

# **Unpaid Overtime in Germany: Differences between East and West**

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## **Abstract**

Although the standard work week is longer in East than in West Germany, there is a higher incidence and average amount of unpaid overtime worked in the new states. We try to explain the striking differences in unpaid overtime by analyzing the labor supply side. We focus on the investment character of overtime and examine whether workers use unpaid extra hours to signal higher productivity so as to reduce the risk of losing their job. Using panel data from the GSOEP we find partial evidence for our unemployment-overtime hypothesis.

Key words: unpaid overtime, labor supply, signaling, unemployment, panel data

JEL classification: J22, D80, C23

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## **1. Introduction**

Unpaid overtime refers to the time actually worked in excess of the contractual hours which is neither paid nor compensated with time-off. Although the standard work week in East Germany is by about two hours longer than in the West, there is a higher incidence of unpaid overtime in the new states, and the average amount of unpaid overtime exceeds the one in the old states. Still, employees in the West would like to reduce their time at work to a lower level than their East German colleagues. This raises the question as to what causes the different allocation of time and the desired allocation of time between the two parts of Germany. Do West Germans simply have a higher preference for leisure or are there other underlying reasons for this phenomenon? The objective of our study is to explain the striking differences in unpaid overtime supply between East and West Germany. Taking the demand for overtime work as given, we focus on one of the possible explanations why individuals might want to work more than their contractual hours and even offer them to the company for free: they might regard overtime work as an investment and therefore voluntarily increase their labor supply to get a pay off in the future. Therefore, the question is whether unpaid overtime can be interpreted as a means of a worker to signal that he is productive in order to get some future benefit. The possible future benefits from working a greater amount of unpaid overtime hours are not only larger or more rapid salary increases and a higher probability of promotion, but also a lower probability of lay-off. In this study we investigate whether workers use unpaid extra hours to signal higher productivity so as to reduce the risk of losing their job.

Among the sparse literature on unpaid overtime work, there is almost none focusing on the investment character of extra hours. One of the recent studies on unpaid overtime is by Bell and Hart (1998) who investigate economic reasons for employees undertaking unpaid overtime and find that adjusting wages for unpaid hours leads to a decrease in returns to education, experience and tenure in Great Britain. In a continuative study Bell, Hart, Hübler,

and Schwerdt (2000) show that in Germany less overtime and far less unpaid overtime is worked than in the UK and that the wage gap between the two countries is widened, when effective hourly wage rates (in consideration of unpaid overtime) are compared. Bauer and Zimmermann (1999) investigate the determinants of working overtime and overtime compensation in Germany and conclude that reducing overtime has no positive employment effect since mainly the highly skilled work overtime, which is in most cases either unpaid or compensated with leisure. Hübler (2002) analyzes the relationship between computer use at work and unpaid overtime and finds that managers who use a computer work more unpaid extra hours than others in Germany. This leads him to the conclusion that there are no effective computer wage differentials.

A first evidence on the investment character of working hours in general is given by Bell and Freeman (2001). They compare actual working hours in the US and in Germany, and investigate the relationship between wage inequality and labor supply as well as the effect of actual working hours on future wages and promotion. They conclude that the greater hours worked by Americans can be explained in terms of forward-looking labor supply responses to differences in earnings inequality between the two countries. Booth, Francesconi, and Frank (2002) also find empirical evidence for the forward looking labor supply model. They show that the amount of overtime correlates with subsequent promotions in a significantly positive way. Supportive evidence for the investment character of unpaid extra hours is given by Pannenberg (2002) who investigates long-term effects of unpaid overtime work in West Germany. He finds that there are substantial long-term labor earnings effects associated with cumulative average unpaid overtime, which is evidence for the importance of investing in current working hours beyond the standard work week to enhance real earnings prospects. He shows that workers with at least some incidence of unpaid overtime experience the highest wage growth.

In this paper we test the forward looking labor supply model by investigating the relationship between unpaid overtime and the risk of unemployment, which we proxy with regional unemployment rates. Using longitudinal micro data from the German Socio Economic Panel Study (GSOEP) for the years 1991 to 2000 we investigate whether higher unemployment rates and, therefore, lower job security drives workers to supply more unpaid extra hours. Therefore, we suggest the unemployment-overtime-hypothesis to explain the fact that East Germans work more unpaid overtime than their West German colleagues because unemployment rates are much higher in East Germany. Our results point to a significant effect of the level of unemployment on the supply of unpaid overtime for men, while the effect in the estimations for women is not significant. It seems that the higher supply of unpaid extra hours in East Germany can be at least partially explained by the unemployment-overtime hypothesis.

## **2. Data**

The data used in this study were made available by the German Socio-Economic Panel Study (GSOEP) at the German Institute for Economic Research (DIW) in Berlin. The GSOEP is a representative longitudinal micro-database that provides a wide range of socio-economic information on private households in Germany. The yearly data were first collected from about 12,200 randomly selected adult respondents (in 6,000 families) in the former West Germany in 1984. After German reunification in 1990, the GSOEP was extended by about 4,500 persons (in 2,200 families) from the former East Germany. In the most recent wave, for 2000, about 13,000 respondents were participating in the panel study. The GSOEP data is available as a public-use file containing 95% of the GSOEP sample, with some variables

omitted for reasons of data protection (see Wagner et al., 1993, or for more detailed information, Haisken-DeNew and Frick, 2000).

We use GSOEP data from 1991 to 2000 for male and female East and West German full-time employees aged between 20 and 65, excluding foreigners, civil servants, self-employed persons, and workers employed in the agricultural sector. Respondents with missing information on wages or working hours are dropped. We only use waves from 1991 on, since there was no information on East German workers before that year. Our unbalanced panel includes only those respondents who participate in at least two waves of the survey in order to be able to control for individual unobserved heterogeneity. In total, the sub-sample consists of 26,700 respondents, with 17,000 being male and 9,600 female.

The GSOEP provides detailed information on whether overtime is worked, on the amount of overtime hours per month and on overtime compensation.<sup>1</sup> We take overtime hours per week and combine it with the information on overtime compensation in order to obtain the amount of unpaid overtime hours per week which is the dependent variable in our study. As independent variable we use regional unemployment rates provided by the Federal Statistical Office in Germany which are available on the state level and used to proxy a worker's risk of losing his job.<sup>2</sup> Furthermore, we include unemployment rates by employment office district ("Arbeitsamtbezirke") that we assign to the households according to their zip codes, which are available since 1993.<sup>3</sup>

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<sup>1</sup> The original questions in the GSOEP read as follows: "Do you work overtime?" [Yes/No/Not applicable because I am self-employed]; "If you work overtime, is the work paid, compensated with time-off, or not compensated at all?" [Compensated with time-off/Partly paid, partly compensated with time-off/Paid/Not compensated at all]; "How was your situation with regards to overtime last month? Did you work overtime? If yes, how many hours?" [Yes, \_\_\_\_ hours/No].

<sup>2</sup> For the regional unemployment rates, see table A3 in the appendix.

<sup>3</sup> Due to the sensitivity of the data analysis at the zip code level, all concerning analyses have been conducted at the German Institute for Economic Research (DIW), Berlin, under special data protection requirements.

Furthermore, we add not only monthly net earnings to the covariates but also extra payments, such as Christmas bonus, holiday pay, income from profit sharing, and other bonuses. Extra payments have become increasingly important in recent years: Pierce (1999) finds that excluding extra payments from earnings tends to understate wage differentials. Since monthly labor income overstates the remuneration of workers whose weekly hours of work exceed 40, it would be appropriate to use the effective hourly wage rate by dividing net earnings by actual working hours. However, hourly wages might understate the earnings of managers and other workers who work long hours. Furthermore, using a wage measure which includes actual working hours would cause an endogeneity problem, since actual weekly hours is the sum of the contractual work week plus overtime. Therefore, this study uses the wage rate obtained by dividing net earnings by contractual hours plus paid overtime hours in order to prevent differences in paid working hours from distorting the estimates. To take into account the distortion of labor supply caused by fiscal policy, we include a proxy for each individual's tax rate<sup>4</sup>. We use the ratio of the tax burden, which is the difference between gross and net earnings, to the gross labor income. In addition, the GSOEP provides information on the working time a person would choose if he could freely decide which we include as further control variable.<sup>5</sup> We also include information on the employment status of a person's partner as well as on dependent children living in the household. Further independent variables are the length of affiliation of a worker with his company, the information on whether a worker changed his job recently and whether he holds a temporary or a permanent job. All regressions include control variables such as education, experience, age, marital status, as well as firm size, occupation, industry, and year dummies (see Table A1 in the appendix). All

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<sup>4</sup> Here, tax does not only refer to direct taxes to the government, but also to social security payments.

