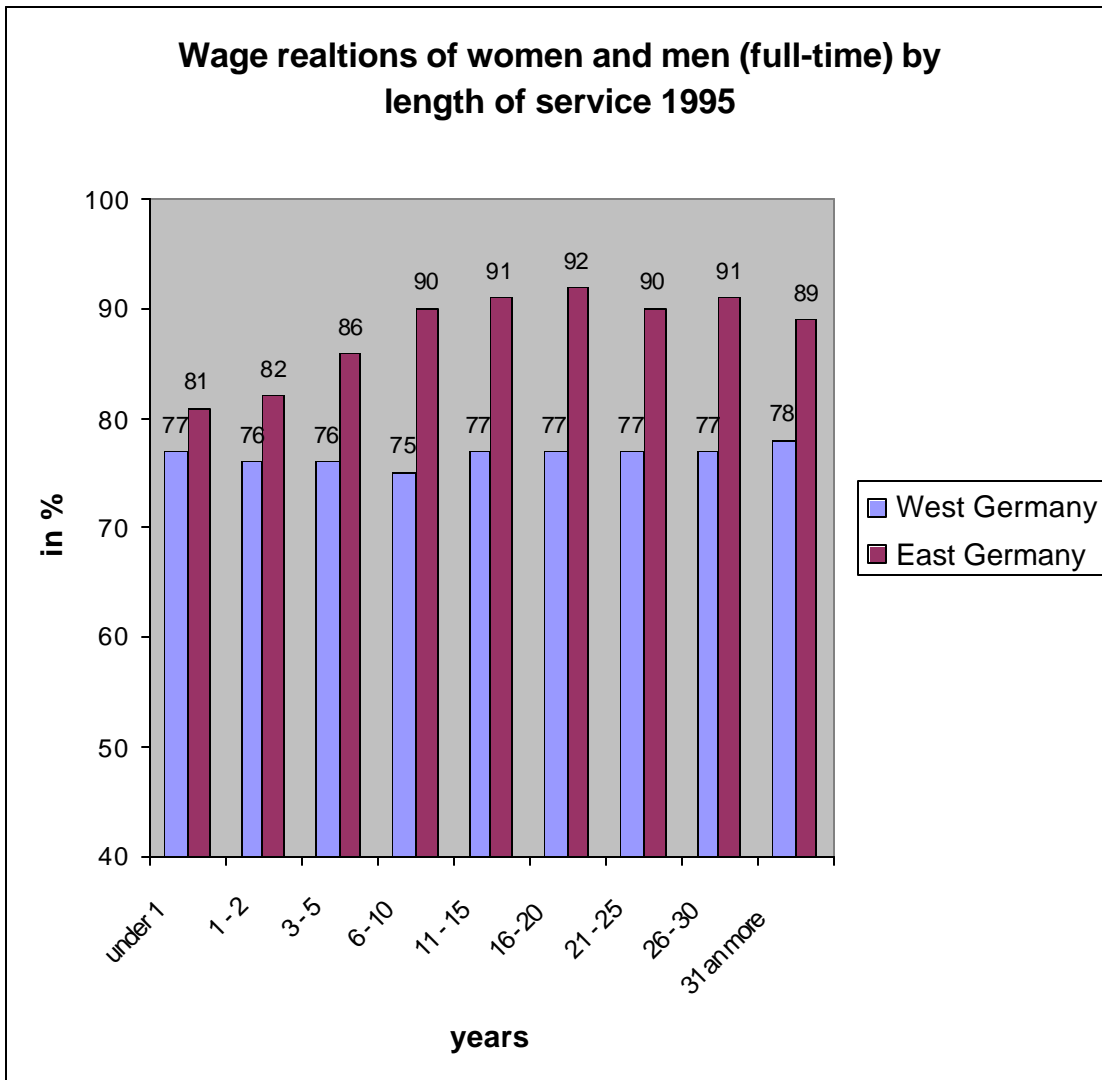
Proportion of women and men by length of service 1995 (full-and part-time) in manufacturing, trade, banking and insurance				
Length of service in the same firm From..till...years	West Germany		East Germany	
	Women	Men	Women	Men
under 1	9,6	8,6	10,6	13,2
1 – 2	13,1	10,1	20,5	23,7
3 – 5	24,2	18,4	34,3	29,4
6 -10	20,5	19,8	7,9	5,7
11 -15	11,7	12,1	6,4	5,3
16 - 20	8,6	10,4	7,0	6,6
21 - 25	6,9	8,9	5,3	5,5
26 - 30	3,3	5,7	4,1	4,8
31 and more	2,2	6,1	3,7	6,0

Quelle: Statistisches Bundesamt, Gehalts- und Lohnstrukturerhebung. Berechnungen des WSI

As expected do women have shorter work experiences with the same firm than men, due to the German Model of motherhood and employment withdrawal. For East Germany the data are less relevant as a great number of employees had to change employment and employer within the first five years after unification.

