Does it Pay to be a Woman?
Labour Market Effects of Maternity-related Job Protection and Replacement Incomes

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Abstract

It is often considered to be unwise to hire a woman in childbearing age for a highly demanding job because of the pregnancy risk. Recent research on maternity leave legislation has, however, mainly focused on the effects of maternity leave legislation on mothers' labour market outcomes. This paper tries to fill this gap and discusses the effects of maternity leave legislation on women's labour market situation in general. I investigate the impact of maternity-related job protection on both women's wages and the probability of finding employment. I exploit exogenous discrete changes in German maternity leave legislation, which constitute a quasi-experimental setting, to use a difference-in-differences approach for identification. My results using data from the German Socio-Economic Panel indicate that while an extension in the job protection and pay period lowers the probability of finding employment by around 3% for women without a university degree both in 1986 and 1990, women with a university degree in childbearing age in 1990 significantly benefit from the extension in job and pay protection. A reform solely extending either the job protection period or the pay period does not seem to have significant effects, but an extension in pay mainly seems to hamper the position of women with a university degree. Using a selection model, I do not find significant effects on wages.

Keywords: maternity leave legislation, gender pay gap, education, hiring decision, unemployment

JEL-Codes: J16, J23, J31, J71, K36

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1 Introduction

Maternity leave legislation has long been considered one of the achievements of modern safety protection regulations. Without doubt, maternity pay and job protection shortly after giving birth are beneficial for the recovery of the mother. It is, however, not as clear whether the increasing extension of both pay and protection, which is promoted by policy makers in many countries, brings about solely beneficial effects. After all, generous pay and generous job protection rules also provide incentives to leave the labour market on a replacement income. This does not only imply costs for both the employer and the government, but also for the mother, who might find labour market re-entry more difficult after a long absence. Even more so, the mere possibility of having a child and taking leave hampers the labour market prospects of women in childbearing age. In contrast to previous research, this paper focuses on the latter aspect.

Recent research on labour market effects of maternity leave legislation has mainly focused on the labour supply of mothers (e. g. Spiess and Wrohlich 2006; Dearing et al. 2007; Schoenberg and Ludsteck, 2007).[1] Job protection laws and the policy of providing a replacement income do, however, not only affect labour supply, but also labour demand for the group affected by the respective law. Maternity leave legislation is an example of a job protection law in combination with a replacement income policy, which affects the labour demand for a particular group: female employees. To an employer who decides about hiring a new employee, every woman is a potential mother.

The employer has to take into account expected future costs in case the employee takes leave following the birth of a child. Maternity leave legislation normally ensures a replacement income for the new mother, but also guarantees job protection for the period of leave in most countries. This increases lay-off costs. Besides the pecuniary costs of maternity pay,[2] the employer may have to incur additional implicit costs, which are caused by maternity leave legislation. These include a lower productivity after the employee returns, because her human capital has depreciated (Datta Gupta and Smith 2000; Goerlich and de Grip 2007), or the additional training that has to be invested in a substitute employee (Ruhm 1998; Ondrich et al. 2002). This can be enhanced by the uncertainty about when the absent employee will return and whether she will return at all (Waldfogel 1998).[3]

[1] Ruhm (1998) is an exception to this.

[2] In Germany, the employer has to pay part of maternity benefits, which a mother receives for the 2 months following the birth of a child, and which she may receive during the six weeks before childbirth. Maternity benefits are related to the woman's salary. This is similar to employers' contribution to sick pay.

[3] The period of actual leave-taking strongly depends on the length of the statutory job protection period, refer e. g. to Ondrich et al. (1996), Gottschall and Bird (2003), and Berger and Waldfogel (2004).

The German example is especially well-suited for analysing the effect of job-protected leave on employment opportunities, as the job-protected leave period of 3 years in Germany is the longest in the world. The law obliges the employer to offer a mother the same or an equivalent job after she returns from maternity leave. This issue is of international relevance. The job protection period related to maternity leave was extended in many other countries recently, such as Canada, Denmark and the UK. It has also been extended in the United States in California. While policy makers often only consider the direct effects on mother and children, second order effects on the labour market position of women in general, which may be of significant magnitude, are ignored. This paper draws attention to these effects and shows that these rules are of particular relevance for women's labour market position. I show that every woman in childbearing age is adversely affected by changes in maternity leave legislation, irrespective of whether she will have a child or not. Maternity leave legislation raises expected costs for the employer if he hires a woman in childbearing age. As a result, every woman in childbearing age has to pay a risk premium.

As the extension of the statutory, job-protected leave period can be considered an exogenous change in lay-off costs, this risk premium can be expected to take either the form of reduced wages or the form of a reduced probability of finding employment or both. Job protection deters job market re-entry of mothers, so exogenous changes in the protection period should raise the risk premium. The implications of a replacement income, such as unemployment benefits or maternity benefits, are less unambiguous. Maternity benefits constitute a form of replacement income. The implied labour market deterrence effect can be counteracted by a labour market attachment effect. Before the existence of maternity benefits, mothers would stop working and the income effect would be felt immediately in a situation in which most mothers cannot continue to work for health reasons. If they receive maternity benefits, the loss in income is not felt immediately, but only when maternity pay is discontinued. This delayed income effect then encourages mothers to return to work to make up for the discontinued benefits.

While the effects of these regulations are well-understood with respect to their effect on the treated, the potential spillover effects on the untreated women, i. e. women who do not have a child and thus do not take leave, are not considered in the academic debate. These effects do, however, appear to have a significant importance for labour market dynamics. Anecdotal evidence from Germany shows that even the Federal Constitutional Court acknowledges the fact that women may face implicit discrimination for being a potential mother. This was related to a decision about how much of the costs related to maternity leave legislation have to be borne by employers, considering that higher costs would foster employers' unwillingness to hire women (Bundesverfassungsgericht 2003).

This paper empirically investigates the impact of maternity-related job protection on women's wages and employment opportunities by looking at discrete changes in German maternity leave legislation. The job protection period was extended several times between 1986 and 1992, while there was a change in the payment period of maternity benefits in 1986, 1990 and 1993. The availability of data for that time span allows to compare the effects of different job protection and pay periods on labour market outcomes. The reforms constitute a quasi-experimental setting, because job protection and pay were mainly extended in order to benefit the child.

Building on this quasi-experimental setting, I use a difference-in-differences approach. Women aged 18-40 constitute the treatment group, while men of the same age serve as a control group, because only 2% of them take leave after the birth of a child (Gottschall and Bird 2003). I use data from the German Socio-Economic Panel for the year before and after each reform for the analysis. First results from the analysis of the German Socio-Economic Panel are supplemented by more in-depth analyses using German Microcensus data and German Social Security data on employment histories. The samples are restricted to persons who were unemployed in the base period, did not (yet) have a child and to West German individuals. Restricting the sample to persons who are unemployed in the base period is especially important, as an adjustment in wages should mainly show up for new hires.

In particular, I analyse how easily previously unemployed women in the treatment group find employment relative to the control group before and after the respective changes in policy. My results indicate that the transition into employment implies stronger selectivity among employers after the changes in policy. While it seems to be more difficult for women without a university degree to find a job, at least after the change in 1990 it seems to be easier for women with a university degree. In 1986 and 1990, the extension in maternity leave legislation (which implied both an extension in the job protection and the payment period) reduces the probability of finding a job by about 3% for women without a university degree. Women with a university degree are by around 18% more likely to find a job in 1990/1991. A selection model estimating the wages of the newly hired confirms the selectivity at the employment margin: I do not find significant effects on wages of the newly hired. Interestingly, significant effects mainly appear only for those years in which both job protection and pay period were changed.