<sup>5</sup> The original question in the GSOEP is the following: "If you could choose the extent of your hours at work, taking into account that your earnings would change corresponding to the time, how many hours would you work?".

regressions are run separately for men and women as well as for East and West German workers.<sup>6</sup>

### **3. Actual Hours, Overtime Work, and Desired Working Time**

As the following graph and tables show, there are remarkable differences between East and West Germany with regards to actual hours, paid and unpaid extra hours as well as to the preferences in working time. The contractual weekly working hours for the workers in our sample was about 38,7 hours in 1991 in West Germany, and it decreased only slightly during the 90ies to 38,4 hours in 2000. In the same period the standard work week in the East was reduced from 40,6 hours to 40 hours which lead to a slight narrowing of the gap between contractual working hours. However, as Graph 1 shows, not only contractual hours differ between East and West Germany, but also the amount of overtime work. As can be seen, the amount of weekly average overtime hours per worker in our sample is around 5 hours in the period from 1991 to 2000. However, despite their longer weekly contractual hours, there is a slightly higher number of overtime hours worked by East German workers in almost every year. Both differences in standard hours and the amount of overtime work lead to a substantial gap in average actual hours worked. Average actual working time per week in East Germany exceeds the average time worked by West German employees by more than 2 hours a week. The graph shows that this gap is as wide as a three hours difference in the years 1995 and 1996.

[Graph 1 about here]

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<sup>6</sup> The sub samples of men and women, and of East and West German workers might also be analyzed in one single regression. However, since the Chow test for structural change (Greene, 2000) revealed that the regression coefficients are significantly different in the above mentioned subsets of the data, analyses are conducted by running separate regressions.

In Table 1 the percentage of employees working unpaid overtime is shown. Despite the longer standard work week the percentage of unpaid overtime workers is higher in East Germany in almost all the years. This is true for the incidence of unpaid overtime with the base of all employees (unconditional) as well as for the unpaid overtime incidence based on overtime workers only (conditional). The most striking differences occur between East and West German women: the percentage of East German women working unpaid extra hours exceeds not only the one of their West German female colleagues, but also the one of East and West German males. In order to compare unpaid overtime with compensated overtime incidence over time, the development of the compensation of overtime work is given in table A2 in the appendix.

[Table 1 about here]

Table 2 reveals that there is not only a higher incidence of unpaid overtime but also a slightly higher average amount of unpaid overtime work in most of the observed years in East Germany. Taken the average over the observed year, East German overtime workers worked 1.35 hours unpaid overtime hours, while their West German colleagues worked 1.25. Averaged on all employees (unconditional) East Germans worked 0.73 hours per week for free over the observed period, which is about 0.02 hours longer than the West Germans of this sample. These differences seem to be small, but again, one has to be aware of the fact that without those extra hours the standard work week is already about two hours longer in the Eastern part of Germany.

[Table 2 about here]

It is important to have a closer look at the subgroups of workers, since it has already been shown by other studies that unpaid overtime is particularly worked by white collar workers (Bauer und Zimmermann, 1999). This is clearly because blue collar workers are more strongly affected by binding wages and working hours that result from collective bargaining. The percentage of white and blue collar workers supplying unpaid overtime as well as the amount of unpaid overtime hours are shown in Table 3. In both East and West Germany the incidence of unpaid overtime is far higher for white collar workers than for blue collar workers. As percentage of the total number of employees, about 20 percent of the white collar workers in the West work extra hours for free, while this incidence is up to 25 percent in the East.

[Table 3 about here]

In both parts of Germany a much lower percentage is working unpaid hours among blue collar workers. However, while this percentage is around 2 percent in the West, it is about two percent higher in the East. With regard to the amount of unpaid overtime, both blue and white collar workers from East Germany work more overtime hours on average over the observed years than their West German counterparts.

When it comes to preferences in working hours, it shows that both East and West Germans would like to reduce their weekly working time with the earnings being reduced correspondingly. This is shown by the hours surplus in Table 4, which is positive for all workers in each year. German employees would like to work on average almost 2 hours per week more than their West German colleagues. Therefore, the conclusion that we draw from the descriptive statistics is that although employees in West Germany have a shorter standard

work week, less actual working hours and less overtime, they want to decrease their weekly working hours to a lower level than East German employees.

[Table 4 about here]

#### **4. Theoretical Considerations and Econometric Analysis (to be refined)**

The empirical evidence from the descriptive statistics above raises the question as to what causes the different allocation of unpaid overtime time and the desired allocation of unpaid overtime time. The striking differences in unpaid overtime work might be explained by differences in working time preferences but the reason might be more subtle, for instance when we ask whether this overtime work is unpaid today but might lead to a benefit in the future. Therefore, we investigate the investment character of unpaid overtime work and suggest a forward looking labor supply model (Bell and Freeman, 2001). Workers might regard unpaid overtime work as an investment and therefore voluntarily increase their labor supply for free in order to get a pay off in the future. The possible future benefits from working a greater amount of unpaid overtime hours are not only larger or more rapid salary increases (Pannenberg, 2002) and a higher probability of promotion (Booth, Francesconi, and Frank (2002), but also a lower probability of lay-off.

Therefore, our explanation is analogue to that of the signaling theory by Spence (1973) which was originally applied to the problem of asymmetric information in the job recruiting process. Since the employer has no information on the job performance of an applicant prior to the hiring, he relies on signals (e.g. education) to proxy the applicant's productivity. Even after the hiring process the firm has no full information on the productivity of a worker, if there are positive monitoring costs. This information asymmetry leads to the phenomenon that

decisions on promotions or on pay rises within firms are taken on the basis of characteristics, e.g. unpaid overtime, which are easier to observe than productivity. Workers know about this decision-taking process and might use unpaid extra hours to signal higher productivity. By working longer hours and providing them even for free they decrease the probability of being laid off in recessions, when the least productive workers have to leave the firm.<sup>7</sup> An equivalent reasoning is found in rat-race models (Landers, Rebitzer, and Taylor, 1996), where unequal outcome in success versus failure provokes a positive relationship between future pay off and current effort.

Our hypothesis is that the risk of losing the job acts as one of the driving forces of higher labor supply in form of more unpaid overtime hours worked. Therefore, we proxy job insecurity by regional unemployment rates and investigate their effect on the supply of unpaid overtime work. Given the much higher unemployment rates in the Eastern part of Germany (see table A3), this hypothesis would help to explain the discrepancy in unpaid overtime between the East and the West. Since a relatively large proportion of workers report zero overtime hours, the values of our dependent variable are censored, and least squares would be inappropriate. Therefore, we estimate the effect of the job losing risk on the supply of unpaid overtime by using a Tobit model (Greene 2000), where independent variables are expected to influence both the probability of limit responses and the size of non-limit responses. The structure of our Tobit model is:

$$ov_{it}^* = \alpha_i + \beta' x_{it} + \gamma' u_{regt} + \varepsilon_{it}, \quad (1)$$

where  $ov_{it}^*$  is the latent number of weekly unpaid overtime hours worked by the individual  $i$  at time  $t$ ,  $x_{it}$  is a vector of individual and employer characteristics, and  $u_{regt}$  the regional

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<sup>7</sup> One might argue that the firm's decision to dismiss the least productive worker is restricted by the German protection against dismissal which regulates by law that an employer has to choose the dismissal under social criteria. However, out of workers with similar social characteristics, the firm will try to keep the more productive ones.

unemployment rate at that time.  $\alpha_i$  is the individual specific effect,  $\beta$  and  $\gamma$  are parameters to be estimated, and  $\varepsilon_{it}$  denotes the error term which is distributed with mean 0 and variance  $\sigma_\varepsilon^2$ .

As  $ov_{it}^*$  is a latent variable, it is not observable. What one observes is

$$ov_{it} = \begin{cases} ov_{it}^* & \text{if } ov_{it}^* > 0 \\ 0 & \text{otherwise} \end{cases} \quad (2)$$

By using the panel structure of the data one can control for unobserved individual heterogeneity that might bias results from cross-sectional analyses. Here, the model will be estimated with two different specifications. The first is a pooled Tobit model which takes the individual specific effect  $\alpha_i$  to be identical for all persons, therefore being a constant term. Second, a random effects Tobit model will be used. Here,  $\alpha_i$  differs across individuals but is constant over time. It hence accounts for intrinsic differences in tastes to unpaid overtime work and in other unobserved explanatory variables. The individual specific effect  $\alpha_i$  is assumed to be randomly distributed across individuals and not to be correlated with the set of explanatory variables.

