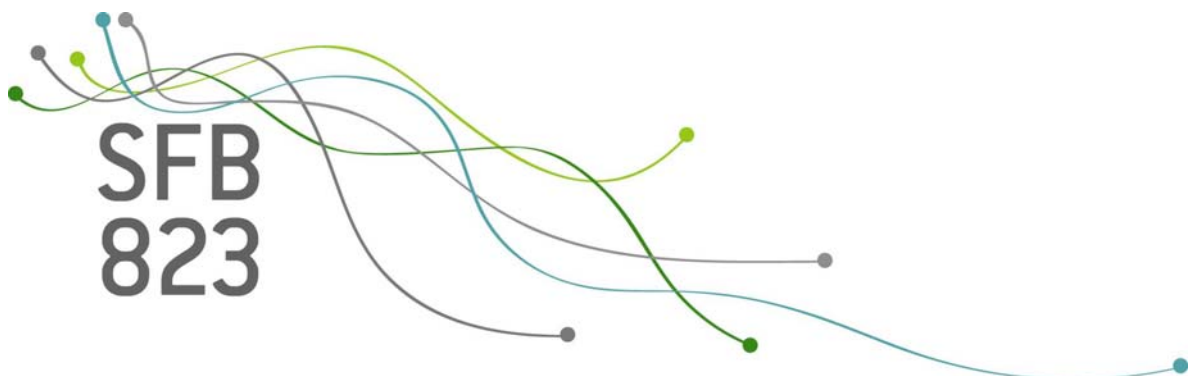


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Discussion Paper



# Let's call it a day – The Effect of Works Councils on Working Hours Constraints in German Establishments

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## Abstract

This study analyzes the impact of works councils on discrepancies between the preferred and actual working hours of employees. The results show that workers in codetermined establishments are more likely to match their working time preferences. This positive effect is due to a reduction of overemployment. However, the presence of works councils can also slightly increase the probability of employees working less than they would prefer. All effects are stronger for parents, especially for mothers, which confirms that works councils care for the compatibility of work and family life. Finally, the positive impact of works councils on working hours constraints can be explained by a lower probability of parents working overtime.

**JEL classification:** J22, J41, C25

**Keywords:** Works councils, working hours constraints, overemployment, underemployment

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## 1 Introduction

The standard neoclassical models of labor supply tell us that only time endowment restricts the employee's working hours. Thus, working hours constraints, i.e. working hours that do not conform to the desired working hours of an employee, should not exist persistently. This prediction, however, has been challenged both by theoretical arguments and by empirical evidence in recent years. Using German data, for example, Holst (2009) as well as Constant and Otterbach (2011) show that there is a persistent gap between actual working time and desired working time, where fewer working hours are more frequently desired with income adjusted accordingly. Furthermore, less than fifty percent of all employees are satisfied with their current amount of working hours. The aim of our study is to analyze how works councils affect the likelihood of the existence of working hours constraints. Such works councils are a major institution within the German system of industrial relations and bargain over the organization of working time in an establishment<sup>1</sup>. They represent the interests of the employees at establishment level and have information, consultation and codetermination rights on a number of issues. Working time regulations in general and decisions on overtime are codetermined. Another emphasis of their activities is the reconciliation of work and family life. Thus, working hours constraints are clearly an issue that works councils may try to avoid.

The question as to why binding working hours constraints exist has been analyzed in a substantial number of studies<sup>2</sup>. Sousa-Poza and Henneberger (2002) as well as Otterbach (2010), for example, use data from 21 countries and show that certain socio-economic characteristics explain the existence of a time mismatch. They identify income and agreed working time as major determinants of working hours constraints. Furthermore, family structures, especially the existence of children, influence the extent of desired hours and therefore a potential hours mismatch (Clarkberg and Moen 2001, Reynolds 2004, Tseng and Wooden 2005, Holst 2007). Theoretical arguments provide no reliable explanation for working hours constraints. Different theoretical approaches such as principal-agent issues and firm-specific human capital (Kahn and Lang 1992) as well as implicit contracts (Kahn and Lang 1995) are at most weakly supported empirically. Job insecurity, in contrast, seems to have a positive influence on the likelihood of overemployment (Stewart and Swaffield 1997).

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<sup>1</sup> Since the 1980s a considerable number of studies on the effects of works councils have been published. Frege (2002), Addison, Schnabel and Wagner (2004), and Jirjahn (2011) contain detailed surveys of this issue.

<sup>2</sup> See, for example, Otterbach (2010) for a survey of different studies on working hours constraints.

Compared to the determinants of working hours constraints, the consequences of such time mismatches have been analyzed less frequently. Empirical evidence shows that working time mismatch increases the probability of an employee changing their job within the company and in the worst case a constrained worker may even quit his or her job<sup>3</sup>. At the very least, such a job change destroys the job-specific human capital if the employee still works for the same employer. If the employee actually leaves the firm, the entire firm-specific human capital is lost.

Besides such welfare-decreasing effects of working hours constraints, additional negative effects on employee wellbeing with respect to job satisfaction and life satisfaction (Theodossiou and Zangelidis 2009, Wodden, Warren and Drago 2009, Grözinger, Matiaske and Tobsch 2008) as well as negative impact on health (Bell, Otterbach and Sousa-Poza 2011, Constant and Otterbach 2011, Grözinger, Matiaske and Tobsch 2008) have been identified. Wunder and Heineck (2012) find that not only an employee's own wellbeing is negatively affected by a working time mismatch, but even life satisfaction of his or her partner. Finally if the mismatch between preferred working time and that which the employer requires is large, labor supply will not take place at all and this clearly affects welfare.

If working hours constraints are such a big issue, the question arises as to how works councils can help to reduce such constraints. Ellguth and Promberger (2007) provide evidence for a strong influence of works councils on working time. They find that codetermined establishments have significantly lower agreed weekly working hours and also strongly differ in the usage of working time instruments such as overtime work and working time accounts. Besides a general influence on working time, works councils also have the objective to support the reconciliation of work and family life of the employees. In principle, such reconciliation means, among other things, that family life should not be (excessively) restricted by working time. Or in other words: works councils should prevent working time mismatches that negatively influence family life. As already mentioned above, family structures indeed influence time preferences and time mismatch. In particular the existence of children accounts for a major part of one's time endowment. Hence, a time mismatch of a working parent might strongly generate disutility from work because, besides insufficient leisure time, difficulties in

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<sup>3</sup> See e.g. Antonji and Paxson (1992), Bijwaard, van Dijk and de Koning (2008), Böheim and Taylor (2004), Euwals (2001).

childcare provision could emerge. For traditional reasons, time mismatch could influence women's behavior more strongly, and even prevent women from labor market participation.

Family-friendly practices are indeed more frequently used in codetermined establishments than in establishments without works councils. Heywood and Jirjahn (2009) show, for example, that the existence of a works council increases the likelihood of an establishment offering support with respect to childcare, keeping in touch with the employee during parental leave and also taking into account specific needs regarding working time and the job design of parents. Moreover, Beblo and Wolf (2004) find that codetermined establishments more frequently implement measures that facilitate the compatibility of work and family life. We therefore focus especially on the effect of works councils on working time constraints of parents.

Using data from the German Socio-Economic Panel (SOEP), we show that employees of establishments with works councils more often match their desired working hours, mostly due to a strong reduction of the probability of overemployment for parents, especially for mothers.