In Graph 2.11 we show the relation of women's to men's wages cross-tabulated with the length of service. We observe a stable and persistent wage gap for West Germany, even women with more than 26 years of employment in the same firm earn only 77% of the men's wage. In East Germany the overall wage gap is smaller, but seems to be more influenced by length of service (lowest wage gap in group 16 to 20 years = firms which had survived the economic turbulences after unification). In absolute terms are wages influenced by length of service, both men and women with longer employment do have higher wages than men and women with short employment. But the gender specific wage gap remains stable over the employment periods – a finding which is supported by other studies (part 2 of this report).

Graph 2.11 Wage relations (full-time) by length of service



The last structural factor to be mentioned here are additional components of wages like special bonuses for working on Sundays, in shifts, and in the night. As the IABS data did not cover this specific aspect data in table 7 are taken from the Gehalts- und Lohnstukturhebung 1995, therefore exclude a broad variety of typically female sectors like health care etc. in which women receive these bonuses. In the sectors covered here (manufacturing, trade, banking and insurance) female dominated occupations like trade do have regular work on Saturdays (not on Sundays) for which no bonuses are paid. Shift and night work is less common for women in these sectors than in other service related occupations, which are not included here.

Table 7

Additional Wage¹ components for difficult working conditions (Full- and part-time) 1995			
	Proportion receiving a.w.c in %	Average level of a.w.c. in DM per month	Proportion ² a.w.c. of gross monthly wage in %
West Germany			
Women	8,9	205	5,8
Men	23,4	399	7,9
Total	19,8	372	7,7
East Germany			
Women	10,4	249	8,7
Men	16,5	305	8,3
Total	14,6	293	8,4
1 additional wage components paid for shift, night and Sunday work. Covers only manufacturing, trade, banking and insurance			
2 proportion of gross monthly wage of employees receiving additional wage components			
Quelle: Statistische Bundesamt (1998b), Gehalts- und Lohnstrukturerhebung. Berechnungen des WSI			

Of all men in the sectors covered received 23,4% in West Germany and 16,5% in East Germany additional wage bonuses, but only 8,9% resp. 10,4% of the women. These bonuses counted for nearly 8% of the men's wages resp. 8,3%, whereas for women in West Germany the bonuses counted for only 5,8%. They were more important for women in East Germany with at least 8.7% of the monthly wage.

The main conclusion of the report, looking on all these different structural components of wage inequality is that is necessary to study in detail the mechanisms that lead to the situation that skills pay more for men than for women, that women and men do different jobs (vertical and horizontal segregation), are paid according to different job descriptions, that men and women do have different job histories (in the life time perspective women's employment patterns are rather unstable, individual and household based employment patterns result in a big wage gap between the partners, not only during active employment age but also in retirement/pension payments, as these are related to employment). The report analyses in depth two aspects of the wage and employment problem: the employment patterns of women in the context of the household (using another data set than the ones mentioned in paragraph one of my report). I do not report on these results as they discuss not the gender wage gap but the relative/absolute income position of different types of households in Germany, the role of public transfer payments etc. I think this is not of

major concern for our study here (for detail see WSI et al. 2001: chapter 3). Another aspect, which is analysed in the report is the role collectively agreement job description play in the segregation and wage gap of men and women. This part of the study goes into details, which I will summarize in part 3 of my report.

2. Review of national studies

In this part I will present the main results of other studies than the “Bericht zur Berufs- und Einkommenssituation”. The studies I want to present here are most recent work done on the gender wage gap, highlighting special aspects.

I will present the following studies:

- **Barbara Seel/Rainer Hufnagel: Wie teuer ist es, eine Frau zu sein (Seel/Hufnagel 2000)**
- **Miriam Beblo, Elke Wolf: How much does a year off cost? (cited Beblo/Wolf 2000)**
- **Astrid Kunze: The Evolution of the Early Career Gender Wage Gap (Kunze 2002a)**
- **Astrid Kunze: The Timing of Careers and Human Capital Depreciation (Kunze 2002b)**

When starting to search for national studies on gender pay gaps it is important to note that Germany has not such a strong tradition in labour economics than other countries. We could find only a small number of studies dealing explicitly with the gender wage gap. Most of these studies are rather old and cover the period before 1989². We decided to include only newer material - the above mentioned studies are – as far as we know – the most actual and the only studies done in Germany during the last years.