In the first version of the model, state unemployment rates are included, whereas in the second version, we use unemployment rates by employment office district (“Arbeitsamtbezirke”), which are much more precise than the ones on the basis of the states. Due to the limited mobility of workers they are better suited to represent their perceived unemployment situation. Therefore, district unemployment rates are more appropriate to proxy an individual’s risk of dismissal, and enable a more accurate analysis. However, since the information on zip codes, which we use to assign the district unemployment rates to the households, are only available since 1993, we have to exclude the first two years.

For both versions of the model the unemployment-overtime-hypothesis predicts a positive relationship between the unemployment rate and the amount of unpaid overtime hours. If the

hypothesis is true, there should be also more unpaid overtime in large firms, where monitoring costs are higher, and the employer is less likely to know the true value of a worker. Additional support for the signaling hypothesis would be a positive effect on unpaid overtime arising from temporary employment and recent job change, whereas a negative effect would be expected from increasing tenure, working in the public sector and having a partner who is full-time employed. Being married and having dependent children has ex ante no unambiguous effect on unpaid overtime work: On the one hand, workers with spouse and children might be expected to spend as much time as possible with their families and to refuse unpaid overtime work. On the other hand, the responsibility to gain the family's livelihood might lead them to increase their unpaid hours supply in order to reduce the risk of unemployment, which would be evidence for the signaling theory.

**(to be refined)**

## **5. Results (to be refined)**

The following tables show pooled and random effects Tobit estimates with the coefficients and marginal effects of the regional unemployment rate and control variables on unpaid overtime. The marginal effects are evaluated at the mean of the independent variables. When unpaid overtime hours are regressed on the regional unemployment rate and other exogenous variables, the control variables have the expected signs. The coefficients on the firm size variables are mostly highly significant and negative: Compared with the reference group (firms with more than 2000 employees) all other firm sizes are associated with a lower probability and amount of unpaid overtime work. Furthermore, there is a positive relationship between holding a temporary job and the probability and amount of unpaid overtime in the pooled Tobit estimations for West German males, but job change is not significant at all. As expected the Tobit estimations for East and West German men reveal a negative impact from

tenure on unpaid extra hours, which is significant for East and West German men, but not for women. However, a statistically highly significant negative effect arises from working in the public sector on unpaid overtime for both East and West German men and women: In all pooled and random effects Tobit estimations, being employed in the public sector decreases the probability of working unpaid extra hours by at least 2.4%, and even by almost 10% in the estimations for East white collar workers. Having a full-time employed partner has a negative significant effect on the supply of unpaid overtime for East German men, but is otherwise statistically insignificant, and even positive for women. Being married has a significantly positive impact on unpaid overtime work for East German males and a significantly negative impact for West German females in the pooled Tobit estimations. In the random effects model, being married is associated with a lower amount of unpaid overtime work for both male and female workers in the West sample, which does not support our hypothesis. The coefficient on having dependent children is mostly positive but insignificant. However, the positive effect of having children on the supply of unpaid extra hours is highly statistically significant in the estimations for West German men, which might be evidence for the unemployment-overtime-hypothesis. Furthermore, the effects of the net wage, education, and desired working hours on unpaid overtime are positive and mostly highly significant in all the estimations.

[Table 5 about here]

Table 5 and table 6 show pooled Tobit estimations of the amount of unpaid overtime hours with the state unemployment rate and control variables. As can be seen in table 5, the unemployment coefficient is positive for male workers and for East German female workers. However, it is highly statistically significant at the 1% level only in the estimations for West German males. Table 6 shows statistically significant estimates not only for West German,

but also for East German male white collar workers. An increase in the state unemployment rate by 1% point is associated with an increase in the probability to work unpaid hours by 1.5%. For East German white collar females, the unemployment coefficient is again positive, and negative for West German females, with both being insignificant.

[Table 6 about here]

Now we turn to the estimates with the unemployment rate at the district level, which is expected to be more appropriate to proxy a worker's perceived risk of dismissal, and therefore to reveal a more realistic view of the relationship between unemployment and unpaid overtime labor supply. The estimates with the district unemployment rate are shown in table 7 for East and West German, male and female workers, and additionally for white collar employees. The district unemployment coefficient is positive in all estimations except of the one for West German white collar females. When comparing the estimates to these with the state unemployment rate, the coefficients on the district unemployment rate are slightly higher and have increased significance. In the estimations for West German males, the unemployment rate is highly statistically significant at the 1% level, and significant at the 5% level for female workers and male white collar workers in East Germany. The highest marginal effects are found in the estimation for East German white collar males: An increase in the district unemployed rate by 1% point is associated with an increase in unpaid hours by 1.2%.

[Table 7 about here]

Second, a random effects Tobit model is estimated to capture unobserved individual characteristics, as for example intrinsic differences in tastes to unpaid overtime work or to

labor supply in general. Results are shown in table (8), which presents estimates with the state unemployment rate as well as with the district unemployment rate. When controlling for unobserved heterogeneity of the workers, the relationship between the state unemployment rate and working unpaid overtime is still positive for all groups, but for West German women. The state unemployment coefficient is highly statistically significant at the 1% level for West German men, but insignificant for all others. Similar results are found for West German men in the estimates with the district unemployment rate. However, using the more precise information on unemployment also reveals significant coefficients for East German males. In contrast to the male workers, female workers do not seem to adjust their unpaid overtime supply to the unemployment situation. All unemployment coefficients are positive, but not significant in the estimations for women. As a result, the pooled and the random effects Tobit model reveal only partial support for the unemployment-overtime-hypothesis. While it seems to be true for men that a higher risk of job loss leads workers to increase unpaid extra hours, the hypothesis does not seem to hold for female workers.

[Table 8 about here]

**(to be refined)**

## **6. Conclusion (to be continued)**

The objective of our study is to analyze the discrepancy in unpaid overtime work between East and West Germany. Taking the demand side as given, we focus on the investment character of unpaid overtime which might lead to the voluntary supply of unpaid extra hours by workers. The future pay off this study concentrates on is the reduction in the risk of losing the job, which is proxied by regional unemployment rates. Using data from the GSOEP for the years 1991 to 2001 we estimate a pooled Tobit and a random effects Tobit model. We find

empirical evidence for a positive relationship between the unemployment rate and the supply of unpaid overtime hours for male workers, but no statistically significant effect in the estimations for women. The results reveal that only for male workers unpaid overtime might be interpreted as a means to signal productivity in order to keep their job. We conclude that the fact that East Germans work more unpaid hours than their West German colleagues seems to be only partially driven by the much higher unemployment rates in the new states. For women the unemployment-overtime hypothesis does not seem to be true.

A number of extensions to the model are necessary to check the robustness of the empirical results and to reveal some more evidence on the functioning of unpaid overtime hours as a signal within firms. First, a worker's risk of unemployment can be approximated by his expectation of losing his job, a variable which is provided by the GSOEP for some years only. Therefore, evidence on the effect of the subjective risk of dismissal on the supply of unpaid overtime work can be found. As a next step, it should be investigated whether unpaid overtime work serves as a signal for both sides of the labor market. After having some evidence on the use of unpaid extra hours as signal by employees it will be interesting to investigate whether unpaid overtime is in fact used by firms to take decisions on dismissals. This requires an analysis of the effect of unpaid overtime on the probability of job loss.