Section 2 relates maternity-related job-protection to recent models on job protection laws and lay-off costs. The data, the sample and a descriptive overview are presented in section 3, while section 4 contains the detailed identification and estimation strategy as well as the regression results. Section 5 concludes.

2 Theoretical Background

Employment protection laws and implied lay-off costs have long been discussed as one of the main reasons for labour market rigidities and unemployment in Europe (Saint-Paul 1997). Often, the emphasis of research on employment protection lies on the welfare effects of externally imposed lay-off costs, which are not part of the employer-worker bargaining process. General equilibrium models of employment protection come to ambiguous conclusions on the effects of job protection laws on average employment. Ljungqvist (2002) shows that the effect on equilibrium employment strongly depends on the underlying model of the labour market.

Maternity leave legislation contributes to the set of employment protection laws, as in many countries the period of maternity-related employment protection has been extended quite generously. Germany is one of the countries which grants the longest period of statutory, protected leave of currently 3 years. Along the lines of the literature of job protection, maternity-related job protection increases lay-off costs for an employer. A woman has to be given the same or an equivalent job if she returns from maternity leave, although her human capital has depreciated in the meantime. In addition, the employer has to hire a substitute employee for the time of leave. As this is typically associated with a temporary job contract for the substitute employee, suitable candidates are often hard to find. In addition, there may be a waste of firm-specific training, because the substitute employee will have to leave the firm again when the leave-taker returns. As a result, maternity leave legislation implicitly increases lay-off costs.

The employer would bear a higher risk when hiring a woman, and thus will try to internalise the risk. The additional costs could be internalised in the employer-employee bargaining process, such that the female employee would bear a higher risk premium. In contrast to Schmitz (2004) there are real costs associated with taking leave after the birth of a child, which would be paid by the employee who causes this under symmetric information. That is, unlike in the Schmitz (2004) case, under symmetric information there would not necessarily be a loss in total surplus, given that the decision on how long to take maternity leave is not distorted. Under asymmetric information, however, some agents who do not become pregnant do not cause a cost, but have to pay an average risk premium to the principal, because the principal can only observe the average pregnancy risk (Scheubel, 2008).

Hypothesis 1: The Risk Premium caused by Maternity Leave Legislation
Increased job protection after maternity leave increases the risk premium to be paid by affected agents. Under asymmetric information, this applies to

all female employees.

What does Hypothesis 1 imply for the estimation of overall labour market effects of maternity leave legislation? First, hypothesis 1 restricts the effects to women, because in Germany men almost exclusively do not take up paternity leave at all. Second, the risk premium to be paid by women can either mean that they receive lower wages or that they are less likely to be hired. After all, a reduction in wages for women who are already employed and remain employed is unlikely. Still, a reduction in wages should be possible for new hires - if they are hired at all. The regression analysis therefore sheds light on the question whether women who are not employed are more or less likely to find a job after the extension in the job protection period and in the pay period. It also reveals whether women are paid less after each reform.

Hypothesis 2: The Magnitude of the Risk Premium The costs associated with an employee taking leave rise with the employees skill level, i. e. substitutability, and the extent of firm-specific training required to do the job.

Hypothesis 2 is only valid in this form if all skill groups take the same time of leave, because the costs associated with taking leave are obviously also related to the acutal period of absence. If a woman has a child in Germany, she takes the full leave period in most cases (e. g. Gottschall and Bird 2003; Büchel and van Ham 2004; Schönberg and Ludsteck 2007). The leave-taking period for women with higher education is, however, shorter, such that the effect on job market prospects for university graduates are not as clear. Firm-specific training should be the best indicator for the substitutability of an employee, but if this is not possible, training effects are approximated by separately analysing the effects for university graduates.

3 Data

3.1 The German Socio-Economic Panel

The German Socio-Economic Panel (SOEP) conveniently covers the periods of primary interest for my analysis: the years 1985 and 1986 as well as 1991, 1992, and 1993. The SOEP is an ongoing panel study of German households, which was started in 1984 (e. g. Wagner 1993), containing rich information on the labour market situation of the individuals. I use

data from waves 1984 - 2000 from the German Socio-Economic Panel (SOEP).[4] The samples for my analysis includes only persons who are unemployed in the base period, who do not (yet) have a child, and who are younger than 40 (except for the situation when I compare women in childbearing age with women out of childbearing age). The summary statistics in table 1 are presented for 1992.

Using SOEP data for the analysis however also implies some difficulties. The first one is that the reform most important for my analysis took place shortly after German reunification, which has had major repercussions on the labour market. In addition, these repercussions could have affected women differently than men, because of the higher participation rate of women in the former GDR. I aim to get around this mainly by only using SOEP Sample A, i. e. the original West German sample.

A second caveat is the information on education. For the analysis of the probability of finding employment, I restrict the sample to those individuals, who were previously unemployed. At the same time, only women in childbearing age should be affected by the reform of maternity leave legislation, which additionally restricts the sample to the young labour force aged 18 – 40. In this restricted sample, the number of university graduates is rather small. The sample size is sufficient when comparing women in childbearing age to men of the same age, but when reducing the sample further to women only for a comparison of women in childbearing age with women out of childbearing age, the sample of university graduates is too small. In these cases, I have to rely on the results of the comparison to men.

A third complication arises with the information on maternity leave spells. The explicit information on maternity leave spells is available in the SOEP only from 1990 onwards. It is important, however, to control for the negative wage effects after returning from maternity leave, and for the higher probability of re-entering employment because of the job protection law. For these reasons, I restrict the sample further to persons without children, i. e. who did not (yet) have their first child in the previous year.

A word of caution is also required with regard to the information on wages. For the sake of comparability, I rely on harmonised data on gross monthly wages and monthly household income, which are provided in EUR. Moreover, I use imputed income and wage data.

[4]The data used in this paper was extracted using the Add-On package PanelWhiz for Stata®. PanelWhiz (http://www.PanelWhiz.eu) was written by Dr. John P. Haisken-DeNew (john@PanelWhiz.eu). See Haisken-DeNew and Hahn (2006) for details. The PanelWhiz generated DO file to retrieve the data used here is available from me upon request. Any data or computational errors in this paper are my own.

3.2 Descriptive Overview

The data reveal that the usual differences in labour market status and wages between the genders are also present in the sample of the SOEP data. In addition, behavioural effects of maternity leave legislation also appear to be present. Around 60% of women without a university degree work.[5] Women with a university degree display a slightly higher labour market participation, although the figures do not show the same positive trend towards the end of the millennium. Figures are lowest in the early 1990s at around 65%. This is much lower than in the previous years. The fall seems to be stronger than for women without a university degree. This can be interpreted as an indicator of the effects of a longer statutory leave period on the working behaviour of mothers.

In fact, the effect on mothers' working behaviour also seems to show in the type of job they choose. After returning to their jobs after a long leave period, they often prefer a part-time type of job. This may explain a drop in the number of working women in full-time jobs by the end of the 1990s for women with a university degree. The decrease in the percentage of women without a university degree in a full-time job seems to follow a more persistent downward trend.

