

The Impact of Class on Social Inequality. Winners and Losers of the Income Dynamics in Germany between 1998 and 2005

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Draft-Version

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Abstract

Based on the thesis of increasing overall inequality in German society, this paper discusses changes in the inequality of wages during the period of the social democratic-led government between 1998 and 2005. For the empirical analysis, data from the German Socio-Economic Panel (GSOEP) are used. The main goal of the analyses is to identify the differences in the growth of real wages of various social classes. Empirically, the results show that the inequality of real wages increased between 1998 and 2005. This increase is due to the negative growth of lower-level wages and a corresponding increase in median and higher-level wages. A more detailed look at the wage differences with respect to the individual social class position reveals that the differentiation between social classes has widened over the period in question, leaving the lower classes as losers of the recent wage dynamics in the German labour market. Besides increasing inter-class wage differentials, there was also a slight increase in the intra-class component, pointing to a growing differentiation within social classes.

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1. The Social Structures of Inequality

In sharp contrast to developments in the US, wage and income inequality in continental Europe, particularly in Germany, remained fairly stable throughout the 1970s and the 1980s . Many authors attributed these differences to the high degree of labour market regulation found in these European countries, which (inter alia) are believed to result in an inflexible wage structure (e.g. Katz/Autor 1999; Prasad 2004). However, since the end of the 1990s, the unequal distribution of resources has been increasing in Germany (e.g. Bergmann 2004; Gernandt/Pfeiffer 2006; Kohn 2006; Möller 2005; Schettkat 2006). This increase in social inequality is worthy of mention since it occurred under the government of the first social democratic-led administration in Germany since the early 1980s, which won the election in 1998 with an appeal for more social justice.

One can easily demonstrate the relevance of the phenomenon with a number of general parameters: between 1994 and 2006, real income of blue- and white-collar workers shrank by about 1 per cent (Schulten 2006). This development leaves Germany as the only nation among developed Western societies with a negative growth in real incomes.¹ Correspondingly, the wage quota (the share of wages and salaries in national income) reached the lowest level in 30 years (66 per cent, The Federal Statistical Office 2007). In contrast, incomes from rents, stocks, and assets have been increasing steadily. The major joint-stock companies distributed dividends of 30 billion euros to their shareholders in 2005, which is an increase of 40 per cent from the record year of 2004 (DSW 2006a). All in all, the

¹ Within the EU-15 and in the USA real wages increased by 7.5 and 20 per cent, respectively, in the same period (Schulten 2006).

disproportion between the income of the blue- and white-collar work force and individuals with corporate/capital income is greater than ever in Germany (Federal Statistical Office 2007). The result is a changing distribution of societal means in terms of a polarization between the top and the bottom levels of society.

Inequality of income can be studied from many angles, but in the literature three main research strands can be distinguished: a) studies of individual income and wages (e.g. DiPrete/McManus 1996; Gottschalk/Smeeding 1997); b) studies of household income (e.g. Frick/Grabka 2005; Schupp et al. 2003); c) studies on the aggregate level of the distribution of income between the blue- and white-collar work force and individuals with corporate/capital income, or on the differences in income inequality between various nations (e.g. Bergmann 2004; Gangl 2005). The focus of the present paper is the level of individual wages of blue- and white-collar workers. The discussion is therefore restricted to inequality that is generated in the labour market. Structures of inequality on the household level or on the aggregate level will not be considered.

Against the background of an overall increase in social inequality in Germany, the relevant issue is how different social groups are affected by growing inequality of labour market incomes. We believe that the concept of class is especially suitable for studying this question. It allows one accurately to determine who the winners and losers are of a changing distribution of societal means in the context of a growing polarization between the top and the bottom levels of society.

In order to explain increasing wage differences, it is theoretically quite plausible that a person's individual class position is a central factor. In the literature, two main explanations

for the relation between social class and growing inequality of wages can be found. There are a number of researchers who argue that technological changes in the economy and the corresponding growth in the demand for highly-qualified labour lead to an increase in inequality of wages and earnings. In this process, individuals in higher social classes (highly-qualified labour) can raise their wages, whereas individuals in lower social classes (lowly-qualified labour) have to accept a worsening of their income situation (e.g. Atkinson 2000; DiPrete et al. 2002; Esping-Andersen 1993; Goldthorpe 2002; Schettkat 2006). It can be assumed, in this context, that the expansion of low-wage jobs and part-time jobs (especially among women), which was triggered by the liberalization of the labour market in 2002, will add to the existing pressure on lower social classes.