## Appendix

**Table A1: Description and Descriptive Statistics of Variables Used in the Regression Model**

Variable	Description	Mean (SD)	
		West	East
	Dependent variable		
Unpaidovh	Unpaid overtime hours per week	0.64 (2.42)	0.76 (2.74)
	Socio-demographic variables		
Age	Age in years	38.55 (10.73)	39.87 (9.95)
Married	Marital status: 1 = married couple, else = 0	0.60	0.73
Full-time	Partner is full-time employed: 1=yes, else=0	0.30	0.54
Partner			
Child	Dependent children (up to 16 years old): 1= yes, no=0	0.34	0.48
	Wage, Education and work experience		
LnWage	Log hourly compensation rate (net earnings)	2.88 (0.38)	2.44 (0.37)
Taxrate	Approximated tax rate	0.35 (0.08)	0.31 (0.08)
Edu	Length of education in years	11.78 (2.32)	12.49 (2.25)
Tenure	Work experience at the same employer in years (seniority)	10.59 (9.58)	2.18 (7.02)
Expfull	Previous work experience as full-time employee in years	16.20 (10.98)	17.97 (10.14)
Exppart	Previous work experience as part-time employee in years	0.71 (2.35)	0.80 (2.63)
	Job characteristics		
Public	Work in the public sector: 1=yes, else=0	0.21	0.33
Change	Change of job: 1=yes, else=0	0.12	0.18
Tempjob	Temporary job	0.03	0.06
Desired	Desired working hours	36.79 (7.77)	32.66 (15.59)

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Job0	No training necessary for the job: 1=yes, else=0;		
	Reference category	0.02	0.03
Job1	Briefing or courses necessary for the job: 1=yes, else=0	0.25	0.22
Job2	Vocational training necessary for the job: 1=yes, else=0	0.60	0.56
Job3	College/University necessary for the job: 1=yes, else=0	0.12	0.11
Occ0	Occupation: 1=Manufacturing, else=0; Reference category	0.38	0.41
Occ1	Occupation: 1=Science, else=0	0.20	0.19
Occ2	Occupation: 1=Management, else=0	0.04	0.04
Occ3	Occupation: 1=Office/Administration, else=0	0.25	0.22
Occ4	Occupation: 1=Commerce, else=0	0.07	0.07
Occ5	Occupation: 1=Services, else=0	0.05	0.07
Bluecol	Blue collar worker=1, else=0	0.38	0.46
Bluecol0	Blue collar worker: 1=unskilled, else=0; Reference category	0.02	0.02
Bluecol1	Blue collar worker: 1=skilled, else=0	0.11	0.09
Bluecol2	Blue collar worker: 1=semiskilled, else=0	0.20	0.30
Bluecol3	Blue collar worker: 1=foreman, else=0	0.04	0.04
Bluecol4	Blue collar worker: 1=master, else=0	0.01	0.02
Whiteco0	White collar worker: 1=foreman, else=0; Reference category	0.02	0.01
Whiteco1	White collar worker: 1=without vocational training, else=0	0.03	0.03
Whiteco2	White collar worker: 1=with vocational training, else=0	0.06	0.08
Whiteco3	White collar worker: 1=qualified occupation, else=0	0.31	0.25
Whiteco4	White collar worker: 1=highly qualified occupation, else=0	0.18	0.15
Whiteco5	White collar worker: 1=executive function, else=0	0.02	0.01
	Industry (Reference category: all other branches)		
Branch1	Branch: 1=Energy/Water, else=0	0.02	0.03
Branch2	Branch: 1=Chemicals, else=0	0.05	0.03
Branch3	Branch: 1=Plastics, else=0	0.01	0.00
Branch4	Branch: 1=Stone, else=0	0.01	0.01

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Branch5	Branch: 1=Metal, else=0	0.08	0.05
Branch6	Branch: 1=Wood, else=0	0.03	0.02
Branch7	Branch: 1=Textiles, else=0	0.02	0.01
Branch8	Branch: 1=Food, else=0	0.02	0.02
Branch9	Branch: 1=Construction, else=0	0.08	0.14
Branch10	Branch: 1=Wholesale/Retail, else=0	0.11	0.09
Branch11	Branch: 1=Transport, else=0	0.04	0.08
Branch12	Branch: 1=Banking/Insurance, else=0	0.06	0.03
Branch13	Branch: 1=Other services, else=0	0.15	0.20
Branch14	Branch: 1=Non-Profit, else=0	0.02	0.02
	Firm size		
Size1	Firm size < 5 employees	0.04	0.07
Size2	Firm size > 5 and <20 employees	0.13	0.18
Size3	Firm size > 20 and < 200 employees	0.27	0.35
Size4	Firm size > 200 and < 2000 employees	0.27	0.24
Size0	Firm size > 2000 employees; Reference category	0.28	0.17
U_State	Regional unemployment rate at the state level	9.01 (2.51)	16.36 (2.88)
U_District	Regional unemployment rate at the district level	9.51 (2.80)	17.24 (2.79)

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*Source:* GSOEP, 1991–2000 (own calculations)

Sample: German male and female full-time employees, age 20-65, civil servants and self-employed persons excluded

**Table A2: Shares of Overtime Compensation (in %)**

Year	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
West Germany										
unpaid	17.7	15.9	20.9	22.8	21.2	22.0	22.1	22.6	19.7	17.7
paid	16.0	19.0	19.5	20.8	21.4	20.0	15.7	15.4	11.6	13.6
leisure	37.3	33.7	28.6	24.5	25.2	22.1	39.2	39.7	42.9	47.8
partly paid/ leisure	29.1	31.5	30.6	31.9	32.1	35.8	23.0	22.2	25.7	20.8
East Germany										
unpaid	23.0	21.2	18.9	21.6	23.5	21.8	22.4	19.1	20.1	17.7
Paid	15.1	17.7	19.3	20.3	20.6	20.7	16.8	13.1	13.0	15.0
leisure	27.1	31.6	27.9	26.6	26.5	25.4	38.5	39.3	43.5	41.0
partly paid/ leisure	34.7	29.1	33.8	31.1	29.4	32.0	21.9	25.4	23.4	26.1

*Source:* GSOEP, 1991-2000 (own calculations)

Sample: German male and female full-time employees working overtime, age 20-65, civil servants and self-employed persons excluded

**Table A3: Unemployment Rates in East and West Germany**

State	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Baden-Württemberg	3.7 (1.0)	4.4 (0.8)	6.3 (0.9)	7.5 (0.9)	7.4 (0.9)	8.0 (1.1)	8.7 (1.1)	8.0 (1.4)	7.3 (1.1)	6.0 (1.1)
Bayern	4.4 (1.3)	4.9 (1.3)	6.4 (1.0)	7.1 (0.9)	7.0 (0.9)	7.9 (1.2)	8.7 (1.3)	8.1 (1.4)	7.4 (1.4)	6.3 (1.4)
Berlin-West	9.4 (-)	11.1 (-)	12.3 (-)	13.3 (-)	14.3 (-)	15.7 (-)	17.3 (-)	17.9 (-)	17.7 (-)	17.6 (-)
Bremen	10.7 (0.8)	10.7 (0.8)	12.4 (1.34)	13.7 (1.6)	14.0 (1.6)	15.6 (1.5)	16.8 (1.4)	16.6 (1.4)	15.8 (1.0)	14.2 (1.0)
Hamburg	8.7 (-)	7.9 (-)	8.6 (-)	9.8 (-)	10.7 (-)	11.7 (-)	13.0 (-)	12.7 (-)	11.7 (-)	10.0 (-)
Hessen	5.1 (1.4)	5.5 (1.4)	7.0 (1.5)	8.2 (1.4)	8.4 (1.3)	9.3 (1.5)	10.4 (1.7)	10.0 (1.7)	9.4 (1.7)	8.1 (1.7)
Niedersachsen	8.1 (1.5)	8.1 (1.4)	9.7 (2.0)	10.7 (2.2)	10.9 (2.3)	12.1 (2.5)	12.9 (2.4)	12.3 (2.0)	11.5 (2.1)	10.3 (1.7)
Nordrhein-Westfalen	7.9 (2.0)	8.0 (1.9)	9.6 (2.0)	10.7 (2.3)	10.6 (2.4)	11.4 (2.3)	12.2 (2.4)	11.7 (2.5)	11.2 (2.5)	10.1 (2.4)
Rheinland- Pfalz/Saarland	7.0 (1.5)	7.3 (1.7)	9.3 (1.7)	10.2 (2.5)	10.1 (2.4)	10.9 (2.3)	12.0 (2.1)	11.2 (1.9)	10.5 (1.8)	9.5 (1.8)
Schleswig-Holstein	7.3 (1.3)	7.2 (1.3)	8.3 (1.5)	9.0 (1.6)	9.1 (1.5)	10.0 (1.5)	11.2 (1.3)	11.2 (1.4)	10.6 (1.6)	9.5 (1.5)
West Germany	7.2 (2.2)	7.5 (2.1)	9.0 (2.2)	10.0 (2.5)	10.3 (2.2)	11.3 (1.9)	11.8 (1.9)	12.0 (2.2)	11.3 (2.2)	10.2 (2.5)
Brandenburg	10.3 (1.6)	14.8 (1.9)	15.3 (2.4)	15.3 (2.2)	14.2 (2.1)	16.2 (2.6)	18.9 (3.2)	18.8 (2.8)	18.7 (2.5)	18.4 (2.4)
Mecklenburg- Vorpommern	12.5 (0.5)	16.8 (0.6)	17.5 (2.4)	17.0 (2.2)	16.1 (1.9)	18.0 (1.9)	20.3 (2.1)	20.5 (1.6)	19.4 (1.9)	19.0 (2.2)
Sachsen	9.1	13.6	14.9	15.7	14.4	15.9	18.4	18.8	18.6	18.5