But how do the reactions of mothers to the newly gained rights affect women in general? Do they have to pay for their colleagues' parental rights? In fact, the percentage of women with a university degree that has found a job if previously unemployed has dropped from 1991 to 1992, whereas there is no change for male university graduates (table 2). Effects from 1985 to 1986 are similar, but seemingly smaller. Again, from 1992 to 1993 there was a drop in female university graduates finding a job, while the figure slightly increased for male university graduates. Th changes in other years than the reform years however indicate that there is a strong fluctuation.

(More information to be added.)

3.3 German Microcensus

This data set does not contain detailed information on wages, but provides a larger sample size such that the small-sample issues for unemployed female university graduates in childbearing age, which arise with the SOEP, can be addressed.[6]

[5] Tables to be added.

[6] Work on this is currently in progress. Please contact the author for first results.

3.4 German Social Security Data (IABS)

In addition to larger samples, German social security data provides reliable data on maternity leave spells.[7]

4 Results

4.1 Identification Strategy: A Difference-in-Differences Approach

The identification strategy exploits the fact that there were several exogenous changes to maternity leave legislation in Germany between 1986 and 1993, which creates a quasi-experimental setting that can be used for a difference-in-differences approach.

Maternity leave legislation in Germany was altered several times between 1979 and 2007. The early reforms, which granted only a relatively short period of 6 months in 1979 and 10 months in 1986 and basic maternity pay were primarily meant to promote the child's health. The latest changes to the law are mainly targeted to working mothers. The 2001 reform gives the right to a working parent to continue their job part-time instead of full-time after the birth of a child if they desire so. The 2007 reform then increased paternity pay (*Elterngeld*) for the first 12 months. It is granted for two additional months, if the other parent agrees to stay home with the child for these 2 months.

Increases in maternity benefits and maternity pay[8] can indeed foster mothers' labour market attachment and speed up their return to work. The income effect after maternity benefits are discontinued encourages women to seek employment to make up for the loss in income.

Although job protection is also meant to simplify mothers' return to work, the effects should be rather adverse. Mothers are tempted to stay home for the whole protection period (Gottschall and Bird 2003), which makes the pregnancy of an employee more costly for the employer. Anecdotal evidence suggests that women do return to their jobs, but often accept a job, which is not of equal status as before or are fired for some other reason shortly after returning.

It is, however, not clear, whether the effects of maternity benefits/maternity pay are unambiguously positive. They may help to speed up the return to work if the income effect is

[7] Work on this is currently in progress. Please contact the author for first results.

[8] While maternity pay is similar to sick pay and almost equivalent to the women's net income, maternity benefits are flat-rate and paid by the government.

strong. But these payments also act as a form of replacement income, which, taken together with job protection, can be a strong incentive to stay at home or even space in another birth. Similarly, an extension in job protection, which is not matched by an increase in the maximum duration of maternity benefits may increase costs for the employer only to some extent. After all, the incentives for staying at home are much stronger if one is paid for doing that. It is therefore of major interest to analyse the interplay of both instruments of welfare politics.

A woman receives maternity pay for the first two months after giving birth and may receive maternity benefits for the 6 weeks preceding the birth if she wishes to do so. Afterwards, she receives maternity benefits (300 € a month) from the government up to the maximum duration of the maternity benefits period. The discontinuation of maternity benefits after some time indeed induces the return to work.

In January 1986, both the job protection period and the maximum duration of maternity benefits were extended from 6 to 10 months. In July 1990, again both periods were extended to 18 months. The rise from 10 months in 1986 to 2 years in July 1990 was gradual. In 1992, the only change in legislation was a rise in the job protection period to 36 months, while in 1993 only the payment period was extended to match the protection period, i. e. also to 36 months.

Unlike the recent changes in paternity pay, the reforms in the 1990s were introduced to benefit the child, so they should be exogenous to the mothers' and womens' labour market situation. This is especially true for women who are not mothers. Moreover, public discussion of the reforms typically took place only three months before the reform was implemented (Schönberg and Ludsteck 2007), so the main behavioural changes should have taken place when the reform was implemented and not when it was agreed upon in parliament.

For the difference-in-differences strategy to yield unbiased estimates, treatment must be assigned randomly. As women in childbearing age should be affected by the reform, because they are potential mothers, men of the same age and characteristics constitute a natural control group, because in Germany, it is almost exclusively the mothers who take maternity leave. Treatment is then only based on age and gender. As a robustness check for all regressions, I additionally compare the treatment group to a second control group. The second control group is composed of women aged 40 or older. This strategy of using men and women out of childbearing age as control groups is similar to Ruhm (1998).

Assumption 1: Treatment Period Agents react directly to the different set of economic conditions.

Treatment is defined as *Year 1986*, *Year 1990/91*, *Year 1992* or *Year 1993* in the cross-section models. I include the year 1991 to be part of the 1990 treatment effect, because the 1990 reform was implemented in July. Only those persons hired after July should have been affected. In the SOEP, the information on the month of starting the job is not available for all observations, such that 1991 is included instead. The analysis of German social security data allows for a more precise identification strategy.[9]

Assumption 1 implies that all years other than the treatment years in the panel thus make up a potential 'placebo' treatment for the sensitivity analysis in the cross-section analysis of employment opportunities. In the selection model for estimating the wages of those who were newly hired, I include all observations from the above defined sample for the periods 1984 – 2000. I then define mutually exclusive treatment periods to be included in the regression. That is to say, the first treatment period is 1986 – 1989, the second treatment period is 1990 – 1991, the third treatment period is 1992, and the fourth treatment period is 1993 – 2000.

> **Assumption 2: Treatment Effects** The effect of the treatment on the treated is heterogenous. The magnitude depends on the costs, which an employee causes when they take leave.

Assumption 2 directly follows from the model. The effect of job protection on womens's employment situation should be stronger the stronger the adverse effects of job protection are on the employer. Education should strongly be related to these costs. I compare estimates for women with a university degree and the rest of the sample separately. Moreover, I also use the same approach for different levels in firm-specific training.

> **Assumption 3: Selection on Observables** Selection into treatment is random. Any differences which remain can be controlled with observable covariates.

4.2 Estimation Strategy: Employment Effects and Returns to Education

An employer can react to the increased period of job protection in two ways: either he can stop to hire women or at least women in childbearing age or he can adjust women's pay in order to account for higher expected cost in the case of pregnancy, given that the pregnancy

[9]Work on this is currently in progress. Please contact the author for first results.

risk has remained the same. In both cases, the effect should be stronger for women who are more costly to replace. In estimating these effects, the approach should, however, be different.

First, employment opportunities after the policy change can be analysed best using a kind of first-differences approach. If employers are more reluctant to hire, it should be more difficult for individuals who do not have a full-time job to find one. A reasonable measure for job opportunities is thus whether someone, who was not employed before, more easily finds a job after the reform. The variable of interest, measuring the opportunities of employment for those who are affected by the reform, is then the first difference in employment status for previously unemployed persons. Being unemployed means not having a job or not being employed respectively, not necessarily only being registered as unemployed. Therefore, being unemployed also includes persons on leave or in education or military service. It does not, however, include marginally employed persons, or persons currently in vocational training. Broadening the sample by including these groups does not have a strong effect on the results. Job protection laws in general are very rigid in Germany, so that any reaction can only show for employees, who are hired after the policy change. This is why I restrict the sample to individuals who are not employed in the base period.