When searching for studies we found that the topic work experience and years off the labour market have a higher priority than before - reflecting the special West German

² Most of the older studies are included in the publication European Commission 1999, Women and Work, Report on existing research in the European Union, Luxembourg 1999

reconciliation model. All the studies concentrate on West Germany, for East Germany we only could find one small reference in a study on firm-size effects on the wage differential (cf. Wolf 1999). This study reports for 1995 no gender wage gaps in big firms (2000 employees and more) but substantial gender differences in other firms – the smaller the firm the bigger the gender wage differential. This is true for all skill levels, except for masters/skilled foremen in very small enterprises.

2.1 Barbara Seel, Rainer Hufnagel, Wie teuer ist es, eine Frau zu sein?, manuscript 2000

aim of the study: the study aims to estimate the gap in individual lifetime gross earnings resulting from being a woman (gender gap) and being a mother (mother gap) compared to men/fathers. It was focused on highly skilled women in better paid occupations. Its reference is an English study made by Rake (see Rake 2000).

1. unadjusted/adjusted gap

30%, adjusted gap: 9% for singles in non-academic jobs, 2% for singles in academic jobs, married/living together: 13% for persons without academic training, 15% for persons with academic training (women earn 15% less). The explained part is 50%.

2. data source/method of decomposition

GSOEP (German socio-economic panel), Sample A, Germans living in West Germany, latest available sample 1998, covering around 2880 persons. Method: regression analysis

3. variables used in wage equations, most significant variables

variables combining individual characteristics and job characteristics:

mother/father, sex, age, married/living together, number of mother's children, full-time, part-time, marginal part-time, working hours/week, gross income/month, net income of partner/month, gross wage per hour, interruption in employment (times), years in employment/full-time, years in employment/part-time, *job position*: highly skilled (scientific), management, clerical jobs, *sector*: trade jobs, service jobs, agriculture, manual production; *school degree* : lowest, middle, higher middle, highest Abitur ; *vocational training*: apprenticeship, vocational school, school in health occupations, civil servants training, poly- technical university, university;

most significant variables: positive effect (smaller wage gap): university, management position, full-time, part-time, negative effects: agriculture, service, trade, manual production,

4. Interesting results

Estimates based on the results of the regression are calculated for different types (married men/women, mothers, management, skilled clerical jobs etc.) for calculating the gender gap and the mother gap. The annual earnings are calculated on a full-time base and for different years of job experience (entry, age 27 and 20 years of job experience). The results are:

single women in clerical jobs earn 91% of men, in scientific jobs 98% and in management 98%, married women in clerical jobs earn 87,7%, in scientific jobs 86,1%

and in management 86,2% compared to married men. The gender gap is – according to different job levels - between 2% and 14%. The mother gap – comparing women with and without children is the following: Single mothers with two children, first child with age 28 , second child with age 30, 5 years interruption, back to full-time work afterwards earns 84,2% of a single woman in a clerical job, 83,5% of a single woman in a scientific job and 84% of a single women in management (effect of 5 years without income and less job experience). Comparing married women (mothers and non-mothers) the mother effect is the following: 84,1%, 83,5% and resp. 83,4%. The combined gender/mother effect compared a single men's life-income with the income of single mother, same characteristic as before and gives the following results: she earns 77,1% of the men's wage (clerical job), resp. 81,7% resp. 82,2% (management).

5. policy recommendations (explained/unexplained gap)

The paper does not give any special policy recommendations but explains that the findings should be interpreted with caution and that gender gaps are not always the results of “discriminatory” policy.

2.2 Miriam Beblo, Elke Wolf, How much does a year off cost? Estimating the wage effects of employment breaks and part-time periods, ZEW 2000

aim of the study: estimation of the return of effective job experience, taking into account both the duration and the timing of non-work and part-time spells. The authors point to the fact, that traditional wage estimations do not control for employment breaks and part-time spells and therefore do underestimate the return for effective experience. The depreciation of human capital during breaks and part-time spells (as part-timers are often not included in vocational and further training) must be taken into account.

The authors cite a variety of other studies on the same subject like Gupta/Smith (2000) for Denmark, Albrecht et al. (1998) for Sweden, Galler (1991), Licht/Steiner (1991), Schwarze (1998) and Wolf (2000) for Germany and Ferber/Waldvogel (1998) for the US. Kaukewitsch/Rouault (1998) compare part-time wage gaps in France and Germany and Bardasi/Gornick (2000) compare five countries, among others Germany.