	(1.0)	(3.0)	(2.4)	(2.2)	(2.1)	(1.8)	(1.8)	(1.8)	(1.5)	(1.7)
Sachsen-Anhalt	10.3	15.3	17.2	17.6	16.5	18.8	21.7	21.7	21.7	21.4
	(1.5)	(1.5)	(2.1)	(2.2)	(2.0)	(1.6)	(1.4)	(1.7)	(1.5)	(1.5)
Thüringen	10.2	15.4	16.3	16.5	15.0	16.7	19.1	18.3	16.5	16.5
	(1.2)	(1.7)	(2.6)	(1.8)	(1.5)	(1.6)	(1.8)	(2.2)	(1.5)	(1.7)
Berlin-Ost	12.2	14.3	13.7	13.0	12.4	14.4	17.3	17.9	17.7	17.6
	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
East Germany	10.8	15.0	15.8	15.8	14.8	16.7	19.7	19.3	18.7	18.6
	(1.6)	(2.4)	(2.5)	(2.1)	(2.1)	(2.2)	(1.8)	(2.0)	(3.0)	(2.1)

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*Source:* Federal Statistical Office Germany, own calculations.

Note: Standard deviations, which arise from differing unemployment rates by employment office district (“Arbeitsamtbezirke”) within the states, are given in parentheses.

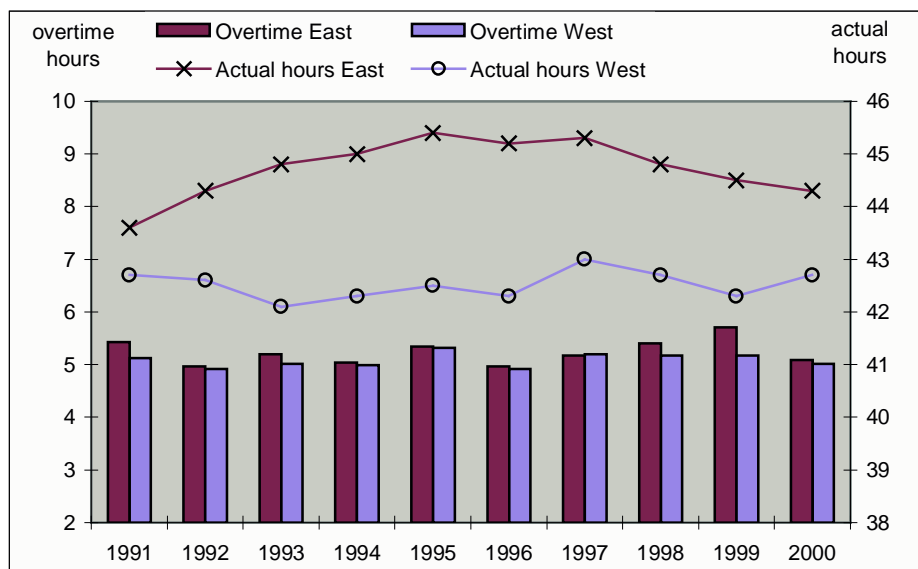
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## Tables and Graphs

Graph 1: Actual weekly working hours and overtime hours per week (average per worker)



Source: GSOEP, 1991-2000 (own calculations)

Sample: German male and female full-time employees, age 20-65, civil servants and self-employed persons excluded

Table 1: Incidence of Unpaid Overtime (Unconditional and Conditional on Overtime Work)

Year	West Germany				East Germany			
	Employees working overtime			All employees	Employees working overtime			All employees
	Total	Men	Women	(unconditional)	Total	Men	Women	(unconditional)
1991	21,0	20,4	23,0	11,7	27,4	25,3	31,7	12,3
1992	18,8	18,5	19,5	10,8	23,5	20,4	31,6	12,8
1993	22,3	23,5	18,3	12,5	19,8	19,9	19,4	13,3
1994	24,5	24,8	23,2	13,5	21,7	19,3	27,4	14,5
1995	24,0	24,6	22,4	13,1	23,2	20,2	32,5	15,2

1996	23,1	21,7	27,1	14,5	24,2	17,8	37,8	15,1
1997	24,8	24,5	25,6	14,8	25,3	24,4	27,5	15,4
1998	24,0	24,5	22,5	14,3	23,6	19,6	32,6	12,6
1999	21,6	22,3	19,7	13,1	23,8	19,9	33,2	13,9
2000	20,3	21,0	18,5	12,1	19,3	15,5	26,7	12,0
Ø	22,4	22,6	22,0	13,0	23,2	20,2	30,0	13,7

*Source:* GSOEP, 1991-2000 (own calculations)

Sample: German male and female full-time employees, age 20-65, civil servants and self-employed persons excluded

Table 2: Amount of unpaid overtime per worker (average hours per week)

Year	unconditional		conditional on overtime work	
	West	East	West	East
1991	0,55	0,66	1,00	1,61
1992	0,48	0,62	0,87	1,27
1993	0,62	0,59	1,25	1,13
1994	0,74	0,78	1,41	1,37
1995	0,71	0,83	1,29	1,43
1996	0,76	0,76	1,35	1,33
1997	0,84	0,89	1,38	1,53
1998	0,95	0,69	1,60	1,21
1999	0,68	0,84	1,16	1,45
2000	0,76	0,67	1,22	1,13
Ø	0,71	0,73	1,25	1,35

*Source:* GSOEP, 1991-2000 (own calculations)

Sample: German male and female full-time employees, age 20-65, civil servants and self-employed persons excluded

Table 3: Unpaid overtime incidence (in percent) and amount of unpaid overtime hours (average weekly hours)

Year	White collar worker			Blue collar worker		
	Conditional on overtime work		Unconditional	Conditional on overtime work		Unconditional
	Incidence	Weekly hours	Incidence	Incidence	Weekly hours	Incidence
West Germany						
1991	26,4	1,50	19,4	0,8	0,03	0,6
1992	22,6	1,24	17,3	2,2	0,12	1,1
1993	28,1	1,69	19,4	3,6	0,19	2,0
1994	30,1	1,86	20,0	3,6	0,23	2,2
1995	28,5	1,75	19,3	2,8	0,16	1,7
1996	29,6	1,83	21,3	1,9	0,09	1,8
1997	29,9	1,85	22,2	1,0	0,12	0,9
1998	29,7	2,12	20,5	2,5	0,15	1,5
1999	25,7	1,50	18,2	3,6	0,26	2,9
2000	23,0	1,61	17,2	3,3	0,19	1,9
Ø	27,4	1,69	19,5	2,5	0,15	1,6
East Germany						
1991	34,5	2,36	21,4	3,0	0,30	1,2
1992	32,5	0,20	21,4	5,0	0,19	3,5
1993	29,3	1,83	22,1	4,5	0,15	3,4
1994	33,2	2,11	23,1	5,6	0,36	4,4
1995	36,0	0,23	25,3	4,2	0,17	3,0
1996	35,8	2,24	24,9	5,1	0,23	4,6
1997	34,2	2,38	24,8	4,4	0,25	2,9
1998	26,9	1,73	19,7	7,9	0,48	4,5
1999	29,9	2,20	22,5	6,0	0,36	3,9
2000	29,5	1,98	19,3	4,1	0,16	3,8
Ø	32,2	1,73	22,5	5,0	0,26	3,5

Source: GSOEP, 1991-2000 (own calculations)

Sample: German male and female full-time employees, age 20-65, civil servants and self-employed persons excluded

Table 4: Actual and Desired Working Hours (hours per week)

Year	West Germany			East Germany		
	Actual hours	Desired hours	Hours surplus	Actual hours	Desired hours	Hours surplus
1991	42,7	37,6	5,1	43,6	39,4	4,2
1992	42,6	37,4	5,2	44,3	38,5	5,8
1993	42,1	37,3	4,8	44,8	38,7	6,1
1994	42,3	37,7	4,6	45,0	39,0	6,0
1995	42,5	36,5	6,0	45,4	37,9	7,5
1996	42,3	-	-	45,2	-	-
1997	43,0	37,8	5,2	45,3	39,3	6,0
1998	42,7	36,6	6,1	44,8	37,7	7,1
1999	42,3	37,5	4,8	44,5	38,5	6,0
2000	42,7	37,4	5,3	44,3	38,3	6,0

Source: GSOEP, 1991-2000 (own calculations)

Sample: German male and female full-time employees, age 20-65, civil servants and self-employed persons excluded

Note: The information on desired working hours is not available for the year 1996. The hours surplus is calculated as actual work hours per week minus desired work hours per week.