I compare the change in employment status in period t (1986, 1990/1991, 1992 or 1993) with the change in employment status in period $t-1$ (1985, 1989, 1991 or 1992). Let e_t denote employment status in year t. Then I compare $e_t - e_{t-1}$ with $e_{t-1} - e_{t-2}$.[10] The change in employment status in period t will depend on personal characteristics in the base year, $t-1$. A reduced-form model for finding employment in the year of interest would then be:

$$Y(0) = empl_t - empl_{t-1} = \beta_0 + \beta_t T + \beta_{tg} TG + \beta_{tt} T * TG + \boldsymbol{\beta_e} \mathbf{x_e}_{t-1} + u$$

where $t \in (1985, 1986)$ for the first policy change and $t \in (1989, 1990/91)$ for the second policy change, $t \in (1991, 1992)$ for the third policy change and $t \in (1992, 1993)$ for the fourth policy change. $T \in (0, 1)$ is a dummy indicating the treatment, that is, the year of change, while $TG \in (0, 1)$ is an indicator for the treatment group, such that $T * TG$ identifies the effect of treatment on the treated. $\mathbf{x_e}$ denotes a vector of personal characteristics that determine the probability of being hired and that are taken from the base year. Explanatory variables, which capture the characteristics of the current job, are taken from the current year.

[10] I only look at observations for whom $t-1$ ($t-2$ respectively) is equal to zero. This makes sure that I only compare those who find employment to those who do not, and not to those who are in employment and do not experience a change. As a result, $((e_t - e_{t-1}), (e_{t-1} - e_{t-2})) \in (0, 1)$.

Although this specification uses a binary variable as the dependent variable, I do not use a maximum likelihood estimator, but a linear probability model, for the sake of interpretation (Ai and Norton (2003)).[11] In a first-step analysis, I compare the relevant cross-sections for both control groups. A first sensitivity analysis includes the effect of all 'placebo' treatments in the panel.

For estimating the effect of the reforms on wages, I use a standard Mincer wage regression in a Heckman type selection model, in which the previous analysis would make up the first stage regression. The model then defines the log wage of individual i to be

$$log\ wage_i = \boldsymbol{\beta_y}\mathbf{year_t} + \beta_{tg}TG + \beta_{tt}TG * T + \boldsymbol{\beta_{ex}}\mathbf{x}_i + \varepsilon_i,$$

where $year_t$ denotes year fixed-effects and $\mathbf{x}_{it}$ denotes the usual explanatory variables in a Mincer wage regression. I use the full panel for years 1984 – 2000 in a cross-section approach.[12] Treatment effects are jointly estimated in one regression containing indicators for treatment periods. I define mutually exclusive treatment periods to be included in the regression. That is to say, the first treatment period is 1986 – 1989, the second treatment period is 1990 – 1991, the third treatment period is 1992, and the fourth treatment period is 1993 – 2000. Restricting the selection model to the years before and after each treatment only does not change the results, but inflates standard errors for the decrease in the number of uncensored observations.

4.3 Regression Results: Difficulties in Finding a Job, but No Wage Penalty

4.3.1 German Socio-Economic Panel: Results

An extension in the job protection period in combination with an extension in the pay period worsens the position of women without a university degree on the job market. They face a lower probability of finding employment of about 3% if they were not employed previously. There are hardly any effects of a joint change in the job protection and the pay period on women with a university degree in 1986. In 1991, however, the joint change seems to have had a positive effect on women with higher education to be hired. A single change in either pay period or protection period does not seem to have similar effects.

The first possibility for the employer to react to changed economic conditions is just

[11] Using a maximum likelihood estimator does not significantly affect results.

[12] The SOEP sample is too small for a panel data selection model.

to refrain from hiring women in childbearing age. This can either imply increased hiring of men or less hiring altogether. As the model cannot differentiate between supply and demand effects, I aim to capture both supply and demand side effects by the appropriate controls in the model. It should then capture both search model aspects and matching model aspects. The first regression in table 3 shows the regression results for a pooled cross section of observations comparing the situation in 1985 to 1986. The sample consists of the non-employed in the base period, i. e. the non-employed in 1984 and 1985, who were younger than 40 and did not (yet) have a child. The question, which is to be answered with the regression analysis is whether non-employed women are less likely to find a job if they were not employed in the year before the reform was implemented.

Many women work in part-time jobs. One of the reasons for this could be that they rather accept a part-time job than no job at all. At the same time, an employer might be more likely to hire a woman if she applies for a full-time job, because then it is less likely that she needs to care for her children or that she might have children soon. At the same time, men are mainly working in full-time jobs. For the sake of comparability, I exclude those observations who found a part-time job.[13] Other usual variables, which should determine employment opportunities are age, marital status, and to a lesser extent years of education in the previous year. Education should matter to a lesser extent, because I look at women with a university degree separately. Table 3 shows that the only (marginally) significant effect of the 1986 reform on women in childbearing age shows for women without university education, who would move (or move not) to a full-time job. For this group, the probability of finding employment would be reduced by around 3%. There are several reasons for this. First, women with higher education might return to work earlier anyway. First, if they delay their return to work too much, their career prospects would be severely hampered. Moreover, job protection was half a year, which is considered appropriate by most employers even today. In addition, moving from maternity pay to maternity benefits would inflict larger income effects on women with higher education and thus promote their earlier return to work. For women with a lower income, the replacement income offered by the government (maternity benefits) would be a more serious alternative to working.

Table 4 confirms this interpretation somewhat. In July 1990 there was a strong extension in both the leave and the pay period. Again, there is a negative effect on women without a university degree of about 3% in 1991.[14] The effect on women with a university degree in

[13]Including these observations would lower the coefficient of treatment on the treatment somewhat, but would not change the significance of the results most of the time. Refer to tables 3–6 for a comparison of the samples.

[14]Note that I included the year 1991 to be a treatment period, because the change only took effect in July 1990 and the SOEP sample does not allow to distinguish the month of job start for all observations in the

childbearing age is strongly positive and around 19%. So it could well be that an increased duration of maternity benefits might mainly affect women without a university degree where income effects are stronger. This means that women without a university degree have become relatively more expensive for the employer, why he would rather hire women with higher education, among which the risk of a long absence is smaller.

The 1992 policy reform had no significant impact (table 5), but effects again seem to be of different sign for women with and without a university degree. Interestingly, neither in 1992 or 1993 the magnitude of the effect for women without a university degree is very large. Interestingly, the 1993 reform, which just raised the period of maximum duration of maternity benefits seems to have had a negative effect also on women with a university degree (table 5), just like in 1986. In 1993, the effect on women with a university degree is even marginally significant in the sample, which includes women who moved into part-time jobs. An explanation for this could be the fact that the employer might even be better off if a woman without university education stays home longer. The costs with replacing her should decrease with the time span when she is on leave as it is more likely to find a substitute for a longer time. Additionally, in low-skilled jobs, the loss in human capital should not be as large, so readmitting her when she gets back should not be as costly. Therefore, any extension from 2 – 3 years either in job protection or pay period should not make much of a difference.