1. unadjusted/adjusted gap

The study does not compare women and men but includes only women.

2. data source/method of decomposition

GSOEP (German socio-economic panel), 1998 data, sub-sample West Germany, analysis restricted to German women not younger than 30 and not older than 55 years of age. Data provide detailed information on each individual's work history, any part-time periods, employment break due to unemployment, formal parental leave or a withdrawal due to other reasons. Data exclude self-employed, farming sector. The analysis is restricted to high-skilled as another study (Boockmann/Steiner 2000) came to the conclusion, that for women with low skills there are no significant returns to job experience.

Simultaneous model for the determination for wages, working hours and labour market participation, maximum likelihood. Estimation of hours and participation equation separately (instead of using a Tobit model), for estimation of hours effect on wages a

spline function of working hours is included. Mincerian-type wage equation on effective experience for all employees.

3. variables used in wage equations, most significant variables variables used:

gross hourly wage (basic payments/including fringe benefits), hours of work (spells), university degree, job position, firm size, industry sector, experience (effective experience= counting each year with work, part-time work or out of labour force/actual experience=sum of years spend in paid employment), participation, number of children, marital status, other household income. 4 models: model 1 is the reference case that accounts for depreciation rates on employment breaks and part-time periods (effective experience) , in model 2 the definition of dependant variable is without fringe benefits, model 3 gross hourly wage rate including fringe benefits combined with actual work experience, model 4 extension of model 1 including firm size, industry sector and job position.

4. Interesting results

women with a university degree earn 30% more than other highly skilled women without university degree. Controlled for job position and sector, only a 15% mark up for university degree is suggested. Hourly wage rates increase with effective experience, discontinuities in the employment path do matter: the depreciation rate is 55% - after one year break the accumulated years in employment must be adjusted by about 55%. Controlling for job position, firm size and industry the atrophy rate is smaller: 33%. In both cases only out of employment has a negative impact on wages, part-time spells of the same length do not effect wages. Model 4 shows that the wage rate differs significantly with job position, firm size and industry sector. These explanatory variables capture a great share of the human capital depreciation. A conclusion is that discontinuous employment patterns seem to be related to specific low-wage occupational status, sectors or even firms.

5. policy recommendations (explained/unexplained gap)

The authors conclude: the typical female employment biography, that is, an employment break followed by part-time work results in a substantially lower wage rate, this being an important determinant of the observed wage differential between women and men.

2.3 Astrid Kunze, The evolution of the early career gender wage gap, discussion paper No. 436, IZA Bonn 2002a

Aim of the study: investigation of the male-female wage differential, question whether it does evolve over the early career or does exist right from entry into first employment.

1. unadjusted/adjusted gap

(adjusted) entry wage differential is 25% in Germany, stay virtually constant throughout the early career (defined as eight years of work experience). 7% of differential is due to differences in (full-time) hours worked, 18% decomposed by using human-capital variables. Of this 18%, around 50% are due to differences in occupational qualification, with a further 10% due to other differences in initial human capital (differences in duration of apprenticeship, school degree).

2. data source/method of decomposition

IAB employment sample for West Germany, administrative event history data set, covering the period 1975 to 1990. Sample of young workers who have undertaken vocational training within the German dual system apprenticeship programme, at least one time in full-time employment, and no further vocational training, no technical colleges/polytechnics or university after completion of apprenticeship. As the IABS does not contain a detailed hours of work variable, even full-time employment may include a variety in hours worked per day per individual. The study uses additional data from the GSOEP which gives detailed information on weekly hours.

Oaxaca-decomposition including the selection problem by including information on labour market non-participants.

3. variables used in wage equations, most significant variables

variables used: *initial human capital*: intermediate degree school, upper degree school (Abitur), duration of apprenticeship, age at entry in apprenticeship. *Occupational qualification* (sector of apprenticeship, 3 digit level, shows occupational segregation by economic sectors): natural products production, extraction of natural resources, investment goods production, consumer goods production, construction, instalment of technical goods, services, infrastructure services. *Job status*: unskilled, skilled blue collar worker, other (foreman), skilled white collar worker. *Skill match variables* (measured whether the person stays in apprenticeship occupation, stays in firm, stays in sector, 2 digit level): qual-stayer, firm stayer, firm and qual. stayer, industry stayer. Two Oaxaca models: A: wage equation including detailed human capital variables but excluding controls for occupational qualifications, B: including approximately 300 dummies for each occupational qualification.