Another argument can be found in Breen's work (1997). On the basis of efficiency theory, he argues that the growing transfer of risks from corporations to the work force is unequally distributed among classes. It is the lower classes which are predominantly affected by the transfer of uncertainties, which take the form of wage/income losses or higher unemployment risks. This process is leading to an increase in social inequality. Since certain labour market groups are less and less protected from market forces, Breen (1997) describes this development as "re-commodification". According to this view, the increase in wage inequality among classes is not seen as a result of a growing demand for highly-qualified labour, but rather as an outcome of a rising need on the part of firms to transfer risks to workers.

However, the processes just described may at least partly also lead to an increase in wage inequality within classes by favouring certain occupations over others (e.g. computer specialists vs. political scientists). Thus, we put forward the following two hypotheses, which will be tested empirically in subsequent sections.

H1: The wage differentials between higher and lower social classes increased between 1998 and 2005.

H2: The wage inequality within social classes increased between 1998 and 2005.

2. Data, Variables and Methods

2.1 Data

The analyses are based on data from the German Socio-Economic Panel (GSOEP), waves 1998-2005 (SOEP-Group 2001). First conducted in 1984, the GSOEP is an annual representative study of private households in Germany. In this paper, we use all existing GSOEP sub-samples (A-F), except for the sub-sample G (high income earners), which has no information concerning weighting.

The decision to utilize data from 1998 as a starting point is based on theoretical reasons (inauguration of the social democratic-led government, link to existing studies about the early and mid-1990s - as in Prasad 2004 or Steiner/Hölzle 2000 -, which showed a fairly stable wage structure during that time), as well as the fact that the supplement wave E was introduced in 1998, which increases the number of cases substantially.

2.2 Variables

In line with the theoretical part of the paper, class position is the central independent variable of the analysis. For the analyses in the present paper, the class-concept of Erikson and Goldthorpe (1992) has been used. Given the restriction applied to the data, seven classes can be distinguished: the higher and the lower service class, routine non-manual workers, routine service-sales workers, skilled manual workers, farm labourers, and semi/unskilled manual

workers. Individual control variables are: age, nationality, education (based on the CASMIN-classification), number of children in the household, family status, regional origin (East- or West-Germany), unemployment experience during the previous 12 months. Additionally, the model includes a number of labour market variables (contract form, working time, industry, firm size, firm tenure).

The dependent variable *log hourly wage* is arrived at by taking the log of the individual *monthly gross labour income* (in Euro) divided by the *real working time* (contract working time plus overtime).² In order to be able to compare different points of measurement, the yearly inflation rate has been used to create wages in constant prices of 1998.

2.3 Selection criteria

There are three restrictions we applied to the data. First, the results are based on information obtained from blue- and white-collar workers, who were not registered as being unemployed during the time of the interview(s). Second, in accordance with common practice in labour market research, we confined the sample to workers aged 16 to 65. Third, in order to minimize the impact of outliers we excluded observations of persons who reported (real) gross hourly wages of less than 2.50 euros. Fourth, persons in full-time education are not included; this excludes, above all, employment relationships of apprentices and students.

2.4. Methods

To investigate the impact of class on social inequality we specified a growth curve model, allowing random effects for both the intercept and the rate of growth. This model can be

² By the transformation $[\exp(\beta_x)-1]*100$ the coefficients of a regression model with a logged dependent variable can be interpreted as percentage change (Greene 2000).

written as follows:

$$y_{it} = (\gamma_{00} + \boldsymbol{\beta}'_{01} \mathbf{x}_{i_0}) + (\gamma_{10} + \boldsymbol{\beta}'_{11} \mathbf{x}_{i_0}) TIME_{it} + (\zeta_{0i} + \zeta_{1i} TIME_{it} + \varepsilon_{it}).$$

In this model, the independent variables enter the model as time constant, representing the state at the beginning of the observational period. Consequently, $\boldsymbol{\beta}_{01}$ represents the effects of the independent variables at the start of the observational period, whereas $\boldsymbol{\beta}_{11}$ represents the effects of the independent variables on the growth rate. The model specifies an error term that is composed of random effects (ζ_{0i} for the individual intercept and ζ_{1i} for the individual wage growth) and an idiosyncratic error (ε_{it}). Using this specification, these models allow one to estimate average wage growth for different labour market groups, taking into account the heterogeneity of individual wage growth profiles.