The analysis also includes an indicator variable for a temporary job contract. In the literature on job protection, temporary job contracts are mentioned as a means ofcounteracting the rigidities, which are enhanced by job protection legislation (e. g. Cahuc and Postel-Vinay 2002). Empirical research of fixed-duration contracts has shown that the introduction of such a type of contract increases flexibility and labour market flows (Goux et al. 2001; Blanchard and Landier 2001).[15] In fact, in the SOEP sample, starting on a temporary job contract also significantly raises the probability of starting a job.

The second possibility for the employer to react to changed economic conditions is to make women pay a risk premium for the possibility that some of them might have children. A useful approach to measuring a potential risk premium in pay is an estimation of the returns to education. I use a standard Mincer regression in a Heckman selection model setting, in which the previous analysis provides the first stage analysis to estimate the selection term. As women's elasticity of labour supply is much higher than men's I use monthly net household income as a proxy to job seeking intensity. This variable also serves as the

sample.

[15]Boeri (1999) is an exception to this. He presents a model and empirical evidence that temporary contracts can decrease the probability of the unemployed finding a job.

exclusion restriction, because household income should not affect the individual wage if controlling for weekly work hours and restricting the type of job to be a full-time job.

I include a variable measuring whether a person's educational level corresponds to job requirements. This is meant to capture effects of women often accepting a job which is below their educational level after a long break or because the job is less demanding and so allows for the care of children. Weekly actual work hours are also meant to adjust for such an effect. Differences in pay, which may result from the type of job, are captured by including dummy variables indicating the type of industry. Here, too, an indicator for a temporary job contract is meant to capture differences, which may result from switching to only hiring on a temporary basis to alleviate the additional lay-off costs implied by job protection in maternity leave legislation. In table 8 , a temporary job significantly reduces wages. Thus, temporary workers are not paid a premium as in Hagen (2001).

The employment history is approximated by a dummy variable, which is switched on if the person was unemployed in the previous year and a variable, which measures the years since being employed in a full-time job. For example, if someone was employed in a full-time job in $t-1$ and is still employed in the same job, the variable would take the value 0. This variable is meant to capture any human capital effects caused by past unemployment. One additional year of a gap between the current job and the last full-time job significantly reduces wages.

There is no negative effect of any treatment period on wages (table 7). The estimation indicates significant selection to be present in the sample. There is, however, a negative effect of treatment in the first stage regression (table 8), which confirms the previous analysis. Note that the sample is different than in the previous cases. For the reliability of the second stage analysis, I use the full panel from 1984 to 2000, and do not look at women with and without a university degree separately. Doing this reveals, however, that the significant negative treatment effect in 1993 is due to the women with a university degree. The inflated magnitude of the effect is due to including later periods and thus also allowing for a longer period of treatment coming to effect.

4.3.2 German Socio-Economic Panel: Sensitivity Analysis

A robustness check of the 'placebo' treatments, i. e. all other years in which no reform of maternity leave legislation was implemented, basically confirms the existence of significant effects in the 1991 and 1986 (table 9). This is basically confirmed when using women aged 40 or older as a control group, but due to the sample size, these results should be interpreted with some caution (table 10). The placebo treatment strategy, when applied to the selection

model not for all periods, but for two-year cross-sections also confirms the pooled analysis.

In addition, instead of comparing women with and without a university degree, I also compare women in jobs, which require a vocational training or a university degree to women in jobs, which only require some introduction or short training period. Results are qualitatively similar, both for the linear probability model and the selection model. Wages never turn out to be significantly affected.

While there is no clear evidence that a job protection strategy in combination with a replacement income unambiguously worsens the labour market position of women with a university degree, this can be said about women without a university degree. The latter have to pay a risk premium: if previously not employed, it is more difficult to move to gainful employment after the policy reform. Moreover, excessively extended job protection and period of payment of replacement incomes seem to have a negative effect on the probability of finding employment for women with higher education, too. So while already a relatively short spell of receiving replacement incomes makes it more difficult to find a job for women without a university degree, women with higher education are less likely to be hired if the entitlement period is very long. First results also indicate that it is the combination of job protection and replacement income that matters.

4.3.3 German Microcensus

To be added.

4.3.4 German Social Security Data

To be added.

5 Conclusion

This paper sheds light on the effects of maternity leave legislation on the labour market outcomes for women, without restricting the analysis to mothers. By using exogenous variation in the length of the job protection and benefit entitlement period, the analysis uses a difference-in-differences strategy to show the effect of legislation changes on women's wages and employment opportunities.

The analysis is based on a model, which assumes that a long leave period imposes costs on the employer. As the employer cannot know which female employee becomes pregnant,

a risk premium has to be borne by all females willing to participate in the labour market. The contribution of the empirical analysis is twofold. First, I estimate whether employment opportunities change after the changes in legislation. The analysis shows that a prolongation of job protection by 4 months in combination with a prolongation in the entitlement period by the same time mainly affects women without a university degree. Their chances to find (full-time) employment decrease by about 3%. A prolongation of benefit entitlement by a year, from a level of two years, however, also negatively affects women with a university degree in childbearing age, while there does not seem to be an additional effect for women without a university degree. My results indicate that it is the combination of both measures, which worsens the labour market position of women in childbearing age.

Second, the estimation of women's returns to education with a selection model confirms selection, but also shows that once a woman has found a job, there is no remaining wage penalty associated with being in childbearing age.

One should, however, always keep in mind, that other changes in maternity leave legislation have positive effects on female labour supply (e. g. Ruhm 1998; Schönberg and Ludsteck 2007). The prevailing focus on supply side effects, however, does not cover the whole story. As my results indicate, too long a leave period worsens women's position in the labour market. Given the evidence for hampered employment opportunities, which are associated with too generous maternity leave policies, recent moves towards more generous policies and in particular lengthier job protection and benefit entitlement should be regarded with caution. These policies implicitly worsen the labour market position of women in childbearing age. Employers react to an implicit rise in expected costs associated with higher social standards with more selective hiring.

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Appendix

Table 1: Summary Statistics for Selected Variables

Variable	Mean	Std. Dev.
Monthly household income (Euro)	2133.611	947.829
Current year age	29.874	5.957
Years of education	11.588	2.396
Size of company (categories 1 –5)	2.554	1.2
Weekly work hours	8.73	2.342
Dummy Variables		
Gender (D)	0.43	
Married (D)	0.518	
First child born in current yr. (D)	0.344	
Temporary job contract (D)	0.05	
Full-time job (D)	0.756	
In maternity leave in $t-1$ (D)	0.011	
No. of obs.	**1946**	

Table 2: Percentage of Previously Unemployed Finding a Job

Year	No University Degree		University Degree	
	Men	**Women**	**Men**	**Women**
1985	.0319767	.0439883	.0439883	.0625
Obs.	688	341	117	48
1986	.0507692	.0325444	.0660377	.04
Obs.	650	338	106	50
1987	.0546282	.0637681	.0865385	..1568627
Obs.	659	345	104	51
1988	.0623974	.0457317	.0961538	.0754717
Obs.	609	328	104	53
1989	.05919	.0796915	.1346154	.0444444
Obs.	642	389	104	45
1990	.0461538	.0348525	.1237113	.0425532
Obs.	585	373	97	47
1991	.0632689	.0271003	.0421053	.1904762
Obs.	569	369	95	42
1992	.0620438	.0258621	.0444444	.1052632
Obs.	548	348	90	38
1993	.0594595	.0145349	.0957447	.0571429
Obs.	555	344	94	35
1994	.0667939	.0307692	.1132075	.1707317
Obs.	524	325	106	41
1995	.0819048	.0267857	.0733945	.1363636
Obs.	525	336	109	44
1996	.0753138	.0359477	.0948276	.1162791
Obs.	478	306	116	43

The table displays the percentage of the unemployed in $t-1$, who found a job in the respective year. Numbers refer to persons aged younger than 40, who did not (yet) have their first child in SOEP Sample A.