Most significant variables: occupational qualification

4. Interesting results

Year, cohort and work experience effects show, that entry wages are decreasing across cohorts (mean gap for cohort 1975 is 32%, it drops to 20% for cohort 86 and 15 percent for cohort 1987). Wages increase with work experience but wage gap stays constant over time for all cohorts. Across year, work experience and cohorts the study finds that differences in occupational qualification result in a permanent wage disadvantage for women. Around 50% of the wage gap is explained by the occupational fixed effects. Authors comment that a major concern with these results is that occupational qualification like the occupational choices in other studies is endogenous. This leads to the question why we observe a high degree of occupational segregation in Germany – discriminatory forces like entry barriers, societal rules, or human capital related arguments like male occupations being more productive, or human capital model that assume that women choose occupations with low training content etc.

5. policy recommendations (explained/unexplained gap)

no direct policy recommendation – asking for more research...

2.4 Astrid Kunze: The timing of career an human capital depreciation, discussion paper No. 509, IZA Bonn, 2002b

Aim of the study: to explore the short and long run effects of career interruptions on wages for young skilled female and male workers in West Germany. Career interruptions are unemployment, parental leave, national service and other non-work spells.

1. unadjusted/adjusted gap

Study shows the losses in wages due to different types of non-employment, and to different occupations – gender wage due to high losses during parental leave (contrast to national service for men) and in female occupations

2. data source/method of decomposition

IAB employment sample for West Germany, administrative event history data set, covering the period 1980 to 1997. Sample of young workers who have undertaken vocational training within the German dual system apprenticeship programme, at least one time in full-time employment, and no further vocational training, no technical colleges/polytechnics or university after completion of apprenticeship. Observed from school leaving age 16 onwards. Dropped workers who are not working throughout age 26 to 30. Sample contains 17.000 “more highly attached workers”.

Standard human capital model of Mincer and Polachek

3. variables used in wage equations, most significant variables

variables used: daily wages (full time), actual work experience, time out due to unemployment, parental leave, national service, residual non-work variable. Two models: one without occupational categories, one integrating male and female occupations (120 occupations, female defines as more than 60% of the employees being female)

4. Interesting results

The results show that work interruption have a quite gender-biased effect: whereas unemployment periods have only a small effect on wage after returning to employment, parental leave has quite substantial effects: on return to the job females face a 18.3 percent drop in wages after the leave. If the interruption has been 2 years ago, the drop is 14 percent and 5 years after still 13 percent. For males the national service leads to a wage gain of 3.2 percent on return to work, if more time has elapsed since return to work it may decrease wages slightly at an increased rate. Model controlling for occupations/segregation found that losses for women are more distinct in the group of female occupations, again smallest for unemployment and very high for parental leave: a 30% drop in wage in female occupations compared to a 9% drop in male or integrated occupations. Results contradict the Polachek model that women choose female occupations under optimising life time earning by selecting careers with flat profiles. Authors conclude that females in male dominated occupations are those who are better off, even in case of parental leave.

5. policy recommendations (explained/unexplained gap)

no direct policy recommendation

3. Institutional factors and the gender pay gap

3.1 Legislation

The legal framework for equal pay for work of equal value has not been changed since the late 1980` and there is no proactive equal pay legislation in Germany. In 2000 the German government proposed a draft bill on “equal opportunities in the private sector” which should promote companies to introduce the principle of gender mainstreaming and to develop concrete proposals for achieving equal pay on the firm level. Since the German employers´ association had strongly refused such a law, the Government and the employer’s association finally signed an agreement according to which the ideas of the draft bill should be introduced on a voluntarily basis. The newly elected government has to evaluate the outcome of the agreement in 2003 and must decide again what to do.

The report on women's and men's employment and income (WSI et al. 2001) came to the conclusion that many of Germany’s collective agreements are not in line with European law concerning the job evaluation systems used. They are neither transparent, nor comparable and include many direct and indirect discrimination against jobs traditionally associated as women's jobs (this judgement can be supported by the findings of Astrid Kunze, see section above). The reports comes to the conclusion, that the wage determination process is clearly discriminating against women and does not fulfil the legal rules of the European community law. The Ministry of Family etc., which was responsible for the report, hesitated in publishing the results because of employers´ associations resistance against the main findings concerning the gender pay gap. Private and public employers rejected the main findings in a very rude way. The Government itself points to the fact that German wage bargaining system has a complicated historical background and it seems to be open if it is in contrast to European law.