This paper is organized as follows: in the next section, we discuss the legal background of German codetermination rights and, based on relevant working time mismatch theories, the potential impact of works councils on the outcome. In the 3<sup>rd</sup> section, we describe our data, variables and our econometric models. Section 4 contains a discussion of our results. In Section 5 we discuss how a works council's influence on overtime can affect working hours mismatches. Finally, we conclude in Section 6.

## **2 Legal background and Theoretical Thoughts**

The legal basis of the power of works councils is the German Works Constitution Act (Betriebsverfassungsgesetz, WCA). It defines that workers in establishments with at least five employees are allowed to adopt a works council. Works councils have extensive codetermination rights regarding social and workplace-related issues in an establishment. Although collective bargaining agreements might constrain the influence of works councils on the quantity of working hours per week, agreements regarding working time are the main topic area of works councils (Hauser-Ditz, Hertwig and Pries 2008). Above all Section 87.1.2 of the WCA has a fundamental influence on the quality of the working day, namely on beginning and ending, breaks and the distribution of working time over the week. Moreover, Section 87.1.3 of

the WCA provides fundamental codetermination rights with respect to the use and amount of overtime work. Besides their influence on working time, works councils are also encouraged to facilitate reconciliation of work and family life (Section 80.1.2b of the WCA). On the one side works councils may contribute to a closer match of actual and preferred working time by agreements with the management on special arrangements regarding the working time of a parent. This takes into account the special requirements and duties of mothers and fathers. On the other hand works councils may bargain over childcare services provided internally or externally by the establishment. Such employer-sponsored childcare facilities most likely affect the preferred working time of a parent and as such helps to alleviate a mismatch with actual working time in an establishment. Both options increase the likelihood of an improved working time match. However not all establishments have a works council. In fact, only a minority do. This offers the opportunity to analyze possible differences between establishments with and without a works council concerning hours match and mismatch.

Besides an adjustment through codetermination rights, German employees are also able to alter their working time according to the provisions on part-time employment of the Act on Part-Time Work and Fixed-Term Employment (Teilzeit- und Befristungsgesetz). The aim of this act is to support the realization of part-time work within an establishment. It allows every employee to reduce his or her working time as long as the change in working time does not unduly burden the employer. Although this act supports the possibility of an employee to reduce his or her working hours, a significant proportion of German employees are, as mentioned above, overemployed. Despite the fact that no direct link between this act and codetermination rights exists, works councils can still support the enforcement of the desired working time reduction of an employee. They could use their bargaining power and information rights in order to induce the management to comply with such a request that would otherwise not be accepted.

The simplest theory on labor supply and hour determination assumes the absence of restrictions of any kind and therefore an optimal match according to the preference of the workers can be achieved. In practice employers frequently make a “take-it-or-leave-it” offer concerning working hours (Pencavel 1986, 41). Several theories exist as to why an employer

determines a specific number of hours and is not willing to negotiate about this<sup>4</sup>. However, we only discuss theories which might explain the influence of works councils on working hours constraints.

Golden (1998) as well as Clarkberg and Moen (2001) regard the determination of actual working time as the result of three forces: workers' preferences, employers' demands and the institutional environment in which hours decisions are mediated. In this connection, institutional environment is determined by legal constraints such as labor law and regulation, collective bargaining processes, normative practices and the macroeconomic climate. The idea is that institutions are able to prevent exploitation of one side of the negotiators and direct the exchange towards a socially desired outcome. Works councils are explicitly involved in the process of working time determination. In addition works councils are encouraged to pursue social goals through their activities. This suggests that works councils try to reconcile the diverging preferences of employers and workers with regard to working hours.

Landers et al. (1996) argue that employees are prepared to work more than desired in order to signal low disutility from work and therefore being a candidate for better paid positions within a firm. In principle, such overemployment is the result of the dynamic optimization of an employee in which disutility from the current time mismatch has to be compensated by the discounted additional future earnings that an overemployed worker expects. Addison, Teixeira and Zwick (2010) however, highlight that works councils increase the wage level but also compress the wage distribution in an establishment. Thus, gains from promotions are lower, reducing the willingness of employees to be currently overemployed.

Another theoretical explanation for working time constraints is the job insecurity hypothesis. Steward and Sweffield (1997) argue that employers are able to increase working time without expecting quits if workers face a high risk of unemployment and the range of alternative jobs is scarce for macroeconomic reasons. Workers might accept overemployment rather than risk dismissal and unemployment. Works councils, however, have codetermination rights with respect to dismissals. Thus, they provide further protection from dismissal so that a working time mismatch caused by job insecurity should less frequently occur.

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<sup>4</sup> See, e.g., Sousa-Poza and Henneberger (2002) for a discussion on the theoretical explanation of working hours constraints.



Freeman and Medoff (1984) and many others assert that unions act as an efficient channel to express dissatisfaction with working conditions. With regard to German industrial relations the body representing workers at establishment or firm level are works councils (FitzRoy and Kraft 1984, 1987). In combination with the strong codetermination rights regarding working time regulation, they provide excellent opportunities to express the preferences of the employees and simultaneously to exert bargaining power concerning hours determination.

Finally, the effect of works councils on working hours constraints can also be rationalized by public choice theory. The decision as to who becomes a works councilor is the result of an election process and these elections take place every 4 years. Workers interested in alternative working time rules will vote for candidates who promise to exert an influence in this direction. Thus the elected employees will represent the working time preferences of the majority of the voters. This however also means that some workers will probably be worse off, namely if their preferences strongly deviate from the working time preference of the majority.

Similarly, the demand for family-friendly work policies probably reflects the preferences of the workforce and is of higher relevance if many parents work in an establishment. These parents then elect representatives who promise to commit to childcare.

A match between preferred and actual working time and in particular the introduction of employer-sponsored childcare services will probably be positively valued by public opinion. They may be regarded by works councils as fringe benefits and bargaining for them may be part of a rent-maximization strategy (Heywood and Jirjahn 2009).

### **3 Data and Descriptive Statistics**

For the empirical analysis we use the waves 2001 to 2009 of the German Socio-Economic Panel (SOEP) and construct an unbalanced panel of full-time private sector workers between the age of 20 and 60<sup>5</sup> (for further information on the data see Wagner et al., 2007). As works councils

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<sup>5</sup> We also used data that contained part-time employees. We were however unable to identify any significant effect of our independent variables on their working hours constraints. This might be explained by strong selectivity and heterogeneity in part-time work.

can be elected in establishments with at least five employees, we drop all observations of persons working in very small firms with four workers and less.<sup>6</sup>

In the SOEP, information on the existence of a works council in an employee's establishment is only available for the years 2001 and 2006. To increase sample size, we make the assumption that the works council status does not change in a firm over time<sup>7</sup>. For the period before/after 2001 and 2006 in which employees do not change their job, we carry backward/forward the information on the existence of works councils. If workers stay in the same firm during 2001 and 2006 and report that they are represented by a works council in one year but not in the other year, we exclude observations for all years for which we do not exactly know whether the works council already/still existed (i.e. we drop the observations for all years except for 2001 and 2006). If workers switch jobs between 2001 and 2006, we use the works council information of the former employer up to the year of the job change and information of the new employer after the job change. If persons change job after 2006 or repeatedly between 2001 and 2006, we drop all observations concerned.

Our dependent variables are based on the difference between actual weekly working hours and preferred weekly working hours. The question about desired working hours in the questionnaire reads: "If you could choose your own number of working hours, taking into account that your income would change according to the number of hours: How many hours would you want to work?" Actual working hours are taken from the question "And how many hours do your actual working-hours consist of including possible over-time?" If both numbers are the same, there is no working hours mismatch and workers do not face any binding constraints. If preferred hours are higher than actual hours persons are underemployed, and overemployed if they would like to work less than their actual working hours.