Table 3: Regression results – Employment Opportunities: Reform 1986

	Univ. Degr. Fulltime	Univ. Degr.	No Univ. Degr. Fulltime	No Univ. Degr.
	(1)	(2)	(3)	(4)
Year 1986 * gender (D)	-.059	-.054	-.032	-.025
	(.054)	(.049)	(.017)*	(.018)
Gender (D)	.010	-.012	-.007	-.009
	(.045)	(.044)	(.015)	(.015)
Year: 1986 (D)	.038	.038	.023	.025
	(.026)	(.027)	(.011)**	(.011)**
Temporary job contract (D)	.059	.093	.130	.134
	(.062)	(.059)	(.048)***	(.047)***
Age in $t-1$	-.103	-.079	-.030	-.031
	(.063)	(.061)	(.009)***	(.009)***
Age in $t-1$ sq.	.001	.001	.0005	.0005
	(.0009)	(.0009)	(.0001)***	(.0001)***
Work hours per week	.0003	-.001	.0001	-.0007
	(.001)	(.001)	(.0005)	(.0006)
Married in $t-1$ (D)	-.003	.006	-.012	-.008
	(.027)	(.026)	(.009)	(.009)
Net monthly HH income in $t-1$	-.00008	-.00008	-.00002	-.00002
	(.00004)**	(.00004)*	(1.00e-05)*	(1.00e-05)
Net HH income in $t-1$ sq. /100000	.001	.0009	.00007	.00006
	(.0006)*	(.0005)	(.00003)**	(.00003)*
Years of education in $t-1$	-.040	-.049	-.004	-.006
	(.017)**	(.018)***	(.005)	(.005)
Fachhochschule (D)	-.091	-.120		
	(.054)*	(.056)**		
First child born in current yr. (D)	-.068	-.069	-.007	-.010
	(.027)**	(.027)**	(.016)	(.015)
Required educ. for job (D)	.046	.058	-.005	-.007
	(.028)*	(.028)**	(.011)	(.011)
Industry: service (D)	-.067	-.058	-.045	-.048
	(.048)	(.048)	(.015)***	(.015)***
Industry: manufacturing (D)	-.030	-.029	-.045	-.049
	(.050)	(.050)	(.015)***	(.016)***
Industry: construction (D)	.016	.015	-.046	-.053
	(.065)	(.065)	(.018)**	(.019)***
Industry: retail (D)	-.089	-.122	-.055	-.059
	(.063)	(.066)*	(.017)***	(.018)***
Industry: public service (D)	-.050	-.063	-.059	-.061
	(.050)	(.049)	(.016)***	(.017)***
Intensity of training necessary for job	.019	.013	-.014	-.014
	(.012)	(.013)	(.006)**	(.006)**
Obs.	277	307	1885	1957

The table displays results for the sample of unemployed in 1984 or 1985, who either did or did not find a job in 1985 or 1986 respectively. The associated change in maternity leave legislation was an extension of the job protection period from 6 to 10 months and an increase of 4 months in the maximum duration of the pay of maternity benefits ((300 € a month). The sample covers persons aged 40 or younger in SOEP sample A, who do not (yet) have a child. The interaction term of the year of treatment and gender indicates the treatment on the treated as in a difference-in-difference linear probability model. Column (1) covers university graduates in a full-time job. Column (2) covers university graduates in both full-time and part-time jobs. Column (3) displays results for persons without a university degree in full-time jobs, while column (4) displays results for persons without a university degree in both full-time and part-time jobs.

Table 4: Regression results – Employment Opportunities: Reform 1990

	Univ. Degr. Fulltime	Univ. Degr.	No Univ. Degr. Fulltime	No Univ. Degr.
	(1)	(2)	(3)	(4)
Year 1990 * gender (D)	.030	.018	-.017	-.019
	(.043)	(.047)	(.016)	(.017)
Year 1991 * gender (D)	.199	.215	-.032	-.035
	(.057)***	(.060)***	(.016)*	(.017)**
Gender (D)	-.120	-.106	-.031	-.034
	(.030)***	(.029)***	(.012)**	(.013)***
Year: 1990 (D)	-.012	.014	-.002	-.005
	(.032)	(.032)	(.011)	(.011)
Year: 1991 (D)	-.087	-.075	.013	.013
	(.026)***	(.027)***	(.011)	(.012)
Temporary job contract (D)	.263	.250	.209	.214
	(.062)***	(.056)***	(.037)***	(.035)***
Age in $t-1$	-.031	-.051	-.036	-.039
	(.050)	(.052)	(.007)***	(.007)***
Age in $t-1$ sq.	.0003	.0006	.0005	.0006
	(.0008)	(.0008)	(.0001)***	(.0001)***
Work hours per week	-.001	-.003	-.0003	-.002
	(.001)	(.001)**	(.0005)	(.0005)***
Married in $t-1$ (D)	.0007	.008	-.024	-.019
	(.020)	(.020)	(.007)***	(.007)***
Net monthly HH income in $t-1$	-.00008	-.00008	-.00002	-.00002
	(.00003)***	(.00003)***	(5.45e-06)***	(5.58e-06)***
Net HH income in $t-1$ sq. /100000	.0009	.0009	.00006	.00007
	(.0003)**	(.0004)**	(.00002)***	(.00002)***
Years of education in $t-1$	-.082	-.085	.007	.009
	(.017)***	(.016)***	(.003)**	(.003)***
Fachhochschule (D)	-.215	-.238		
	(.046)***	(.045)***		
First child born in current yr. (D)	.013	.006	-.014	-.016
	(.035)	(.035)	(.010)	(.011)
Required educ. for job (D)	.011	.003	.012	.003
	(.027)	(.027)	(.008)	(.009)
Industry: service (D)	-.034	-.020	-.017	-.016
	(.036)	(.035)	(.014)	(.014)
Industry: manufacturing (D)	-.026	-.035	-.037	-.042
	(.041)	(.039)	(.013)***	(.013)***
Industry: construction (D)	-.030	-.023	-.039	-.042
	(.058)	(.056)	(.014)***	(.014)***
Industry: retail (D)	-.012	-.030	-.038	-.030
	(.055)	(.056)	(.015)***	(.015)**
Industry: public service (D)	-.085	-.091	-.055	-.060
	(.046)*	(.046)**	(.013)***	(.013)***
Intensity of training necessary for job	-.021	-.027	-.010	-.013
	(.015)	(.015)*	(.004)**	(.004)***
Obs.	535	570	3630	3778

The table displays results for the sample of unemployed in 1988, 1989 or 1990, who either did or did not find a job in 1989, 1990 or 1991 respectively. The associated change in maternity leave legislation was an extension of the job protection period from 10 to 18 months and an increase of 8 months in the maximum duration of the pay of maternity benefits ((300 € a month). As this took place in July 1990, the specification accounts for both effects in 1990 and 1991, because information on the exact month of starting the job is missing. The sample covers persons aged 40 or younger in SOEP sample A, who do not (yet) have a child. The interaction term of the year of treatment and gender indicates the treatment on the treated as in a difference-in-difference linear probability model. Column (1) covers university graduates in a full-time job. Column (2) covers university graduates in both full-time and part-time jobs. Column (3) displays results for persons without a university degree in full-time jobs, while column (4) displays results for persons without a university degree in both full-time and part-time jobs.