3.2 Collective Bargaining

In Germany still a majority of employees both in manufacturing and in services is paid according to collective agreements: in West Germany 62,8% of all (non-manual and manual) employees are covered by sectoral agreements and 7,3% are covered by firm-specific agreements (70,1%). In East Germany 45,5% of all (non-manual and manual) employees are covered by sectoral agreements and 9,9% are covered by firm-specific agreements (55,4%).

Additionally firms which are neither member in an employers' association nor do have a firm-specific agreements with the relevant trade union may follow the respective collective agreement voluntarily – a government report estimates that around 15% of all employees in the West and 24% in the East are treated like in collective agreements. So that all in all around 84% of all employees are included – this percentage is stable since some years (BMA, 2002, p. 10).

No collective agreements are to be found in the following sectors: mainly in service sector, and especially in most firms related to churches, lawyers, consultancies, political parties, lobby organisation, employers association and trade unions, chambers of commerce, media agencies, private schools, sports clubs, private health care institutions like private doctors, private dentists, soft-ware development and related "new economy" firms, fitness- centres and related private services, household related services etc (BMA, 2002, p. 9). Most of these industries employ women in the lower and middle level of jobs.

Collective agreements are therefore still an anchor of the German wage/pay system. They support the existing gender wage gap in two aspects: firstly collective agreements in male-dominated sectors usually have higher wages than in female dominated sectors. And secondly the job evaluation and descriptions used in collective agreements are often gender biased.

Firstly: Some of the female dominated sectors can be called "collectively agreed low wage sectors" – as Germany has no minimum wage, very low wages are often part of collective agreements.

A recent publication of the Ministry for Labour and Social Affairs, analysing collective agreements for 2001, states the following: "An analyses of 1.100 collective agreements found 138, in which the lowest hourly wage was below 11,00 DM. These wages cover unskilled workers with simple tasks which are under 18 years old. Rarely you may find wages like these for skilled workers under 18 years old or for unskilled workers irrespective of age" (translation F.M., Bundesministerium für Arbeit und Sozialordnung BMA, 2002, p. 30). Examples of sectors/areas with very low wages are gardeners, agrarian workers, ceramics industry in East Germany, wood

working industry in Bavaria, shoe-industry in Rhineland-Palatine and East Germany, bakery crafts in Brandenburg (BAM 2002, Tabelle 5).

The average monthly wage for a skilled manual or non-manual employees was – in 2001 - 3.881 DM, the lowest collective agreements for skilled workers are found in shoe-industry East Germany (2206 DM = 57% of average wage), followed by hotels/restaurants Saxony (62%), private transport industry Thuringia (62%), shoe-industry West Germany (67%), bakery crafts Brandenburg (BMA 2002, Tabelle 7).

The report includes the statement, that the collective agreements in Germany have more differentiated wages than in earlier time as “high wage sectors increased wages more rapidly as sectors with lower collectively agreed wage levels. Some collective agreements included newly created/defined lowest wage groups, or agreed on lower ‘entrance wage’ levels for newly recruited personnel. Additionally the minimum-wage agreements for the construction industry and related crafts (a regulation concerning minimum wage regulation for all construction enterprises working on German sites) increased the differential between high and low wages.” (BMA, 2002, p.31) – To explain the latter: in 1996 a minimum wage regulation in the construction industry and related crafts was introduced to ensure that foreign construction companies offering services/production on German sites have to pay a agreed minimum wage. This wage is – compared to overall German wages standards – low.

Given this statement you may conclude that wage differentiation takes place and may effect female dominated sectors more negatively than male dominated sectors. But as the list shows: we do have male dominated low paid sectors like private transport in both parts of Germany or – more general – we observe a regional gap between East and West, which ends with very low paid East German workers in sectors which are low paying in the West, too. To analyse in more details would need an investigation in the above mentioned 1.100 collective agreements – as the government report does not give more details on employment structures etc.

Calculated on data given in the report “Berufs- und Einkommenssituation” we find the following development: in most sectors women's wages increased a little bit or clearly faster than men's, for the period 1977 to 1997 in West Germany except the sectors: energy, food production and public sector (which is a more important employer of

females than the other two). In East Germany the period 1993 to 1997 is covered (only 4 years) and shows three sectors with growing wage gaps: energy, food production and household related services.