After excluding all observations with missing information on the relevant variables, our sample consists of 4992 full-time employees and 16140 observations. Table A1 in the appendix presents the mean values of the variables we use in our estimations. It shows that there are

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<sup>6</sup> The data used in this study was extracted using the Add-On PanelWhiz for Stata<sup>®</sup>. PanelWhiz (<http://www.PanelWhiz.eu>) was written by Dr. John P. Haisken-DeNew ([john@PanelWhiz.eu](mailto:john@PanelWhiz.eu)). See Haisken-DeNew and Hahn (2010) for details. The PanelWhiz generated do-file to retrieve the data used here is available from us upon request. Any data or computational errors in this study are our own.

<sup>7</sup> Using the IAB-Establishment Panel, Addison, Schank, Schnabel and Wagner (2006) show that approx. 2 % of all establishments dissolved or adopted a works council within 2 years. Thus, we think that the effect of a measurement error in the existence of a works council can be neglected.

large discrepancies between preferred hours of work and actual hours of work. On average, people work 42.48 hours a week, which exceeds their average contractually-agreed working hours of 38.54. Average preferred weekly working hours would be 37.69, in other words preferred working hours would be even less than the agreed working hours. However, there are also people who would like to work more. 6.6% of all people in the sample are underemployed, but the majority of employees, 66.5%, are overemployed and would prefer to work less than they do. Only 26.9% of all workers meet their working hours preferences exactly.

Regarding our main independent variable, namely a dummy for the existence of a works council, more than 60 per cent of all employees are represented by a works council in their establishment<sup>8</sup>. As we expect works councils to affect agreed and actual working hours (including potential overtime) in the interest of employees, we first descriptively analyze differences between firms with and without codetermination.

The mean values of working hours and hours constraints in Table 1 show that there are significant differences between employees in firms with and without works councils.

Agreed working hours are about one hour shorter in establishments with works councils, whilst actual working hours in firms without works councils exceed those in firms with works councils by as many as 1.309 hours. Thus, employees represented by works councils seem to work slightly less overtime. Works councils have strong decision rights with respect to overtime work and have to agree on its use or extension. We discuss the issue of overtime as a possible way of adjusting actual working hours to preferred working hours in Section 5. Also, preferred hours of work are lower in codetermined establishments but, at about only 24 minutes, the difference is much smaller. The share of people without working hours constraints is 2.5 percentage points larger in firms with works councils. This is caused by a significantly lower percentage of overemployed workers of 4.7 percentage points. With respect to underemployment, works councils do not seem to enable employees to extend their working hours if they wish to work more. Underemployment is even more frequently observed in establishments with works councils. If a person is strongly constrained because of family duties and domestic work, preferences concerning working time but also the possibility to realize preferred hours of work may differ. This should mainly be a problem for women, especially for those with children.

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<sup>8</sup> Although the majority of all establishments have no works council, those which have one are on average much larger and this explains the high percentage of workers represented by a works council.

Table 1 additionally shows the comparison of working hours for workers with and without a works council separately for men and women. Male workers who are represented by a works council are more likely to meet their working hours preferences, but again this is only caused by a lower probability of being overemployed.

**Table 1: Working hours for employees with and without works councils**

	Works council	No works council	Difference
<b>All</b>			
Agreed working hours (week)	38.111	39.226	-1.115***
Actual working hours (week)	41.985	43.294	-1.309***
Preferred working hours (week)	37.541	37.936	-0.394***
No hours constraint (preferred=actual hours) (dummy)	0.279	0.254	0.025***
Overemployed	0.647	0.694	-0.047***
Underemployed	0.074	0.053	0.021***
Number of observations	6150	9990	
<b>Women</b>			
Agreed working hours (week)	37.983	38.789	-0.806***
Actual working hours (week)	41.221	41.853	-0.632***
Preferred working hours (week)	36.019	36.282	-0.263**
No hours constraint (preferred=actual hours) (dummy)	0.257	0.243	0.014
Overemployed	0.692	0.716	-0.023*
Underemployed	0.051	0.041	0.009
Number of observations	2179	2769	
<b>Men</b>			
Agreed working hours (week)	38.160	39.466	-1.306***
Actual working hours (week)	42.278	44.085	-1.807***
Preferred working hours (week)	38.125	38.843	-0.718***
No hours constraint (preferred=actual hours) (dummy)	0.288	0.260	0.028***
Overemployed	0.630	0.681	-0.052***
Underemployed	0.083	0.059	0.024***
Number of observations	7221	3971	

\*\*\*/\*\*/\* indicates statistical significance at the 1%, 5% and 10% level.

Source: SOEP waves 2001-2009, own calculations.

With respect to underemployment, however, male employees in firms with works councils are even more often affected. For female employees the differences are less pronounced. All in all, women more often report facing working hours constraints. 25.1% of all female workers realize their preferred working hours compared to 27.8% of all male workers. Moreover, women are more frequently overemployed whereas men are more often underemployed.

As mentioned above, children may also play an important role in the context of working hours constraints. Table 2 presents the differences in hours of work of women and men with and without children. In our sample 19.1% of all full-time employed women and 40.7% of all male workers have children up to age 16.

**Table 2: Working hours for employees with and without children**

	Children	No children	Difference
<b>Women</b>			
Agreed working hours (week)	37.996	38.419	-0.423***
Actual working hours (week)	40.749	41.677	-0.927***
Preferred working hours (week)	35.832	36.207	-0.375***
No hours constraint (preferred=actual hours) (dummy)	0.297	0.240	0.057***
Overemployed	0.649	0.715	-0.066***
Underemployed	0.054	0.045	0.009
Number of observations	947	4001	
<b>Men</b>			
Agreed working hours (week)	38.574	38.657	-0.082**
Actual working hours (week)	42.931	42.912	0.019
Preferred working hours (week)	38.548	38.265	0.283***
No hours constraint (preferred=actual hours) (dummy)	0.276	0.279	-0.002
Overemployed	0.647	0.648	-0.001
Underemployed	0.076	0.073	0.003
Number of observations	4550	6642	

\*\*\*/\*\*/\* indicates statistical significance at the 1%, 5% and 10% level.

Source: SOEP waves 2001-2009, own calculations.

Full-time employed mothers work less than women without children and also prefer fewer hours. They are less often overemployed and less often affected by hours constraints. Thus, they seem to be frequently able to reconcile family and working life. It is possible that women with children are to a greater extent willing or more under pressure to advocate their working time preferences or employers are better prepared to adjust working hours to the needs of employee with family duties. However, mothers who find it difficult to adjust their full-time working hours to their demands may not work at all or prefer part-time jobs, so this result may be driven by selectivity. In contrast to women, male employees with children have higher preferred working hours compared to men without children, maybe due to their role as breadwinner. As full-time working mothers on average seem to be more satisfied with their hours of work compared to women without children, the question arises as to whether works councils can especially help to assert working time preferences of employees with children against the employer.

Table 3 reports the differences between full-time employed parents with and without works councils.

**Table 3: Working hours constraints for employees with children and with/without works councils**

	Works council	No works council	Difference
<b>Women</b>			
No hours constraint (preferred=actual hours) (dummy)	0.329	0.255	0.074***
Overemployed	0.607	0.704	-0.096***
Underemployed	0.064	0.041	0.022
Number of observations	535	412	
<b>Men</b>			
No hours constraint (preferred=actual hours) (dummy)	0.292	0.244	0.048***
Overemployed	0.617	0.705	-0.087***
Underemployed	0.089	0.050	0.039***
Number of observations	3023	1527	

\*\*\*/\*\*/\* indicates statistical significance at the 1%, 5% and 10% level.