3. Empirical Results

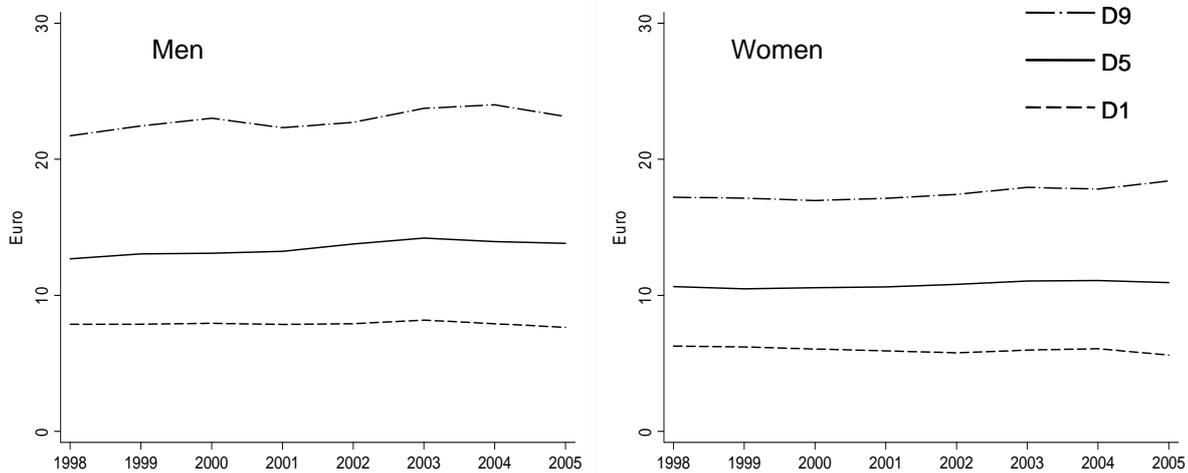
The changing distribution of wages and the corresponding changes in the structures of social inequality will be discussed for the period between 1998 und 2005 with descriptive data in the first part of section 3. Because of the fact that these aggregate data do not allow conclusions on the individual or social group level, the second part of the section will contain a more detailed analysis by means of a regression analysis. As is standard in labour market research, there are separate analyses for men and women.

3.1 Descriptive Analysis of Wage Inequality

The changing distribution of wages of blue- and white-collar workers in Germany between 1998 und 2005 can be shown with the income deciles in figure 1 [first (d1), fifth (d5), and

ninth (d9) decile]. The results clearly show differences in the wages of women and men as well as differences in regard to the alteration of those wages over time.

Fig. 1: Hourly Wage Distribution for Men and Women (1998-2005)



Source: GSOEP 1998-2005, our own calculation.

Three major aspects must be emphasized here:

1. Men earn much higher wages than women on all deciles, which is typical for a conservative welfare regime such as Germany (Esping-Andersen 1990, 1999).
2. Men in Germany have experienced an increase in higher and mid-level wages between 1998 and 2005, whereas lower-level wages have decreased over the same period. Real wages on the d9-level increased by six per cent from 21.70 € to 23.10 € per hour between 1998 and 2005, whereas mean real wages increased by eight per cent, from 12.70 € to 13.80 €. In the same period, wages on the first decile fell by four per cent, from 7.90 € to 7.60 €.
3. Wages have increased for higher-earning women by six per cent as well (d9: 17.20 € 1998, 18.40 € 2005), whereas mean real wages have stagnated. Wages in lower income sections decreased for women more than for men under the last social democratic-led government. The loss in real wages amounts to 11 per cent on the first decile (6.30 € 1998, 5.60 € 2005).

The discussed findings are useful for a general description of wage dynamics. However, from the findings in figure 1, it is not possible to specify the amount of inequality in the wages, which is typically defined in relative terms. This allows one to draw attention to the ratios between the discussed deciles, with which it is possible to analyze the change in wage inequality in the upper and lower parts of the income distribution (Table 1).³

Table 1: Decile-Ratios between 1998 and 2005

Year	Germany			Women		
	Men d9/d1	d9/d5	d5/d1	d9/d1	d9/d5	d5/d1
1998	2,51	1,67	1,51	2,66	1,62	1,64
1999	2,67	1,71	1,56	2,70	1,63	1,66
2000	2,65	1,69	1,57	2,73	1,60	1,70
2001	2,62	1,67	1,57	2,86	1,60	1,79
2002	2,72	1,66	1,64	2,97	1,61	1,85
2003	2,70	1,64	1,65	2,94	1,62	1,82
2004	2,83	1,68	1,69	2,83	1,61	1,75
2005	2,78	1,63	1,71	3,22	1,69	1,90

Source: GSOEP 1998-2005, our own calculation.

There are several important findings with respect to the various decile-ratios for wages of German women and men between 1998 and 2005:

1. The d9-level is 3 times higher than the d1-level in 2005. The changes in the d9/d1-ratio, which is a good measurement for the overall inequality of a given wage distribution, show a moderate increase in wage inequality within the observational window for men (an increase from 2.76 to 3.03). This increase is only due to a growing polarization in the lower parts of the wage distribution (d5/d1-ratio). The d9/d5-ratio remained almost unchanged between 1998 und 2005.