Table 5: Pooled Tobit Model: Unpaid Overtime Incidence and Hours with unemployment at the state level

	East sample				West sample			
	Tobit	Marginal effects			Tobit	Marginal effects		
	Coefficient	E(Ov)	E(Ov   Ov>0)	Pr (Ov>0)	Coefficient	E(Ov)	E(Ov   Ov>0)	Pr (Ov>0)
<b>Men</b>								
U_State	0.1057 (0.1990)	0.0051	0.0145	0.0010	0.2745** (0.0876)	0.0116	0.0363	0.0026
Age	0.0481 (0.0853)	0.0023	0.0066	0.0005	0.0476 (0.0636)	0.0020	0.0063	0.0005
Married	1.5778* (0.8153)	0.0709	0.2118	0.0147	-0.6801 (0.5361)	-0.0296	-0.0906	-0.0066
Full-time	-1.6507** (0.5341)	-0.0791	-0.2253	-0.0162	-0.7266 (0.4760)	-0.0294	-0.0950	-0.0066
Partner								
Child	0.4493 (0.6403)	0.0218	0.0615	0.0045	0.4074 (0.4872)	0.0174	0.0540	0.0039
LnWage	4.2405** (0.9576)	0.2057	0.5809	0.0421	5.7311** (0.7268)	0.2429	0.7582	0.0545
Edu	0.4030** (0.1426)	0.0196	0.0552	0.0040	0.3644** (0.1080)	0.0154	0.0482	0.0035
Tenure	-0.5745** (0.1549)	-0.0279	-0.0787	-0.0057	-0.2551** (0.0644)	-0.0108	-0.0337	-0.0024
Public	-2.7214** (0.7281)	-0.1144	-0.3587	-0.0240	-3.3342** (0.5973)	-0.1115	-0.4148	-0.0260
Change	-0.1973 (0.6732)	-0.0095	-0.0269	-0.0019	1.0649 (0.6031)	0.0496	0.1443	0.0109
Tempjob	-1.8037 (1.1727)	-0.0744	-0.2368	-0.0157	2.3988* (1.0451)	0.1314	0.3390	0.0279
Desired	0.1426** (0.0328)	0.0069	0.0195	0.0014	0.1313** (0.0237)	0.0056	0.0174	0.0012

Bluecol	-8.0754**	-0.5394	-1.1934	-0.1005	-5.9604*	-0.2619	-0.7887	-0.0574
	(3.0471)				(2.9405)			
Size1	-0.9498	-0.0434	-0.1281	-0.0090	-0.5217	-0.0212	-0.0683	-0.0048
	(1.1026)				(1.1241)			
Size2	-3.1562**	-0.1433	-0.4240	-0.0296	-2.3674*	-0.0896	-0.3039	-0.0205
	(1.0693)				(1.0802)			
Size3	-4.7320**	-0.1791	-0.6053	-0.0381	-2.1944*	-0.0835	-0.2822	-0.0191
	(1.1812)				(1.1052)			
Size4	-6.0807**	-0.2025	-0.7512	-0.0438	-3.9718**	-0.1448	-0.5039	-0.0331
	(1.2720)				(1.1215)			
Sigma	10.1488	-	-	-	9.5049	-	-	-
	(0.3054)				(0.2278)			
Chi2		1,595.52				2,544.00		
Pseudo-R <sup>2</sup>		0.1791				0.1773		
Observations		6,137				10,865		

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Women

U_State	0.2452	0.0153	0.0360	0.0035	-0.1628	-0.0071	-0.0217	-0.0018
	(0.1849)				(0.1092)			
Age	0.1455*	0.0091	0.0213	0.0021	-0.0834	-0.0036	-0.0111	-0.0009
	(0.0768)				(0.0648)			
Married	0.0558	0.0035	0.0082	0.0008	-1.7532**	-0.0741	-0.2315	-0.0190
	(0.7035)				(0.6047)			
Full-time	0.4770	0.0293	0.0696	0.0066	0.4117	0.0179	0.0548	0.0046
Partner	(0.6029)				(0.5528)			
Child	-0.2631	-0.0164	-0.0386	-0.0037	0.4935	0.0224	0.0664	0.0057
	(0.5902)				(0.7541)			
LnWage	0.6093	0.0380	0.0894	0.0086	7.5757**	0.3284	1.0079	0.0841
	(0.9609)				(1.0938)			
Edu	0.6809**	0.0425	0.0999	0.0096	0.3964**	0.0172	0.0527	0.0044
	(0.1391)				(0.1391)			

Tenure	-0.2666 (0.1539)	-0.0166	-0.0391	-0.0038	-0.0353 (0.1019)	-0.0015	-0.0047	-0.0004
Public	-4.8665** (0.6450)	-0.3103	-0.7138	-0.0689	-2.8125** (0.6702)	-0.1077	-0.3617	-0.0281
Change	0.6719 (0.6853)	0.0441	0.1000	0.0099	1.1103 (0.7190)	0.0535	0.1517	0.0134
Tempjob	0.4780 (1.0169)	0.0313	0.0710	0.0070	-0.5654 (1.2789)	-0.0229	-0.0740	-0.0059
Desired	0.0708* (0.0316)	0.0044	0.0104	0.0010	0.1360** (0.0344)	0.0059	0.0181	0.0015
Bluecol	1.7956 (3.6465)	0.1272	0.2729	0.0279	-4.9547 (4.0357)	-0.1482	-0.5967	-0.0400
Size1	-0.4065 (0.9315)	-0.0246	-0.0591	-0.0056	-2.8442** (0.9366)	-0.0962	-0.3549	-0.0257
Size2	-1.8411* (0.9266)	-0.1070	-0.2645	-0.0245	-5.6758** (0.9657)	-0.1923	-0.7022	-0.0506
Size3	-4.0237** (1.0193)	-0.2084	-0.5582	-0.0486	-6.6595** (1.0186)	-0.2219	-0.8170	-0.0582
Size4	-3.4005** (1.0910)	-0.1685	-0.4669	-0.0397	-7.0906** (1.0994)	-0.2125	-0.8460	-0.0566
Sigma	8.7075 (0.3257)	-	-	-	8.2838 (0.3348)	-	-	-
Chi2		688.84				626.29		
Pseudo-R <sup>2</sup>		0.1187				0.1205		
Observations		4,596				5,033		

*Source:* GSOEP, 1991-2000 (own calculations)

Sample: German full-time employees, age 20-65, civil servants and self-employed persons excluded

Note: The regression model is full-specified, independent variables include additional individual and job characteristics as well as year dummies.