Source: SOEP waves 2001-2009 own calculations.

For mothers works councils seem to have strong positive effects on their chances of obtaining optimal working hours. The likelihood of being overemployed is 9.6 percentage points lower for mothers working in firms with works councils. For male employees with children the probability of working more than intended is also much lower in establishments with works councils, although they have a somewhat higher likelihood of being underemployed of 3.9 percentage points.

#### **4 Econometric Method and Results**

In line with previous studies (see e.g. Reynolds 2004, Tseng and Wooden 2005), we do not take into account the absolute difference between preferred and actual hours but only analyze which factors determine the probability of overemployment or underemployment. Thus, our dependent variable has three unordered categories<sup>9</sup>. Workers have either no hours constraint, are underemployed or are overemployed. First we estimate multinomial logit models with “no hours constraint” as base category. We use two different specifications. The first one includes a dummy for the existence of a works council whereas the second model additionally considers a works council’s effect on hours constraints for employees with children by an interaction variable. As in the case of the descriptive analysis we also estimate all models separately for men and women. We take into account a set of socio-demographic and job-specific control variables (see also full estimation results in Tables A2 to A4 in the Appendix). We control for gender, age and marital status by including age in years and its squared value as well as dummies for women, married persons and for having at least one child up to age 16. Additionally, we add a dummy variable which equals one if a person lives in East Germany, two dummies for highest educational achievement (completed vocational training and holding a university degree) and a variable indicating monthly household income less own monthly wage (i.e. wage of the partner and other income if applicable). With regard to job and firm characteristics we include tenure in years, agreed weekly working hours, hourly wage, firm size dummies and industry dummies as well as dummies for blue and white collar workers differentiated by qualification level.

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<sup>9</sup> Some studies treat this variable as being ordered. In our opinion it is not. Being, for example, underemployed is not a lower category than being overemployed. It is in fact a completely different labor market status that is a result of a bad match which is simply not comparable to another kind of bad match, namely being overemployed.

As mentioned before, persons with strong (expected) hours constraints might even choose to quit their job or to remain outside the labor market. If the samples of employed persons and persons not working are systematically different and factors affecting selection into the sample simultaneously affect the outcome of interest, our results could be biased. Unfortunately, to our knowledge, no selection models with multinomial outcomes in the second stage exist. However, we can estimate binary probit models with sample selection. As a robustness test we therefore also consider sample selection but this is only possible if we neglect the fact that employees can work more or less than they would prefer. We just differentiate between workers with and without hours constraints. As selection into the labor market is very different for women and men, we only estimate separate models and do not use the full sample<sup>10</sup>. In addition to the 11192 observations of male and 4948 of female full-time employees we include 5330 observations of men and 10289 of women who are unemployed or inactive.<sup>11</sup> Based on the two resulting larger subsamples of men and women we apply a probit sample selection model (Heckman probit model) introduced by Van de Ven and Van Pragg (1981). This model is a modification of the well-known Heckman sample selection model (1979) for continuous outcomes. The latent equation is

$$y_i^* = x_i\beta + u_{1i} \quad (1)$$

such that the binary outcome (which equals one if a person's working hours exactly match her or his preferred hours of work)

$$y_i = (y_i^* = x_i\beta + u_{1i} > 0) \quad (2)$$

is observed. However, the dependent variable is not always observed but only if

$$y_i^{\text{select}} = (z_i\gamma + u_{2i} > 0) \quad (3)$$

with

$$\begin{aligned} u_1 &\sim N(0,1) \\ u_2 &\sim N(0,1) \\ \text{corr}(u_1, u_2) &= \rho. \end{aligned}$$

The selection equation is identified by adding several variables excluded in the estimation of having no hours constraints. We mainly use household and partner information as a dummy for

<sup>10</sup> For example, married women more often choose to stay at home, which is not the case for married men. The same is true for female and male workers with children.

<sup>11</sup> The share of persons participating in the labor market is quite low. However, note that we excluded all public sector employees.



being married and weekly working hours of the spouse (and a set of interaction variables), as these variables are insignificant in the multinomial logit model and thus do not explain hours constraints and underemployment or overemployment.

Although we are able to consider sample selection with this approach, the main disadvantage is that we lose some information as we cannot differentiate between overemployment and underemployment. The model only considers match and mismatch. Thus, we will concentrate on discussing the multinomial logit results and afterwards briefly present the Heckman probit results as a robustness check.

Table 4 shows the marginal effects of works councils on the probability of being overemployed or underemployed. As mentioned above, we estimate two different models. In the second one and in contrast to the first one, we differentiate between the effects of works councils on employees with and without children.

The results mainly confirm our findings based on the descriptive statistics. In the full sample employees whose interests are represented by a works council have a probability 2.3 percentage points higher of achieving their desired hours. This is due to the fact that they are less often overemployed. Works councils reduce the probability of working more hours than preferred by 3.2 percentage points. Model 2 differentiates between employees with and without children up to 16. The positive (reducing) effects of works councils on overemployment but also the negative effects on underemployment are more pronounced for people with children. Thus, they ensure that a larger share of workers meet their preferences, but this is at the expense of those who would like to work more. However, the reduction of the share of overemployed workers in the presence of a works council is larger than the increased share of workers who cannot realize their preferences for more work. Overall, the probability of exactly meeting working time preferences for employees with children is 5.5 percentage points higher if they work in a firm with a works council.

In the next step we estimate both models separately for women and men. The marginal effects of Model 1 show, in contrast to the descriptive results, that all works council effects (both the positive and negative ones) are more pronounced for women. Women working in a codetermined establishment are 3.6 percentage points more likely to face no hours constraints, however the effect is insignificant. Moreover, they are 6.0 percentage points less likely to be overemployed compared to female employees in firms without works councils but they also

have a 2.3 percentage points higher probability of working less than they would like to. For men all effects are insignificant.

**Table 4: Marginal effects on working hours mismatch - multinomial logit models**

		Effect of works councils at ...	Difference in predicted outcome		
			Desired = Actual	Desired < Actual	Desired > Actual
Full sample N=16140	Model 1	No differentiation	0.023* (0.012)	-0.032** (0.014)	0.009 (0.008)
	Model 2	Kids=0	0.008 (0.014)	-0.008* (0.016)	0.001 (0.009)
		Kids=1	0.055*** (0.018)	-0.081*** (0.020)	0.026** (0.011)
Female N=4948	Model 1	No differentiation	0.036 (0.022)	-0.060** (0.025)	0.023** (0.011)
	Model 2	Kids=0	0.023 (0.023)	-0.041 (0.026)	0.019 (0.012)
		Kids=1	0.097** (0.041)	-0.137*** (0.043)	0.040** (0.018)
Male N=11192	Model 1	No differentiation	0.017 (0.015)	-0.018 (0.017)	0.001 (0.010)
	Model 2	Kids=0	0.002 (0.009)	-0.007 (0.020)	-0.009 (0.011)
		Kids=1	0.040** (0.020)	-0.058*** (0.022)	0.017 (0.013)

\*\*\*/\*\*/\* indicates statistical significance at the 1%, 5% and 10% level. Standard errors in parentheses. Included control variables see Tables A2 to A4 in the Appendix.

Source: SOEP waves 2001-2009, own calculations.