³ There are various forms of measurement used for describing the inequality of wages and income. In addition to the decile-ratios used here, Gini- and Theil-indices are quite popular. The latter have the disadvantage that they can only be used for a general characterization of inequality.

2. The inequality of wages among women is higher than among men: The d9-level shows wages 3.3 times higher than the d1-level in 2005.
3. Overall wage inequality increased for German women between 1998 and 2005. This increase is even greater than for men, which is contrary to the findings in the literature (Steiner/Hölzle 2000) on the changes in income inequality in the 1990s in Germany.
4. The increase in wage inequality (similar to the results found for men) is mostly due to a growing polarization in the lower parts of the wage distribution (d5/d1-ratio: 1.70 to 1.95).

Seen as a whole, the descriptive findings show an increase in wage inequality in Germany between 1998 and 2005 (Gernandt/Pfeiffer 2006; Kohn 2006). As theorized, the expansion of marginal jobs especially among women, the process of re-commodification (Breen 1997; EU-Commission 2006), i.e. the transfer of risks to individuals of lower social classes, as well as a growing demand for highly-qualified labour could help explain this development. The results indicate that this increase in inequality is due to two corresponding factors: there is a decline in wages in the lower parts of the wage distribution among women and men and, simultaneously, wages have been increasing in the upper parts of the wage distribution. Thus it is reasonable to expect individuals from higher social classes to be the winners in a changing distribution of wages. In order to attain a more in-depth analysis of these findings, in the next section results from multivariate models are presented.

3.2 Results of Growth Curve Models

In order to investigate the impact of class on wage inequality we calculated wage growth models allowing for both random intercepts and random growth rates (see 2.4. for further explanations). We divided the observational period into two sub-periods (1998-2001 and 2002-2005) in order to minimize problems stemming from attrition and to use the refreshment

sample F, which was first introduced in 2000. Focusing on the effects of class, table 2 shows the results for men and women.

Table 2: Growth Curve Models 1998 to 2005, between-class wage differentials

	Men		Women	
	1998-2001	2002-2005	1998-2001	2002-2005
<i>Reference:</i>				
<i>Semi/Unskilled Manual</i>				
Higher Service Class	0.308***	0.364***	0.335***	0.362***
Increase per year	0.0280***	0.0249***	0.0039	0.0108
Lower Service Class	0.198***	0.255***	0.236***	0.243***
Increase per year	0.0178**	0.0158***	-0.001	0.0061
Routine Non-Manual	0.211***	0.284***	0.272***	0.253***
Increase per year	0.0168	0.0208**	-0.0042	0.0064
Routine Service-Sales	0.0730**	0.0413*	0.0368	0.0535**
Increase per year	0.0195**	0.0179**	0.0147	0.0062
Skilled Manual	0.0698***	0.0631***	0.0250	-0.0072
Increase per year	0.0078	0.0017	0.0023	0.0092
Farm Labour	-0.0683	0.0696	-0.0428	0.0125
Increase per year	0.0270	-0.0041	0.0448	-0.0120
N	11297	14621	8320	12138

Source: GSOEP 1998-2005, our own calculation; coefficients from growth-curve-models; dependent variable: log hourly wages, various individual and labour market variables are controlled for; *p<0.05; **p<0.01; ***p<0.01.

Looking at the effects of class on wages at the beginning of the observational periods, it becomes apparent that class position is influencing employees' income opportunities. First, almost all occupational classes can achieve higher wages than the reference group of semi- and unskilled workers (e.g. DiPrete et al. 2002; Esping-Andersen 1993). Second, high wages are found particularly among the service classes and the routine non-manual occupations. For example, in 1998 men in the higher service class earned wages that were on average about 36 per cent higher than wages of semi- and unskilled workers. Third, these patterns are quite similar for men and women, with one exception: while male skilled workers achieve wages that are about seven per cent higher than wages of semi- and unskilled workers, female skilled workers do not earn more than their semi- and unskilled counterparts.

With respect to wage growth, the results show that, at least for men, wage differences between classes have increased over time. In table 2 this is indicated by the positive coefficients of the yearly wage growth. The findings suggest that wages of employees holding non-manual jobs grew more (about 2 percentage points) when compared to the wages of manual workers.⁴ Furthermore, within the group of non-manual workers, the members of the higher service class experienced the highest increase in wages. These results clearly indicate an increase in wage inequality between classes, mainly between the upper (non-manual) and the lower (manual) classes. Since this pattern strongly resembles the one found in the descriptive analysis, class can be inferred to be an important source of the increase in wage inequality. However, this result is only valid for men, since such a development cannot be found for women. Female wage inequality appears to have increased without an increase in the inequality between classes.