Table 5: Regression results – Employment Opportunities: Reform 1992

	Univ. Degr. Fulltime	Univ. Degr.	No Univ. Degr. Fulltime	No Univ. Degr.
	(1)	(2)	(3)	(4)
Year 1992 * gender (D)	.071	.048	-.008	-.007
	(.060)	(.060)	(.015)	(.016)
Gender (D)	-.017	-.016	-.052	-.055
	(.030)	(.032)	(.011)***	(.011)***
Year: 1992 (D)	-.026	-.030	.012	.010
	(.025)	(.026)	(.012)	(.012)
Temporary job contract (D)	.240	.293	.213	.196
	(.093)***	(.085)***	(.057)***	(.050)***
Age in $t-1$	-.095	-.132	-.019	-.024
	(.065)	(.069)*	(.009)**	(.009)***
Age in $t-1$ sq.	.001	.002	.0003	.0004
	(.001)	(.001)*	(.0001)*	(.0001)**
Work hours per week	.001	-.002	-.0004	-.001
	(.001)	(.002)	(.0006)	(.0006)**
Married in $t-1$ (D)	.035	.045	-.026	-.022
	(.026)	(.027)	(.007)***	(.007)***
Net monthly HH income in $t-1$	-.0001	-.0001	-1.00e-05	-1.00e-05
	(.00006)	(.00007)**	(6.05e-06)*	(5.99e-06)**
Net HH income in $t-1$ sq. /100000	.002	.002	.00003	.00004
	(.001)	(.001)*	(.00002)*	(.00002)**
Years of education in $t-1$	-.042	-.037	.004	.003
	(.018)**	(.017)**	(.003)	(.003)
Fachhochschule (D)	-.100	-.104		
	(.055)*	(.052)**		
First child born in current yr. (D)	.078	.068	-.010	-.005
	(.061)	(.059)	(.013)	(.014)
Required educ. for job (D)	.009	-.008	.004	-.002
	(.030)	(.034)	(.010)	(.010)
Industry: service (D)	-.049	-.016	-.009	-.005
	(.045)	(.043)	(.016)	(.016)
Industry: manufacturing (D)	-.047	-.047	-.030	-.034
	(.048)	(.045)	(.015)*	(.015)**
Industry: construction (D)	-.060	-.044	-.025	-.028
	(.054)	(.049)	(.018)	(.018)
Industry: retail (D)	-.098	-.062	-.022	-.016
	(.052)*	(.058)	(.017)	(.017)
Industry: public service (D)	-.092	-.098	-.050	-.053
	(.060)	(.058)*	(.015)***	(.015)***
Intensity of training necessary for job	-.035	-.036	-.004	-.005
	(.021)	(.021)*	(.005)	(.005)
Obs.	375	400	2630	2731

The table displays results for the sample of unemployed in 1991 or 1992, who either did or did not find a job in 1992 or 1993 respectively. The associated change in maternity leave legislation was an extension of the job protection period from 18 to 36 months, which came to effect on January 1st, 1992. The sample covers persons aged 40 or younger in SOEP sample A, who do not (yet) have a child. The interaction term of the year of treatment and gender indicates the treatment on the treated as in a difference-in-difference linear probability model. Column (1) covers university graduates in a full-time job. Column (2) covers university graduates in both full-time and part-time jobs. Column (3) displays results for persons without a university degree in full-time jobs, while column (4) displays results for persons without a university degree in both full-time and part-time jobs.

Table 6: Regression results – Employment Opportunities: Reform 1993

	Univ. Degr. Fulltime	Univ. Degr.	No Univ. Degr. Fulltime	No Univ. Degr.
	(1)	(2)	(3)	(4)
Year 1993 * gender (D)	-.055	-.107	-.008	-.006
	(.059)	(.059)*	(.015)	(.015)
Gender (D)	.058	.061	-.066	-.070
	(.037)	(.038)	(.011)***	(.011)***
Year: 1993 (D)	.030	.042	.002	.002
	(.022)	(.024)*	(.012)	(.012)
Temporary job contract (D)	.312	.349	.180	.172
	(.096)***	(.092)***	(.058)***	(.052)***
Age in $t-1$	-.076	-.084	-.031	-.037
	(.060)	(.060)	(.009)***	(.009)***
Age in $t-1$ sq.	.001	.001	.0004	.0005
	(.0009)	(.0009)	(.0001)***	(.0002)***
Work hours per week	.003	.001	-.001	-.002
	(.001)**	(.001)	(.0005)**	(.0006)***
Married in $t-1$ (D)	.024	.023	-.011	-.009
	(.023)	(.023)	(.007)	(.007)
Net monthly HH income in $t-1$	-.00006	-.00009	-7.46e-06	-1.00e-05
	(.00005)	(.00006)	(5.17e-06)	(5.19e-06)**
Net HH income in $t-1$ sq. /100000	.0007	.001	.00002	.00003
	(.001)	(.001)	(1.00e-05)	(1.00e-05)**
Years of education in $t-1$	-.052	-.041	.003	.003
	(.016)***	(.014)***	(.003)	(.003)
Fachhochschule (D)	-.131	-.118		
	(.043)***	(.041)***		
First child born in current yr. (D)	.069	.054	-.011	-.004
	(.063)	(.061)	(.010)	(.013)
Required educ. for job (D)	.029	.011	-.003	-.004
	(.026)	(.030)	(.010)	(.010)
Industry: service (D)	-.083	-.049	-.0009	.006
	(.042)**	(.043)	(.016)	(.015)
Industry: manufacturing (D)	-.063	-.056	-.014	-.014
	(.043)	(.041)	(.015)	(.015)
Industry: construction (D)	-.087	-.068	-.015	-.015
	(.044)**	(.042)	(.018)	(.018)
Industry: retail (D)	-.100	-.054	-.008	.0002
	(.044)**	(.055)	(.016)	(.017)
Industry: public service (D)	-.105	-.099	-.040	-.042
	(.056)*	(.054)*	(.015)***	(.014)***
Intensity of training necessary for job	-.017	-.031	-.003	-.006
	(.018)	(.019)	(.005)	(.005)
Obs.	357	383	2562	2665

The table displays results for the sample of unemployed in 1991 or 1992, who either did or did not find a job in 1992 or 1993 respectively. The associated change in maternity leave legislation was an extension of the maximum duration of the pay of maternity benefits (300 € a month) from 18 to 24 months. The sample covers persons aged 40 or younger in SOEP sample A, who do not (yet) have a child. The interaction term of the year of treatment and gender indicates the treatment on the treated as in a difference-in-difference linear probability model. Column (1) covers university graduates in a full-time job. Column (2) covers university graduates in both full-time and part-time jobs. Column (3) displays results for persons without a university degree in full-time jobs, while column (4) displays results for persons without a university degree in both full-time and part-time jobs.