When we differentiate between women and men with and without children, the effects of works councils for both women and men without children up to 16 are weak and insignificant. For men and women with children marginal effects of works councils are mostly significant and quite strong, especially for mothers, and similar but weaker for fathers. Female employees with children have a higher probability of 9.7 percentage points of exactly meeting their working time preferences compared to mothers working in firms without works councils. This is caused by a large reduction in the probability of being overemployed of 13.7 percentage points. These findings are consistent with the hypothesis that works councils support or even initiate the introduction of family-friendly work practices or corporate childcare. Moreover, works councils could be an efficient institution to help to communicate workers' preferences to the employer. However, the likelihood of underemployment is slightly higher for mothers working in

establishments with works councils. Apparently establishments with works councils show a tendency towards “normal” working time.

As mentioned above, selection effects into employment could bias our results on working hours constraints. Thus, we additionally estimate Heckman probit models which allow us to control for selection effects. Selection into employment should be more pronounced for women, especially for those who are married and/or have children, as traditionally in Germany, they still tend to be responsible for housework and family duties whereas in many families men are still the breadwinners. Hence, faced with the decision to work or to stay at home, wives and mothers who decide to participate in the labor market may have special characteristics which could also have an impact on their perception of optimal working hours.

As some factors, for example being married, can have very different effects for men and women on their likelihood to work, and as selection into employment is a more important issue for women, we only run separate estimations for men and women and do not use the full sample. As mentioned above, we cannot differentiate between overemployment and underemployment. We only estimate the effect of works councils on the probability of facing no hours constraints in this selection model. Table 4 shows that works councils have two opposing effects on the probability of exactly matching working time preferences. On the one hand, they reduce the probability of overemployment, on the other hand they increase the likelihood of underemployment. However, the first effect is much more pronounced than the second and we also find an overall positive effect of works councils on the probability of working preferred hours. The estimated marginal effects of the probit models with selection are comparable to those for the first category (desired hours = actual hours) of the multinomial logit models.

The complete estimation results of the selection equation and the second stage equation can be found in Table A5 in the Appendix. The results indicate that selection effects are only present for women. The marginal effects for works council existence of the second stage equation (with the binary dependent variable indicating a perfect match between actual and preferred hours) are reported in Table 5. Again, we estimate two models where we differentiate between men and women with and without children in Model 2.

Selection does not seem to severely bias our results presented above, as the effects shown in Table 5 are similar to those obtained in the multinomial logit models without controlling for

potential selection bias. As an additional robustness test we also estimated an IV probit model where we treated the wage as endogenous and, for this purpose, instrumented the wage through several industry dummies. A Wald test, however, always rejected correlation between the error term of the reduced equation and the structural equation. Hence, we could not reject the null hypothesis that there is no endogeneity. Thus, we refrain from showing these results in this paper because they do not lead to contradicting estimates, in contrast to our previous results. Finally, we also changed the definition of our dependent variables as an additional robustness check. We changed the definition of being not constrained from a perfect working time match to a match that treats a deviation of up to 75 min per week (i.e. an average deviation of 15 min per day) from the preferred working hours as still being not constrained. This wider definition does not change our results.

**Table 5: Marginal effects working hours mismatch  
- Heckman probit models**

		Effect of works councils at ...	Absolute change in prob. of desired hours = actual hours
Female N=15237	Model 1	No differentiation	0.040* (0.024)
	Model 2	Kids=0	0.023 (0.024)
		Kids=1	0.113** (0.044)
	Male N=16522	Model 1	No differentiation
Model 2		Kids=0	0.002 (0.018)
		Kids=1	0.044** (0.020)

\*\*\*/\*\*/\* indicates statistical significance at the 1%, 5% and 10% level. Standard errors in parentheses. Included control variables and selection equation see Table A5 in the Appendix.

Source: SOEP waves 2001-2009, own calculations.

## 5 The Role of Preferences and Overtime

Our previous results show that the likelihood of a perfect working time match increases if a works council exists in an establishment. This result is driven by a strong increase in the probability of observing a perfect match if people have children. In the following, we try to identify the source of the increase in this likelihood by analyzing the effect of works councils on preferred working hours and overtime. On the one hand, works councils may change preferred

working hours. Works councils have to bargain about the beginning, breaks and the end of a work day. If they are able to enforce daily working time regulations that are more in line with the preferences of the employees, staff will presumably be prepared to work more hours per week. Thus, employees in codetermined establishments may desire to work more and then preferred working time would be closer to actual working time. In this case, the lower likelihood of overemployment could be explained by an increase in the desired working time. Hence, we estimate the impact of works councils on preferred working time. On the other hand, works council-induced constraints on the use of overtime might increase the likelihood of a perfect working time match. As already mentioned, whilst overtime can be an important source of working time mismatch, it may be strongly influenced by works councils<sup>12</sup>. We estimate a probit model where the dependent variable has unit value if the employee works overtime. Again, we use two models, one without and one with differentiation between employees with and without children<sup>13</sup>. The upper part of Table 6 shows the results of OLS estimates of the effects of the works council on preferred working time. The lower part contains the results of a probit model with a dummy for overtime working as dependent variable<sup>14</sup>.

We find no effects of works councils on preferred working time, regardless of whether the observed person is a parent or not. Thus we expect that our results are rather driven by particular overtime effects of parents in codetermined establishments. The results for Model 2 in the probit equation indicate that parents in codetermined establishments work overtime significantly less often. The probability of not working overtime is 4.0 percentage points higher for parents represented by a works council. Thus, works councils reduce their actual working hours. For employees without children up to age 16 we find no significant reduction in the likelihood of overtime work. Hence, for this group works councils do not prevent overtime work.

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<sup>12</sup> Hübler and Meyer (1997), Kölling (1997), Schank and Schnabel (2004) as well as Jirjahn (2008) analyze the impact of work councils on overtime and find no or at most negligible effects. In contrast to our study, they use establishment data. Kraft and Lang (2008) use the SOEP and also estimate the effects of works councils. They, however, concentrate on the effect of works councils on the magnitude of overtime work after a works council has been adopted. Bauer and Zimmermann (1999) use the SOEP and estimate a model that is quite similar to our approach. They, however, do not control for the existence of a works council.

<sup>13</sup> Note that we lose 6 observations due to missing values in the dependent variable "overtime".

<sup>14</sup> Note that we do not separate our sample into male and female observations because our previous results show that both groups are similarly affected by works councils.

**Table 6: Marginal effects of works councils on preferred working hours and on the incidence of overtime**

Preferred working hours – Pooled OLS		
Model 1 N=16140	No differentiation	-0.013 (0.127)
Model 2 N=16140	Kids=0	-0.130 (0.144)
	Kids=1	0.227 (0.169)
Incidence of overtime - Probit		
Model 1 N=16134	No differentiation	-0.018 (0.012)
Model 2 N=16134	Kids=0	-0.008 (0.013)
	Kids=1	-0.040** (0.019)

\*\*\*/\*\*/\* indicates statistical significance at the 1%, 5% and 10% level. Standard errors in parentheses. Included control variables see Tables A6 and A7 in the Appendix. Source: SOEP waves 2001-2009, own calculations.

## 6 Conclusion

Although a large proportion of workers face working hours constraints that can strongly affect job satisfaction and health, the effect of labor market institutions on such constraints has largely been neglected in the previous literature. We analyze how worker representation on the establishment level by works councils affect the likelihood of being underemployed, overemployed or employed according to one's preferences. We find that works councils indeed increase the likelihood of matching employees' working time preferences by mainly reducing the likelihood of overemployment. However, we also find a small increase in the likelihood of underemployment. Additionally, our results show that parents even more frequently match their preferred working time which can be explained by a fundamental task of works councils, namely the reconciliation of family and working life.