It is important to note that these results are valid “net of” relevant individual and labour market variables, which are controlled for in the models. Thus, the wage inequality between classes, and the increase in this inequality, cannot be attributed to such factors as education, age, industry, etc. To the extent that education is understood as a proxy for qualification, this suggests that, for men, the increase in wage inequality is partly driven by class effects that are not attributable to the underlying nexus of class and qualification.

In a second step, we examine the question of whether or not unobserved wage heterogeneity within classes has increased in recent years. In order to do so, we looked more closely at the

⁴ Correspondingly, the wage differentials between classes show an increase from the first to the second observational period. For example, the 36 per cent wage premium for members of the higher service class in 1999 increased to about 44 per cent in 2002.

composite error term of the growth curve model and its class-specific variation at the beginning of the two observational periods.⁵ Table 3 displays the findings.

Looking at Table 3, three points should be emphasized. First, the non-zero variations of the class-specific error terms reflect the inability of the model to fully fit the observed data: even after controlling for many relevant variables, there is still significant unexplained variation of wages at the beginning of the observational periods. This is true for all classes. Second, by and large, the results suggest a slight increase in the class-specific error variation between 1998 and 2002. Thus, factors not controlled for in the model seem to become more important for the explanation of individual wage differentials. As these factors are not observed, it remains unclear to what extent they represent other forms of social inequality (e.g. family background) or simply reflect individual differences in market behavior (e.g. productivity). Third, the pattern of increasing unobserved wage differences looks rather similar for all classes, the exception being the routine service sales class and the farm labourer, whose intra-class wage variation actually decreased.

Table 3: Growth Curve Models 1998 to 2005, intra-class wage differentials

	Men		Women	
	1998	2002	1998	2002
	$\sigma_{(\zeta_{0i}+\varepsilon_{i0})}$	$\sigma_{(\zeta_{0i}+\varepsilon_{i0})}$	$\sigma_{(\zeta_{0i}+\varepsilon_{i0})}$	$\sigma_{(\zeta_{0i}+\varepsilon_{i0})}$
Higher Service Class	0.31	0.32	0.32	0.33
Lower Service Class	0.32	0.34	0.33	0.33
Routine Non-Manual	0.27	0.32	0.28	0.30
Routine Service-Sales	0.34	0.30	0.35	0.35
Skilled Manual	0.25	0.28	0.34	0.35
Semi/Unskilled Manual	0.29	0.30	0.31	0.35
Farm Labour	0.28	0.25	0.34	0.29

Source: GSOEP 1998-2005, class-specific standard deviations of the composite error (random intercept plus idiosyncratic error) at begin of each observational period, growth-curve-models, various individual and labour market variables are controlled for.

⁵ Since TIME=0 at the beginning of the time period, the composite error reduces to $\sigma_{(\zeta_{0i}+\varepsilon_{i0})}$.

4. Conclusion

For quite a long time, the German wage structure was believed to be highly stable, especially when compared to the changes that took place in other countries like the US or the UK. As this paper shows – matching the findings of other studies – the inequality of German wage distribution has been growing since the end of the 1990s.

Based on GSOEP data, the goal of this contribution was to discuss to what extent this process is socially structured, a question that has not been widely discussed in the literature so far. In this paper, our aim was to fill this gap by focusing on wages and the wage growth of different classes in the labour market over a period of eight years. Theoretically, one could expect that those groups with a strong labour market position were able to improve their income chances between 1998 and 2005. At the same time, groups within the work force with a weak market position might have to accept a worsening of their income situation.

Empirically, the results showed that the inequality of real wages increased between 1998 and 2005. This increase is due to a negative growth in lower-level wages and a corresponding increase in median and higher-level wages. A more detailed look at the wage differences with respect to individual social class position reveals that male employees in higher occupational positions (service class I and service class II), who received substantially higher wages than individuals in middle and lower class positions, at least at the beginning of the observational window, were able to expand their wage advantage further between 1998 and 2005. In contrast, people in lower social classes clearly belong to the losers of the wage dynamics in Germany during that time. However, this conclusion is only valid for men. For women, between-class differentials remained fairly stable between 1998 and 2005. With respect to unexplained intra-class variation, the results showed a slight increase for almost all classes. This seems to suggest that unobserved factors become more important in the wage-setting

process. Further research should try to investigate in more depth the nature of this unobserved heterogeneity.

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