Table 7: Regression Results – Wages (Selection Model)

Dep. var:	Log gross monthly wage
Year: 1986 – 1989 (D)	.083
	(.084)
Year: 1986 – 1989 * gender (D)	-.050
	(.131)
Year: 1990 – 1991 (D)	.142
	(.090)
Year: 1990 – 1991 * gender (D)	-.001
	(.152)
Year: 1992 (D)	.316
	(.100)***
Year 1992 * gender (D)	-.202
	(.179)
Year 1993 – 2000 (D)	.399
	(.083)***
Year 1993 – 2000 * gender (D)	-.078
	(.131)
Gender (D)	-.153
	(.120)
Temporary job contract (D)	-.030
	(.059)
Age	.098
	(.032)***
Age sq.	-.002
	(.0005)***
Work hours per week	.006
	(.002)***
Married (D)	-.037
	(.040)
Years of education	-.009
	(.009)
University degree (D)	.314
	(.082)***
First child born in current yr. (D)	.003
	(.088)
Required educ. for job (D)	-.058
	(.039)
Industry: service (D)	-.081
	(.043)*
Industry: manufacturing (D)	-.005
	(.044)
Industry: construction (D)	.006
	(.048)
Industry: retail (D)	-.053
	(.054)
Industry: public service (D)	-.142
	(.079)*
Intensity of training necessary for job	.034
	(.015)**
Mills ratio	.168
	(.022)**
Obs.	15270

The table displays results for the full sample of unemployed ofof unemployed persons. The associated changes in maternity leave legislation took place in 1986, 1990, 1992 and 1993. The sample covers persons aged 40 or younger in SOEP sample A, who do not (yet) have a child. The table shows the second stage results from a Heckman type selection model.

Table 8: Regression Results – Wages (Selection Model) – Selection Equation

Dep. var:	Prob. of finding empl.
Year: 1986 – 1989 (D)	.315
	(.106)**
Year: 1986 – 1989 * gender (D)	-.150
	(.177)
Year: 1990 – 1991 (D)	.315
	(.116)**
Year: 1990 – 1991 * gender (D)	-.327
	(.200)
Year: 1992 (D)	.414
	(.133)**
Year 1992 * gender (D)	-.331
	(.236)
Year 1993 – 2000 (D)	.476
	(.104)***
Year 1993 – 2000 * gender (D)	-.385
	(.173)**
Gender (D)	-.149
	(.162)
Temporary job contract (D)	.834
	(.058)***
Age in $t-1$	-.156
	(.038)***
Age in $t-1$ sq.	.002
	(.001)**
Weekly work hours	-.002
	(.002)
Married in $t-1$ (D)	-.290
	(.052)***
Years of education in $t-1$ (D)	-.057
	(.013)***
Net monthly HH income in $t-1$	.000
	(.000)***
Net HH income in $t-1$ sq. /100000	.001
	(.000)***
University degree in $t-1$	-.300
	(.097)**
First child born in current yr. (D)	-.122
	(.109)
Required educ. for job (D)	-.140
	(.051)**
Industry: service (D)	-.187
	(.059)**
Industry: manufacturing (D)	-.300
	(.057)***
Industry: construction (D)	-.182
	(.066)**
Industry: retail (D)	-.304
	(.071)***
Industry: public service (D)	-.705
	(.089)***
Intensity of training necessary for job	-.009
	(.021)
Obs.	15270

The table displays results for the full sample of unemployed of unemployed persons. The associated changes in maternity leave legislation took place in 1986, 1990, 1992 and 1993. The sample covers persons aged 40 or younger in SOEP sample A, who do not (yet) have a child. The table shows the first stage results from a Heckman type selection model.

Table 9: Sensitivity Analysis – Employment Opportunities (control group: men)

University degree

	Year 1986	Year 1987	Year 1988	Year 1989	Year 1990
	(1)	(2)	(3)	(4)	(5)
Gender * Year (D)	-.059	.080	-.040	-.077	.035
	(.054)	(.067)	(.048)	(.053)	(.043)
Obs.	277	414	405	414	410

No university degree

	Year 1986	Year 1987	Year 1988	Year 1989	Year 1990
	(1)	(2)	(3)	(4)	(5)
Gender * Year (D)	-.032	.013	-.002	.023	-.017
	(.017)*	(.017)	(.017)	(.019)	(.016)
Obs.	1885	2811	2713	2767	2748

University degree

	Year 1991	Year 1992	Year 1993	Year 1995	Year 1996	Year 1997	Year 1998	Year 1999
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Gender * Year (D)	.185	.071	-.055	-.042	-.003	-.013	-.074	.021
	(.058)***	(.060)	(.059)	(.053)	(.059)	(.058)	(.050)	(.047)
Obs.	394	375	357	363	384	412	429	438

No university degree

	Year 1991	Year 1992	Year 1993	Year 1994	Year 1995	Year 1996	Year 1997	Year 1998
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Gender * Year (D)	-.030	-.008	-.008	.005	-.010	.008	.006	.008
	(.016)**	(.015)	(.015)	(.016)	(.017)	(.018)	(.017)	(.017)
Obs.	2759	2630	2562	2472	2437	2317	2235	2107

The table displays results for the sample of unemployed in the base period, who either did or did not find a job in the year of treatment (as indicated in the table) or the year before. Major changes in maternity leave legislation took place in January 1986, July 1990, January 1992, and January 1993. The sample covers persons aged 40 or younger in SOEP sample A, who do not (yet) have a child. The table shows the interaction term as of a cross-sectional difference-in-difference linear probability model.

Table 10: Sensitivity Analysis – Employment Opportunities (control group: women aged 41 or above)

University degree

	Year 1986	Year 1987	Year 1988	Year 1989	Year 1990
	(1)	(2)	(3)	(4)	(5)
Age < 41 * Year (D)	-.067	.093	.004	-.023	-.005
	(.071)	(.065)	(.058)	(.040)	(.038)
Obs.	93	141	143	149	152

No university degree

	Year 1985	Year 1986	Year 1987	Year 1988	Year 1989
	(1)	(2)	(3)	(4)	(5)
Age < 41 * Year (D)	-.006	.025	-.012	.017	-.030
	(.015)	(.015)*	(.014)	(.017)	(.012)**
Obs.	708	1054	1029	1093	1132

University degree

	Year 1991	Year 1992	Year 1993	Year 1994	Year 1995	Year 1996	Year 1997	Year 1998
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Age < 41 * Year (D)	.078	.055	.015	-.031	-.097	.006	.004	-.116
	(.061)	(.061)	(.068)	(.055)	(.065)	(.061)	(.059)	(.081)
Obs.	148	147	140	140	140	150	167	182

No university degree

	Year 1991	Year 1992	Year 1993	Year 1994	Year 1995	Year 1996	Year 1997	Year 1998
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Age < 41 * Year (D)	-.040	-.012	.008	.016	.009	.004	-.030	-.007
	(.025)	(.025)	(.016)	(.014)	(.010)	(.011)	(.026)	(.024)
Obs.	1178	1130	1103	1051	1039	1001	993	967

The table displays results for the sample of unemployed in the base period, who either did or did not find a job in the year of treatment (as indicated in the table) or the year before. Major changes in maternity leave legislation took place in January 1986, July 1990, January 1992, and January 1993. The sample covers women in SOEP sample A, who do not (yet) have a child. Treatment is defined as being younger than 40. The table shows the interaction term as of a cross-sectional difference-in-difference linear probability model.