Moreover, our results on overtime show that the somewhat reduced probability of the occurrence parents of working overtime can be a driving force for lower overemployment in codetermined establishments.

Hence worker codetermination affects more areas than the more commonly investigated topics such as productivity, profits, wages, turnover and innovation. Employees will most likely very much appreciate cooperative solutions to problems connected with differences between their

working time preferences and the expectations of the employers. In turn labor supply may react to the employee-orientated determination of working conditions. Given the increasing contribution of married women to labor supply and the growing importance of reconciling family life and work against the background of demographic problems faced by most developed economies, our results are probably not insignificant.

Our results imply some questions for future research. If works councils reduce the likelihood of constrained working hours, which consequences will arise for the employer? Does a greater flexibility of agreements on working time towards employees' preferences in contrast restrict the power to determine working hours from the employer's view? Does this increase production costs and therefore imply a redistribution from the employer to the workers? Or is the reduction of working hours constraints rather a result of a coordination process that enhances efficiency by simply reducing information asymmetries between employers' and employees' preferences? While in the first case clearly no Pareto improvement is realized, the latter indeed increases welfare.

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## Appendix

**Table A1: Mean values of used variables**

	Mean	Std. Dev.
Agreed working hours (week)	38.536	2.054
Actual working hours (week)	42.484	5.256
Preferred working hours (week)	37.692	3.996
No hours constraint (preferred=actual hours) (dummy)	0.269	0.444
Overemployed (preferred<actual hours) (dummy)	0.665	0.472
Underemployed (preferred>actual hours) (dummy)	0.066	0.248
Hourly wage (€)	16.611	7.679
Tenure	11.470	9.139
Firm size: 5-19 workers (dummy)	0.163	0.369
Firm size: 20-99 workers (dummy)	0.218	0.413
Firm size: 100-199 workers (dummy)	0.109	0.311
Firm size: 200-1999 workers (dummy)	0.261	0.439
Firm size: 2000 workers and more (dummy)	0.249	0.433
Works council (dummy)	0.619	0.486
Female (dummy)	0.307	0.461
Age	41.219	9.621
Highest educational degree: University degree (dummy)	0.193	0.394
Highest educational degree: Vocational training (dummy)	0.697	0.459
Children (dummy)	0.341	0.474
East Germany (dummy)	0.239	0.426
Married (dummy)	0.618	0.486
Net monthly household income minus own income (€)	1135.600	1005.472
White collar low-skilled (dummy)	0.074	0.263
White collar medium-skilled (dummy)	0.267	0.443
White collar high-skilled (dummy)	0.208	0.406
Blue collar low-skilled (dummy)	0.161	0.367
Blue collar medium-skilled or high-skilled (dummy)	0.289	0.453
Obs	16140	

Source: SOEP waves 2001-2009, own calculations.

**Table A2: Multinomial Logit, full sample**

	Model 1		Model 2	
	Over- employed Coeff. (Std.)	Under- employed Coeff. (Std.)	Over- employed Coeff. (Std.)	Under- employed Coeff. (Std.)
Works Council	-0.148** (0.071)	0.068 (0.137)	-0.046 (0.081)	0.017 (0.152)
Kids	-0.069 (0.074)	0.024 (0.127)	0.129 (0.102)	-0.169 (0.184)
Works Council x Kids			-0.311*** (0.111)	0.250 (0.199)
Agreed working hours (week) x 10 <sup>-1</sup>	1.077*** (0.137)	-2.640*** (0.181)	1.082*** (0.137)	-2.652*** (0.180)
female	0.426*** (0.080)	-0.645*** (0.145)	0.431*** (0.080)	-0.653*** (0.146)
Female x Kids	-0.221* (0.133)	-0.312 (0.250)	-0.246* (0.133)	-0.269 (0.249)
Married	-0.032 (0.073)	-0.154 (0.129)	-0.030 (0.073)	-0.152 (0.129)
University degree	0.523*** (0.177)	0.353 (0.306)	0.526*** (0.177)	0.359 (0.306)
Completed apprenticeship	0.268** (0.130)	0.367* (0.215)	0.271** (0.130)	0.404* (0.216)
Tenure x 10 <sup>-2</sup>	-0.388 (0.821)	1.953 (1.313)	-0.417 (0.819)	2.002 (1.320)
Uni. degree x tenure x 10 <sup>-2</sup>	-2.631** (1.095)	-0.953 (1.857)	-2.611** (1.093)	-0.992 (1.870)
Compl. apprent. x tenure x 10 <sup>-2</sup>	-0.517 (0.860)	-1.994 (1.369)	-0.530 (0.857)	-2.035 (1.380)
Hourly wage	0.058*** (0.006)	-0.043*** (0.010)	0.058*** (0.006)	-0.043* (0.010)
Age	0.079*** (0.023)	0.078** (0.038)	0.080*** (0.023)	0.077** (0.038)
Age <sup>2</sup>	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001** (0.000)
White collar (low)	0.339*** (0.112)	0.149 (0.194)	0.337*** (0.112)	0.152 (0.194)
White collar (middle)	0.574*** (0.092)	0.361*** (0.149)	0.569*** (0.092)	0.400*** (0.150)

**Table A2: Multinomial Logit, full sample (cont.)**

White collar (high)	0.851*** (0.115)	0.119 (0.208)	0.849*** (0.115)	0.120 (0.209)
Blue collar (middle, high)	0.465*** (0.079)	0.220* (0.130)	0.463*** (0.080)	0.221 (0.131)
Agreed weekly hours (spouse)	0.019 (0.018)	-0.044 (0.034)	0.016 (0.018)	-0.043 (0.034)
Household income minus own income x 10 <sup>-1</sup>	0.080*** (0.028)	0.019 (0.053)	0.081*** (0.028)	0.181 (0.053)
East	0.441*** (0.076)	0.028 (0.136)	0.439*** (0.078)	0.032 (0.136)
No. of obs	16140			
Pseudo-R <sup>2</sup>	0.084		0.085	

Notes: \*\*\*/\*\*/\* indicates statistical significance at the 1%, 5% and 10% level. Clustered standard errors in parentheses. Industry, time and establishment size dummies included. Reference group for professional position: Blue collar (low).

Source: SOEP waves 2001-2009 own calculations.