\* significant at the 5% level. \*\* significant at the 1% level

Table 6: Pooled Tobit Model: White collar workers with unemployment at the state level

	East sample				West sample			
	Tobit	Marginal effects			Tobit	Marginal effects		
	Coefficient	E(Ov)	E(Ov   Ov>0)	Pr (Ov>0)	Coefficient	E(Ov)	E(Ov   Ov>0)	Pr (Ov>0)
<b>Men</b>								
U_State	0.4423* (0.2236)	0.1135	0.1082	0.0151	0.1927* (0.0910)	0.0297	0.0379	0.0050
Age	0.0454 (0.0897)	0.0117	0.0111	0.0016	0.0454 (0.0658)	0.0070	0.0089	0.0012
Married	1.6202 (0.9308)	0.3919	0.3855	0.0537	-0.6592 (0.5651)	-0.1038	-0.1309	-0.0173
Full-time	-0.8353 (0.5883)	-0.2145	-0.2044	-0.0286	-0.6710 (0.4945)	-0.1000	-0.1305	-0.0170
Partner								
Child	0.1191 (0.7169)	0.0306	0.0292	0.0041	0.2062 (0.5117)	0.0319	0.0406	0.0054
LnWage	4.8775** (1.0413)	1.2522	1.1936	0.1670	7.0494** (0.7562)	1.0864	1.3880	0.1828
Edu	0.4579** (0.1420)	0.1176	0.1121	0.0157	0.2907** (0.1085)	0.0448	0.0572	0.0075
Tenure	-0.4004* (0.1710)	-0.1028	-0.0980	-0.0137	-0.2356** (0.0670)	-0.0363	-0.0464	-0.0061
Public	-2.9651** (0.7488)	-0.7234	-0.7082	-0.0984	-2.9110** (0.5945)	-0.3920	-0.5447	-0.0686
Change	-0.0260 (0.7491)	-0.0067	-0.0064	-0.0009	0.9227 (0.6318)	0.1511	0.1860	0.0249
Tempjob	-0.7115 (1.2147)	-0.1752	-0.1707	-0.0238	2.9502** (1.0947)	0.5725	0.6365	0.0882

Desired	0.1558** (0.0363)	0.0400	0.0381	0.0053	0.1378** (0.0252)	0.0212	0.0271	0.0036
Size1	0.7091 (1.4219)	0.1884	0.1764	0.0247	1.3939 (1.3383)	0.2365	0.2848	0.0384
Size2	-1.5878 (1.3613)	-0.3955	-0.3830	-0.0534	-0.6805 (1.2846)	-0.1021	-0.1326	-0.0173
Size3	-2.9404* (1.4559)	-0.6825	-0.6863	-0.0950	-0.3680 (1.3016)	-0.0560	-0.0721	-0.0095
Size4	-4.2279** (1.5095)	-0.9346	-0.9650	-0.1323	-2.1688 (1.3133)	-0.3160	-0.4179	-0.0540
Sigma	9.4117 (0.2974)	-	-	-	9.1562 (0.2241)	-	-	-

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Chi2		536.11				1,279.96		
Pseudo-R <sup>2</sup>		0.0830				0.1061		
Observations		2,142				5,619		

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Women

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U_State	0.2594 (0.1966)	0.0205	0.0408	0.0044	-0.1971 (0.1095)	-0.0135	-0.0297	-0.0032
Age	0.2217** (0.0828)	0.0175	0.0348	0.0038	-0.0803 (0.0658)	-0.0055	-0.0121	-0.0013
Married	0.3222 (0.7513)	0.0251	0.0504	0.0054	-1.9940** (0.6089)	-0.1322	-0.2972	-0.0316
Full-time	0.0926 (0.6406)	0.0073	0.0145	0.0016	0.5755 (0.5541)	0.0397	0.0868	0.0094
Partner								
Child	0.2978 (0.6324)	0.0235	0.0468	0.0051	0.0881 (0.7798)	0.0061	0.0133	0.0014
LnWage	0.4740 (1.0060)	0.0374	0.0745	0.0081	8.2415** (1.1130)	0.5651	1.2418	0.1344
Edu	0.6687** (0.1426)	0.0528	0.1050	0.0114	0.4063** (0.1374)	0.0279	0.0612	0.0066

Tenure	-0.2730 (0.1619)	-0.0216	-0.0429	-0.0046	-0.0408 (0.1019)	-0.0028	-0.0061	-0.0007
Public	-5.2822** (0.6734)	-0.4536	-0.8462	-0.0943	-2.5012** (0.6638)	-0.1575	-0.3671	-0.0380
Change	0.0944 (0.7369)	0.0075	0.0149	0.0016	0.9833 (0.7195)	0.0734	0.1519	0.0171
Tempjob	1.1130 (1.0898)	0.0977	0.1806	0.0205	-0.2991 (1.2668)	-0.0199	-0.0447	-0.0048
Desired	0.0803* (0.0350)	0.0063	0.0126	0.0014	0.1341** (0.0345)	0.0092	0.0202	0.0022
Size1	-0.4644 (1.0101)	-0.0354	-0.0722	-0.0077	-2.6483** (0.9435)	-0.1463	-0.3748	-0.0363
Size2	-1.4603 (1.0015)	-0.1085	-0.2252	-0.0237	-5.5577** (0.9723)	-0.2952	-0.7721	-0.0728
Size3	-3.7410** (1.0889)	-0.2510	-0.5582	-0.0557	-6.4846** (1.0217)	-0.3435	-0.8971	-0.0843
Size4	-3.0459** (1.1567)	-0.1991	-0.4516	-0.0446	-7.1291** (1.1076)	-0.3516	-0.9645	-0.0871
Sigma	8.6559 (0.3339)	-	-	-	8.1012 (0.3306)	-	-	-

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Chi2	604.37	515.99
Pseudo-R <sup>2</sup>	0.1146	0.1047
Observations	3,698	4,172

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*Source:* GSOEP, 1991-2000 (own calculations)

Sample: German full-time white collar employees, age 20-65, civil servants and self-employed persons excluded

Note: The regression model is full-specified, independent variables include additional individual and job characteristics as well as year dummies.

\* significant at the 5% level. \*\* significant at the 1% level

Table 7: Pooled Tobit Model: Unpaid Overtime Incidence and Hours with unemployment at the district level

	East sample				West sample			
	Pooled Tobit		Marginal effects		Pooled Tobit		Marginal effects	
	Coefficient	E(Ov)	E(Ov   Ov>0)	Pr (Ov>0)	Coefficient	E(Ov)	E(Ov   Ov>0)	Pr (Ov>0)
<b>Men</b>								
U_District	0.1536	0.0084	0.0217	0.0017	0.2801**	0.0129	0.0379	0.0028
	(0.1243)				(0.0758)			
<b>Women</b>								
U_District	0.3216*	0.0196	0.0468	0.0044	0.0299	0.0013	0.0040	0.0003
	(0.1266)				(0.0948)			
<b>White collar men</b>								
U_District	0.3349*	0.0915	0.0845	0.0120	0.2246**	0.0349	0.0444	0.0058
	(0.1404)				(0.0794)			
<b>White collar women</b>								
U_District	0.3404*	0.0254	0.0526	0.0045	-0.0032	-0.0022	-0.0048	-0.0005
	(0.1375)				(0.0945)			

Source: GSOEP, 1991-2000 (own calculations)

Sample: German full-time employees, age 20-65, civil servants and self-employed persons excluded

Note: The regression model is full-specified, independent variables include additional individual and job characteristics as well as year dummies.

\* significant at the 5% level. \*\* significant at the 1% level

Table 8: Random Effects Tobit Model: Tobit Coefficients with regional unemployment

	East sample				West sample			
	All		White collar		All		White collar	
	Men	Women	Men	Women	Men	Women	Men	Women
<b>State Level</b>								
U_State	0.0356	0.0240	0.0803	0.0242	0.1004**	-0.0013	0.1290**	-0.0076
	(0.0325)	(0.0286)	(0.0818)	(0.0343)	(0.0204)	(0.0171)	(0.0332)	(0.0196)
Age	0.0027	-0.0039	-0.0097	0.0013	0.0239	-0.0034	0.0331	-0.0043
	(0.0193)	(0.0165)	(0.0457)	(0.0190)	(0.0132)	(0.0083)	(0.0253)	(0.0105)
Married	0.1009	0.1073	0.1259	0.1932	-0.2332**	-0.1158	-0.4262**	-0.1584*
	(0.1361)	(0.1091)	(0.3699)	(0.1361)	(0.0810)	(0.0719)	(0.1463)	(0.0840)
Full-time	-0.1411	-0.0031	-0.2438	-0.0639	-0.1051	0.0292	-0.0523	0.0422
	(0.0822)	(0.0834)	(0.2093)	(0.1026)	(0.0670)	(0.0643)	(0.1212)	(0.0744)
Child	0.0282	-0.0197	0.1079	-0.0352	0.1472*	-0.0013	0.2982*	-0.0009
	(0.1017)	(0.0890)	(0.2659)	(0.1073)	(0.0714)	(0.0867)	(0.1298)	(0.1055)
LnWage	0.5758**	0.6765**	1.4934**	0.7825**	1.0411**	0.6869**	1.8059**	0.9839**
	(0.1541)	(0.1527)	(0.3995)	(0.1870)	(0.1181)	(0.1319)	(0.2100)	(0.1609)
Edu	0.1128**	0.0845**	0.1538*	0.0800*	0.0867**	0.0511*	0.0602	0.0413
	(0.0363)	(0.0283)	(0.0671)	(0.0325)	(0.0252)	(0.0218)	(0.0389)	(0.0246)
Tenure	-0.0403*	-0.0376	-0.0647	-0.0477*	-0.0308**	-0.0076	-0.0467**	-0.0106
	(0.0200)	(0.0200)	(0.0550)	(0.0245)	(0.0101)	(0.0123)	(0.0181)	(0.0145)
Public	-0.3519**	-0.3790**	-0.5245*	-0.4191**	-0.2575**	-0.1607*	-0.2561	-0.1468
	(0.1209)	(0.0972)	(0.2717)	(0.1177)	(0.0970)	(0.0803)	(0.1535)	(0.0910)
Change	-0.0606	0.1202	-0.0433	0.0935	0.0294	0.1348	0.0665	0.1487
	(0.0857)	(0.0847)	(0.2226)	(0.1022)	(0.0720)	(0.0718)	(0.1291)	(0.0831)
Tempjob	-0.1191	-0.0425	-0.0861	-0.0869	0.1412	0.0423	0.4600	0.1658
	(0.1524)	(0.1389)	(0.3754)	(0.1725)	(0.1348)	(0.1223)	(0.2558)	(0.1489)
Desired	0.0106**	0.0051	0.0288**	0.0079	0.0134**	0.0112**	0.0231**	0.0131**
	(0.0040)	(0.0038)	(0.0109)	(0.0048)	(0.0028)	(0.0031)	(0.0056)	(0.0037)
Bluecol	-0.1941	-0.0874	-	-	-0.4094	0.3097	-	-