The question whether we observe a decline or stagnation of collectively agreed wages is open: In East Germany the sectors covered by sectoral agreements are declining (by employers leaving the employers' association, especially in Saxony this is a common strategy supported by employers' associations which started a new organisation for all employers outside the bargaining agreements). On the other hand firm-specific agreements increase – this is the answer of the trade unions. The dynamics of new and growing sectors like in soft-ware development or in firm-related businesses like consultancies increased the number of not covered employees, but the recent crises in this area may bring this to a stop. Others like the private health care sector, private schools and churches are difficult to organise – but trade unions had been weak in this sectors since a long time.

It seems to be quite complicated to close the existing wage dispersion by closing gaps between sectors. We observe in the contrary an ongoing debate about opening the wage gaps and introducing an even more pronounced “low pay” sector in services and other “simple”/unskilled jobs. Demands for higher pay increases for low paid employees were not very successful, even within the trade unions. The following table is taken from the report “Berufs-und Einkommenssituation” and shows the wage dispersion in some collective agreements:

Relative position of the lowest collectively agreed wage group (basic wage group) in %, 2000	
Sector/firm	Proportion³
Debis-Enterprise	90,0
Deutsche Bahn AG Group	80,3
Retail trade NRW	
Manual wage	84,3
Non-manual wage	76,6
Metal industry NRW	
Manual wage	85,0
Non-manual wage	79,8
Public sector (Germany West)	
Manual wage	87,6
Wage employees communities	86,6
Wage employees health care	83,6
Private Banking	
Germany east and west	83,2
Insurance companies	84,1
Sweat production (Baden- Württemberg)	67,2
1 Wage of the lowest group in % of the middle group (final stage) Quelle: WSI-Tarifarchiv, Stand 31.12.2000	

The table demonstrates a quite substantial wage dispersion – it is lowest in a private high skilled firm like Debis but rather high in retail trade or food processing industry, which is a low paying industry.

Secondly collective agreements include in Germany job evaluation and assessment schemes. A whole bunch of collectively agreed job value systems favour male-dominated job-values and a male employment biography⁴. Trade unions did some work in this respect: it was in particular the former Public Services, Transport and Traffic Union (ÖTV – succeed now by VER.DI – Unified Service Union) which was very active in this respect. In 1997 a study on behalf of the union found that the collective agreement for white collar workers in the public sector (Bundesangestellten-tarif – BAT) contains various job descriptions which obviously discriminate against certain jobs, often held by women. The trade union has set up an “upgrading commission” to elaborate concrete proposals for gender fair job evaluation, using other techniques than actually used. An actual study analyses very closely female and male dominated jobs in the public sector and develops a new classification/grading system (Krell et al 2001). The Government decided to negotiate the BAT on a gender

neutral level in the years to come – but this will be a complicated task as the negotiating involves all levels of the Federal system (federal, regional and local level) and this in a time of declining public finance.

Other sectoral trade unions, like the IG Metall, supported studies which analysed the collectively agreed job evaluation systems (see for example Tondorf 2002). The collective bargaining partners in the metal industry have negotiated since several years on a modernization of the job value system, including for example a joint agreement/assessment for white and blue collar workers. Within this context, IG Metall women's group demanded a reassessment of various job groups, including jobs dominated by female employees and the introduction of a gender neutral assessment system. Within the on going negotiations this demand is disappeared as the male partners in the bargaining group do not care about these aspects. It is complicated to include these questions in a bargaining process in which both partners are proud on their tradition of “family-wages”.

Germany's employer's associations are – in general – convinced that existing wage differentials between men and women are the result of different job biographies and once you “decompose” the gender wage gap by objective factors the gap will disappear and women will even earn more than men. One of these absurd calculations was published and showed that if women and men are not in different positions they would earn the same (Schäger 2001). Employers disagreed rather clearly with the findings of the report on “employment and income” and called the study a “non-serious, non-scientific, non-professional” approach to wage gaps.

The German wage grading system is not only discriminatory against certain jobs and sectors, but it is not transparent as there is no legal obligation for employers to publicise gender specific data on wages. It was planned to introduce such an obligation with the proposed law on equal opportunities which, however, did not come into force.

There are some collective agreements on firm level which demand special promotion for women, a family friendly organisation of work (and working time) and other equal

⁴ Explicit seniority rules but, as Kunze (2002b) could show, even employment breaks like national service do have a positive impact – returners from national service are treated much better than returners from parental leave

opportunities policy (in training, apprenticeships etc.) None of these agreements include explicitly “equal pay” or reassessment of job classification systems used etc. By promotion women to higher paid position they may have an indirect impact on the wage gap – although it is not obvious on a statistical level.

3.2 Other institutional changes

Two aspects of increasing the wage differentiation are worth while to mention here separately : the mechanisms to differentiate wages in the private sector and the ongoing structural changes in the public sector which may have contributed to the increasing wage gap in the public sector.