**Table A3: Multinomial Logit, women**

	Model 1		Model 2	
	Over-employed Coeff. (Std.)	Under-employed Coeff. (Std.)	Over-employed Coeff. (Std.)	Under-employed Coeff. (Std.)
Works Council	-0.264** (0.134)	0.398 (0.285)	-0.174 (0.141)	0.330 (0.294)
Kids	-0.275** (0.122)	-0.347 (0.239)	-0.026 (0.170)	-0.589 (0.377)
Works Council x Kids			-0.445** (0.227)	0.373 (0.443)
Agreed working hours (week) x 10 <sup>-1</sup>	0.650*** (0.223)	-2.661*** (0.277)	0.689*** (0.223)	-2.703*** (0.279)
Married	-0.098 (0.141)	-0.261 (0.291)	-0.184 (0.142)	-0.248 (0.289)
University degree	0.250 (0.327)	0.183 (0.564)	0.230 (0.328)	0.228 (0.567)
Completed apprenticeship	0.413 (0.253)	0.557 (0.357)	0.410 (0.255)	0.596* (0.356)
Tenure x 10 <sup>-2</sup>	0.770 (1.724)	3.186 (2.294)	0.749 (1.743)	3.305 (2.289)
Uni. degree x tenure x 10 <sup>-2</sup>	-3.192 (2.171)	-4.920 (3.415)	-3.022 (2.189)	-5.029 (3.428)
Compl. apprent. x tenure x 10 <sup>-2</sup>	-2.726 (1.794)	-7.138*** (2.497)	-2.862 (1.825)	-7.259*** (2.512)
Hourly wage	0.066*** (0.012)	-0.049** (0.023)	0.066*** (0.012)	-0.049** (0.023)
Age	0.106*** (0.040)	0.030 (0.063)	0.108*** (0.040)	0.030 (0.063)
Age <sup>2</sup>	-0.001*** (0.000)	-0.001 (0.001)	-0.001*** (0.000)	-0.001 (0.001)
White collar (low)	0.574*** (0.175)	0.256 (0.329)	0.573*** (0.175)	0.262 (0.328)
White collar (middle)	0.867*** (0.189)	0.640** (0.298)	0.868*** (0.159)	0.644** (0.298)
White collar (high)	1.321*** (0.246)	0.446 (0.592)	1.323*** (0.246)	0.448 (0.506)
Blue collar (middle, high)	0.771*** (0.221)	0.667 (0.435)	0.774*** (0.221)	0.659 (0.434)
Agreed weekly hours (spouse) x 10 <sup>-2</sup>	0.003 (0.032)	-0.157** (0.065)	0.000 (0.032)	-0.156** (0.065)
Household income minus own income x 10 <sup>-1</sup>	0.112** (0.050)	0.028 (0.110)	0.111** (0.050)	0.032 (0.110)
East	0.322*** (0.139)	0.425* (0.239)	0.309** (0.138)	0.426* (0.238)
No. of obs	4948			
Pseudo-R <sup>2</sup>	0.099		0.100	

Notes: See Table A3.

**Table A4: Multinomial Logit, men**

	Model 1		Model 2	
	Over-employed Coeff. (Std.)	Under-employed Coeff. (Std.)	Over-employed Coeff. (Std.)	Under-employed Coeff. (Std.)
Works Council	-0.098 (0.084)	-0.043 (0.156)	0.009 (0.099)	-0.135 (0.179)
Kids	-0.061 (0.078)	-0.024 (0.130)	0.114 (0.113)	-0.186 (0.199)
Works Council x Kids			-0.274** (0.130)	0.243 (0.224)
Agreed working hours (week) x 10 <sup>-1</sup>	1.132*** (0.173)	-2.785*** (0.259)	1.318*** (0.173)	-2.790*** (0.259)
Married	0.011 (0.088)	-0.087 (0.149)	0.010 (0.088)	-0.086 (0.149)
University degree	0.723*** (0.200)	0.512 (0.362)	0.728*** (0.200)	0.511 (0.367)
Completed apprenticeship	0.210 (0.146)	0.365 (0.262)	0.215 (0.145)	0.365 (0.263)
Tenure x 10 <sup>-2</sup>	-1.004 (0.889)	1.742 (1.576)	-1.032 (0.881)	1.765 (1.587)
Uni. degree x tenure x 10 <sup>-2</sup>	-2.387* (1.250)	-0.176 (2.138)	-2.405* (1.244)	-0.194 (2.154)
Compl. apprent. x tenure x 10 <sup>-2</sup>	0.463 (0.936)	-1.046 (1.630)	0.449 (0.928)	-1.051 (1.644)
Hourly wage	0.057*** (0.007)	-0.046*** (0.012)	0.057*** (0.007)	-0.046*** (0.012)
Age	0.063** (0.028)	0.107** (0.049)	0.065** (0.028)	0.106** (0.049)
Age <sup>2</sup>	-0.001** (0.000)	-0.002*** (0.001)	-0.001** (0.000)	-0.002** (0.001)
White collar (low)	0.271* (0.155)	0.178 (0.264)	0.264* (0.155)	0.181 (0.265)
White collar (middle)	0.434*** (0.116)	0.275 (0.177)	0.426*** (0.116)	0.283 (0.178)
White collar (high)	0.649*** (0.130)	-0.030 (0.232)	0.645*** (0.130)	-0.029 (0.232)
Blue collar (middle, high)	0.396*** (0.088)	0.152 (0.140)	0.392*** (0.088)	0.155 (0.141)
Agreed weekly hours (spouse) x 10 <sup>-2</sup>	0.028 (0.022)	0.001 (0.041)	0.026 (0.022)	0.002 (0.041)
Household income minus own income x 10 <sup>-1</sup>	0.053 (0.035)	0.050 (0.061)	0.054 (0.035)	0.050 (0.061)
East	0.518*** (0.092)	-0.067 (0.165)	0.519*** (0.093)	-0.064 (0.165)
No. of obs	11192			
Pseudo-R <sup>2</sup>	0.085		0.086	

Notes: See Table A3.

**Table A5: Probit with sample selection**

	Women		Men	
	Model 1	Model 2	Model 1	Model 2
	Coeff. (Std.)	Coeff. (Std.)	Coeff. (Std.)	Coeff. (Std.)
Works Council	0.125* (0.074)	0.074 (0.077)	0.058 (0.047)	0.008 (0.056)
Kids	0.361*** (0.113)	0.234** (0.126)	0.022 (0.039)	-0.062 (0.061)
Works Council x Kids		0.245** (0.123)		0.129* (0.073)
Agreed working hours (week) x 10 <sup>-1</sup>	-0.170 (0.116)	-0.189 (0.115)	-0.445*** (0.093)	-0.443*** (0.093)
University degree	-0.316 (0.211)	-0.316 (0.210)	-0.475*** (0.118)	-0.478*** (0.118)
Completed apprenticeship	-0.373** (0.161)	-0.377** (0.161)	-0.195** (0.089)	-0.197** (0.089)
Tenure x 10 <sup>-2</sup>	-0.593 (0.965)	-0.581 (0.962)	0.288 (0.504)	0.302 (0.501)
Uni. degree x tenure x 10 <sup>-2</sup>	1.924 (1.203)	1.822 (1.207)	1.405** (0.685)	1.407** (0.683)
Compl. apprent. x tenure x 10 <sup>-2</sup>	1.904* (1.000)	1.932* (1.005)	-0.021 (0.530)	-0.016 (0.526)
Hourly wage	-0.034*** (0.007)	-0.034*** (0.007)	-0.028*** (0.004)	-0.028*** (0.004)
Age	-0.086*** (0.026)	-0.089*** (0.026)	-0.046*** (0.017)	-0.047*** (0.017)
Age <sup>2</sup>	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)
White collar (low)	-0.332*** (0.099)	-0.329*** (0.099)	-0.145 (0.091)	-0.141 (0.091)
White collar (middle)	-0.506*** (0.090)	-0.504*** (0.090)	-0.234*** (0.065)	-0.231*** (0.065)
White collar (high)	-0.737*** (0.133)	-0.736*** (0.132)	-0.349*** (0.073)	-0.347*** (0.073)
Blue collar (middle, high)	-0.450*** (0.126)	-0.448*** (0.126)	-0.209*** (0.050)	-0.208*** (0.050)
Agreed weekly hours (spouse) x 10 <sup>-2</sup>	-0.014 (0.020)	-0.015 (0.020)	-0.029* (0.016)	-0.028* (0.017)
Household income minus own income x 10 <sup>-1</sup>	0.034 (0.050)	0.040 (0.050)	0.004 (0.033)	0.004 (0.033)
East	-0.160** (0.080)	-0.152* (0.079)	-0.242*** (0.057)	-0.241*** (0.057)