	(0.3771)	(0.4000)	-	-	(0.2546)	(0.4006)	-	-
Size1	-0.1616	-0.0937	-0.4209	-0.0756	0.0589	-0.1643	0.2649	-0.1601
	(0.1674)	(0.1528)	(0.5001)	(0.1859)	(0.1485)	(0.1375)	(0.3058)	(0.1560)
Size2	-0.4009*	-0.2002	-0.9079	-0.1332	0.0093	-0.4166**	0.0887	-0.4777**
	(0.1683)	(0.1534)	(0.4939)	(0.1873)	(0.1508)	(0.1386)	(0.3052)	(0.1578)
Size3	-0.5712**	-0.3299*	-1.2593*	-0.3017	0.0549	-0.4345**	0.1900	-0.4917**
	(0.1832)	(0.1620)	(0.5211)	(0.1965)	(0.1571)	(0.1422)	(0.3120)	(0.1621)
Size4	-0.6207**	-0.2271	-1.1662*	-0.1878	-0.2063	-0.4032**	-0.2473	-0.4642**
	(0.1979)	(0.1714)	(0.5362)	(0.2064)	(0.1606)	(0.1484)	(0.3149)	(0.1684)
Sigma	2.1477	1.7253	3.2655	1.8575	1.8256	1.3721	2.3761	1.4574
	(0.0216)	(0.0204)	(0.0571)	(0.0246)	(0.0139)	(0.0153)	(0.0256)	(0.0179)
Chi2	790.49	362.10	226.57	261.49	1,155.64	332.03	506.29	307.60
Observations	6,137	4,596	2,142	3,698	10,865	5,033	5,619	4,172

### District Level

U_District	0.0461*	0.0091	0.1410*	0.0093	0.0565**	0.0136	0.0851**	0.0128
	(0.0232)	(0.0206)	(0.0579)	(0.0251)	(0.0167)	(0.0148)	(0.0269)	(0.0164)
Age	-0.0031	-0.0027	-0.0087	0.0037	0.0203	-0.0019	0.0224	-0.0034
	(0.0243)	(0.0186)	(0.0570)	(0.0225)	(0.0159)	(0.0094)	(0.0267)	(0.0119)
Married	0.0334	0.1262	0.0212	0.1865	-0.3025**	-0.0975	-0.4798**	-0.1686
	(0.1518)	(0.1274)	(0.4148)	(0.1570)	(0.0950)	(0.0844)	(0.1683)	(0.0963)
Full-time	-0.0550	0.0373	-0.0922	-0.0061	-0.0952	-0.0139	-0.0866	0.0215
	(0.0959)	(0.0997)	(0.2473)	(0.1223)	(0.0782)	(0.0753)	(0.1385)	(0.0857)
Child	0.0789	-0.1057	0.0952	-0.1031	0.1792*	-0.0735	0.3302*	-0.1031
	(0.1173)	(0.1037)	(0.3078)	(0.1254)	(0.0846)	(0.1004)	(0.1519)	(0.1191)
LnWage	0.5433**	0.7080**	1.3816**	0.8728**	0.9488**	0.9019**	1.6984**	1.3316**
	(0.1907)	(0.1868)	(0.4774)	(0.2277)	(0.1394)	(0.1575)	(0.2417)	(0.1888)
Edu	0.0888*	0.0508	0.1513*	0.0577	0.0922**	0.0552*	0.0839*	0.0435
	(0.0413)	(0.0324)	(0.0776)	(0.0372)	(0.0298)	(0.0249)	(0.0422)	(0.0282)
Tenure	-0.0302	-0.0266	-0.0420	-0.0327	-0.0385**	-0.0074	-0.0697**	-0.0100

	(0.0212)	(0.0213)	(0.0574)	(0.0261)	(0.0117)	(0.0142)	(0.0210)	(0.0165)
Public	-0.5228**	-0.4800**	-0.8021*	-0.5268**	-0.3070**	-0.1644	-0.3057	-0.1610
	(0.1424)	(0.1158)	(0.3151)	(0.1401)	(0.1146)	(0.0912)	(0.1791)	(0.1021)
Change	-0.0103	0.0298	-0.0901	-0.0055	0.0060	0.2094*	0.0163	0.2584**
	(0.1050)	(0.1111)	(0.2697)	(0.1357)	(0.0870)	(0.0887)	(0.1552)	(0.1006)
Tempjob	-0.2575	0.0324	-0.2630	-0.0756	0.1668	-0.0645	0.4657	0.0450
	(0.1815)	(0.1728)	(0.4426)	(0.2218)	(0.1501)	(0.1382)	(0.2834)	(0.1665)
Desired	0.0073	0.0072	0.0237*	0.0106*	0.0141**	0.0150**	0.0255**	0.0176**
	(0.0043)	(0.0042)	(0.0118)	(0.0053)	(0.0032)	(0.0035)	(0.0062)	(0.0042)
Bluecol	-0.4145	0.4630	-	-	-0.2991	0.2673	-	-
	(0.4402)	(0.4832)	-	-	(0.3004)	(0.4472)	-	-
Size1	-0.0714	-0.0845	-0.0943	-0.0843	-0.0670	-0.1746	0.0390	-0.1441
	(0.1873)	(0.1771)	(0.5532)	(0.2175)	(0.1728)	(0.1638)	(0.3598)	(0.1822)
Size2	-0.2921	-0.1513	-0.6368	-0.1482	-0.0396	-0.5074**	-0.0099	-0.5682**
	(0.1913)	(0.1808)	(0.5645)	(0.2231)	(0.1756)	(0.1643)	(0.3655)	(0.1837)
Size3	-0.4963*	-0.2284	-0.9353	-0.2160	-0.0069	-0.4976**	0.0576	-0.5425**
	(0.2126)	(0.1919)	(0.6037)	(0.2355)	(0.1839)	(0.1685)	(0.3734)	(0.1889)
Size4	-0.6045**	-0.0895	-1.0428	-0.0913	-0.2888	-0.4569**	-0.4181	-0.5346**
	(0.2311)	(0.2041)	(0.6231)	(0.2479)	(0.1863)	(0.1756)	(0.3759)	(0.1960)
Sigma	2.1165	1.7369	3.2162	1.8667	1.8508	1.4212	2.4027	1.4961
	(0.0253)	(0.0239)	(0.0663)	(0.0288)	(0.0163)	(0.0185)	(0.0302)	(0.0213)
Chi2	607.29	280.56	182.32	229,77	953.58	347.57	458.45	317.75
Observations	4,701	3,501	1,663	2,816	8,415	3,921	4,430	3,296

*Source:* GSOEP, 1991-2000 (own calculations)

Sample: German full-time employees, age 20-65, civil servants and self-employed persons excluded

Note: The regression model is full-specified, independent variables include additional individual and job characteristics as well as year dummies.

\* significant at the 5% level. \*\* significant at the 1% level