There are a variety of different mechanisms to lower wages in private firms:

- you may include new wage groups into existing collective agreements – as mentioned before – for newly recruited employees, or beginners, or young people etc.,
- you may include a clause for wage decreases justified by economic reasons (a lot of the collective agreements in East Germany allow wage decreases as result of firm specific agreements due to economic reasons)
- you may leave the employers association and negotiate new/lower wages with the relevant trade union (firm agreements)
- you may separate parts of your business in a newly founded firm and negotiate a new agreement or take an existing agreement which fits to your new firm (for example: SIEMENS has founded a whole variety of different firms which are not covered by the original agreement but do have new agreements with – in general – lower wages than in the original agreement)
- you may out-source part of your business and buy the services from an independent other provider – in this case the provider pays wages according to his collective agreement. These may include lower wages than your own agreement for the same jobs

I would say that employers use these different forms of labour costs decreasing in various forms and quite intensely – but I could not find any detailed analysis on the overall and gender-specific effects of this kind of policy.

Public sector restructuring in Germany takes the following forms:

- fully or partly privatisation of public enterprises like railways, postal services, telecommunication etc.: most of these privatisations included a guarantee of the status-quo wages (level, structure and career mechanisms) for the employees employed at the time of privatisation. Newly recruited employees are covered by new collective agreements – most of these agreements do have lower wages, different career paths etc.
- out-sourcing of different public services like cleaning, child-care (given to private enterprises or the churches etc.). in hospitals (cleaning, food preparation etc.). These out-sourcing results in buying the service from a private provider which is – as mentioned above – often not covered by collective agreements. Some local communities tried to avoid “sub-standard” wages by integrating “binding obligations” into the contracts between public demander and private supplier – some of the “Tariftreue” regulations had been brought to court and there is an ongoing quarrel whether they are in contrast to European free trade and service regulations.
- within the public sector there are small and very cautious reforms of the wage structure and the wage components, allowing the public employers to pay wages related to performance. But these reforms are very small steps, only in parts of the public sector (some local communities, universities), accompanied by a passive resistance of the employees (in the universities the resistance is such that no one is willing to implement the new regulations – and the Federal government is not responsible for the implementation – this is Länder competence)

The fact that women's wages in the West German public sector increased less rapid than men's (between 1977 and 1997) may be due to these developments – but it would need a deeper analysis of wages and employment structures to strengthen this argument.

The Governments announcement to reform the BAT includes a revision of job evaluation, career developments and performance related payments – it may improve the position of low paid women in the public sector.

Other institutional changes need to be mentioned: The Government introduced a series of changes in legal regulations for example on the right to part-time work, the right to take parental leave, it increased the pressure on local authorities to offer

more full-time day care, full-time schools etc. Some of these changes are too new to show effects on the labour market now, some of them may influence women's position quite positively – but all in all these activities are not aimed to decrease gender pay gaps at all. The issue of gender pay gap is not a big issue neither in trade unions, nor on the political agenda. If equal opportunities is an issue than mainly in the context of reconciliation of work and motherhood.

4. Policy review

We may conclude that neither on the side of the trade unions, nor the employers, nor the Government the gender pay gap has such a priority as it should have. There are only very little activities which directly affect the issue of gender pay gap on the legal and collectively agreed level. The development of wages is – on the contrary – discussed on the background of high unemployment, supporting the notion that unemployment could be solved by a higher degree of wage dispersion. If all the currently discussed proposals for an extension of the low wage sector in Germany would be taken into practice this may even widen the gender pay gap. For example: the new Government plans to extend marginal part-time jobs mainly in household related services, which are – mostly – women's jobs.

Another problem is, that neither trade unions nor employers do feel a necessity to combat pay discrimination against women. The future development of the issue of gender pay equity seems to depend quite heavily on the activities of the Government. An international conference in summer 2002 on “Pay Equity” made a first contribution, the announcement of the re-evaluation and re-bargaining of the BAT is another step. As public employer the Government can develop a good example in modernizing pay systems and developing non discriminatory job evaluation systems. The second important activity will be the evaluation of the voluntarily equal opportunity policy by private firms – the Government could force the private sector through legal obligations to implement equal pay arrangements. However, both the state as employer and private employers seem to be afraid, that more gender pay equality would raise labour costs – and this is in contrast to official policy to reduce labour costs.

EU policy in the Employment Strategy to forcing Germany to take action in the field of pay gaps is quite helpful because they create pressure both on the government and the social partners.

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