**Table A5: Probit with sample selection (cont.)**

<b>Selection equation</b>				
Agreed weekly hours (spouse) x 10 <sup>-2</sup>	0.581*** (0.081)	0.580*** (0.081)	0.715*** (0.071)	0.715*** (0.071)
(Agreed weekly hours (spouse) x 10 <sup>-2</sup> ) <sup>2</sup>	-0.061*** (0.018)	-0.061*** (0.018)	-0.125*** (0.018)	-0.125*** (0.018)
Household income minus own income x 10 <sup>-1</sup>	-0.916*** (0.051)	-0.961*** (0.051)	-0.940*** (0.049)	-0.939*** (0.049)
(Household income minus own income x 10 <sup>-1</sup> ) <sup>2</sup>	0.118*** (0.007)	0.118*** (0.007)	0.126*** (0.008)	0.126*** (0.008)
Agreed weekly hours (spouse) x Household income x 10 <sup>-3</sup>	-0.044*** (0.013)	-0.044*** (0.013)	0.011 (0.016)	0.011 (0.016)
Married	0.853*** (0.155)	0.853*** (0.155)	1.536*** (0.133)	1.536*** (0.133)
University degree	1.152*** (0.119)	1.152*** (0.119)	1.427*** (0.119)	1.427*** (0.119)
Completed apprenticeship	1.007*** (0.092)	1.007*** (0.092)	1.112*** (0.083)	1.112*** (0.083)
Married x University degree	-0.121 (0.170)	-0.123 (0.170)	-0.352** (0.170)	-0.352** (0.170)
Married x Completed apprenticeship	-0.589*** (0.129)	-0.589*** (0.129)	-0.487*** (0.116)	-0.487*** (0.116)
Married x Agreed weekly hours (spouse) x 10 <sup>-2</sup>	-0.086*** (0.028)	-0.086*** (0.028)	-0.005 (0.031)	-0.005 (0.031)
Married x Household income minus own income x 10 <sup>-3</sup>	-0.185*** (0.050)	-0.185*** (0.050)	-0.395*** (0.050)	-0.395*** (0.050)
Age	0.205*** (0.018)	0.205*** (0.018)	0.110*** (0.018)	0.110*** (0.018)
Age <sup>2</sup>	-0.003*** (0.000)	-0.003*** (0.000)	-0.002*** (0.000)	-0.002*** (0.000)
Kids	-1.134*** (0.094)	-1.134*** (0.094)	-0.040 (0.092)	-0.040 (0.092)
Married x Kids	-0.419*** (0.105)	-0.418*** (0.105)	-0.187* (0.111)	-0.187* (0.111)
East	-0.440*** (0.072)	-0.440*** (0.072)	-0.580*** (0.065)	-0.580*** (0.065)
Kids x East	0.671*** (0.111)	0.673*** (0.111)	-0.032 (0.099)	-0.031 (0.099)
Number of obs	15237	15237	16522	16522
Censored obs	10289	10289	5330	5330
Uncensored obs	4948	4948	11192	11192
Rho (Std.)	-0.255** (0.119)	-0.271** (0.117)	-0.124 (0.094)	-0.127 (0.093)

Notes: See Table A3.

**Table A6: Determinants of preferred working hours (pooled OLS)**

	Model 1 Coeff. (Std.)	Model 2 Coeff. (Std.)
Works Council	-0.013 (0.127)	-0.130 (0.144)
Kids	0.091 (0.120)	-0.139 (0.162)
Works Council x Kids		0.357** (0.180)
Female	-1.402*** (0.169)	-1.404*** (-0.169)
Female x Kids	-0.283 (0.262)	-0.249 (0.263)
Agreed working hours (week)	0.407*** (0.024)	0.407 (0.024)
Married	0.227 (0.142)	0.227 (0.142)
Female x Married	-0.803*** (0.234)	-0.812*** (0.234)
University degree	-0.553* (0.285)	-0.556* (0.285)
Completed apprenticeship	-0.164 (0.213)	-0.166 (0.213)
Tenure	-0.032** (0.015)	-0.032** (0.015)
Uni. degree x tenure	0.046** (0.020)	0.046** (0.020)
Completed apprenticeship x tenure	0.029* (0.016)	0.029* (0.016)
Hourly wage	0.029*** (0.009)	0.029*** (0.009)
Age	-0.112*** (0.039)	-0.113*** (0.039)
Age <sup>2</sup>	0.001** (0.000)	0.001** (0.000)
White collar (low)	-0.467** (0.182)	-0.462** (0.182)
White collar (middle)	-0.642*** (0.162)	-0.635*** (0.162)
White collar (high)	-0.324 (0.201)	-0.317 (0.200)
Blue collar (middle, high)	-0.353*** (0.123)	-0.349*** (0.123)

**Table A6: Determinants of preferred working hours (pooled OLS) (cont.)**

Agreed weekly hours (spouse) x 10 <sup>-2</sup>	-0.100*** (0.031)	-0.098*** (0.031)
Household income minus own income x 10 <sup>-1</sup>	-0.248*** (0.050)	-0.249*** (0.050)
East	0.521*** (0.124)	0.524*** (0.124)
No. of obs	16140	16140
R <sup>2</sup>	0.143	0.144

Notes: \*\*\*/\*\*/\* indicates statistical significance at the 1%, 5% and 10% level. Clustered standard errors in parentheses. Industry, time and establishment size dummies included. Reference group for professional position: Blue collar (low).

Source: SOEP waves 2001-2009 own calculations.

**Table A7: Incidence of overtime (Probit)**

	Model 1 Coeff. (Std.)	Model 2 Coeff. (Std.)
Works Council	-0.126 (0.081)	-0.059 (0.094)
Kids	1.545 (1.068)	2.132* (1.137)
Works Council x Kids		-0.196 (0.137)
Female	0.023 (0.115)	0.024 (0.115)
Female x Kids	-0.191 (0.157)	-0.213 (0.158)
Agreed working hours (week)	-0.024 (0.018)	-0.019 (0.019)
Agreed working hours (week) x Kids	-0.046* (0.027)	-0.058** (0.029)
Married	0.196** (0.099)	0.193* (0.099)
Female x Married	-0.631*** (0.149)	-0.625*** (0.149)
University degree	0.412** (0.204)	0.414** (0.204)
Completed apprenticeship	0.333** (0.134)	0.334** (0.135)
Tenure	-0.020** (0.008)	-0.020** (0.008)

**Table A7: Incidence of overtime (Probit) (cont.)**

Uni. degree x tenure	0.023* (0.014)	0.024* (0.014)
Completed apprenticeship x tenure	0.013 (0.009)	0.013 (0.009)
Age	0.103*** (0.026)	0.104*** (0.026)
Age <sup>2</sup>	-0.001** (0.000)	-0.001** (0.000)
White collar (low)	0.188 (0.116)	0.187 (0.116)
White collar (middle)	1.005*** (0.101)	1.002*** (0.101)
White collar (high)	1.964*** (0.136)	1.962*** (0.136)
Blue collar (middle, high)	0.662*** (0.086)	0.660*** (0.086)
East	0.601*** (0.096)	0.637*** (0.096)
No. of obs	16134	16134
Pseudo R <sup>2</sup>	0.106	0.107

Notes: \*\*\*/\*\*/\* indicates statistical significance at the 1%, 5% and 10% level. Clustered standard errors in parentheses. Industry, time and establishment size dummies included. Reference group for professional position: Blue collar (low).

Source: SOEP waves 2001-2009 own calculations.



