The Role of Women Heterogeneity in Explaining the Relationship between Childbearing and Job Satisfaction in West Germany

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Abstract

In this article I explore the role of childbearing in explaining job satisfaction of women in West Germany, with a focus on investigating the heterogeneity of the effect among women who experience different types of labour market trajectories after childbearing. I use a sample of women from the German Socio Economic Panel (SOEP), 1984-2012 and first difference equations. I find that there is a lot of heterogeneity in the effect of childbearing on job satisfaction. In particular, women who quit the labour market after childbearing experience the strongest increase in job satisfaction after they return to work. On the other hand, maternity leave is associated with little variations in job satisfaction in West Germany. Women who only take a short maternity break (less than 12 months) or not at all experience a decrease in job satisfaction.

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1 Introduction

In this paper I explore the role of childbearing in explaining job satisfaction of women using German Socio Economic Panel data. The focus of this paper is to explore the heterogeneity of this effect among different groups of women. As a measure of heterogeneity of women I use their labour market transitions after childbirth. There is a small number of studies that have looked at the relationship between childbearing and job satisfaction in general (Holtzman and Glass 1999, Georgellis et al. 2012), however to my knowledge no study has investigated how this effect varies for different women. Moreover, to my knowledge there are no studies relating childbearing and job satisfaction in Germany.

This study is motivated by two main observations: the importance of women's heterogeneity and its absence in the job satisfaction literature, and the lack of empirical evidence on this topic for Germany.

The decision to focus on women's heterogeneity is motivated by developments in the economic and sociological literature on women's employment. In the last three decades economic and sociological literature concerning women and their labour market experience has been centered on the fact that there exists no average woman (e.g. Dex et al. 1996). In other words, full time employed women are the minority of the female population and generalisation of their opinion to all (working) women is highly problematic. Previous literature on childbearing and job satisfaction has only reported results for the average full-time employed woman. For instance, Georgellis et al. (2012) only consider a sample of continuously full-time employed women, making it impossible to generalise their findings to a more heterogeneous group of mothers.

The body of literature on women's heterogeneity is exemplified by the work of Hakim, her supporters and her critics (McRae 2003). The idea behind women's heterogeneity is that there is a certain relationship between womens preferences over their lifestyles and their observed choices in family and work life. Hakim goes as far as advocating a causal relationship between preferences and labour market behaviour. While for Hakim women have genuine choice, her critics stress the role of constraints, that are both normative (e.g. women's identity) and structural (e.g. job availability, access to childcare). In either case, the interplay between women's preferences and their ability to overcome constraints (which may well be correlated) produces differences in labour force participation after childbirth. My study builds on this concept of women's heterogeneity. In particular, I avoid grouping women all together, but I group them according to their actual labour market behaviour after childbirth. In other words, the effect of childbirth on job sat-

isfaction is allowed to be different according to whether a mother decides to interrupt employment after childbearing or not.

Moreover, mother's employment transitions after childbirth have been extensively studied (e.g. Baxter 2008, Geyer and Steiner 2007, Kanji 2010, Simonson et al. 2011, Vlasblom and Schippers 2006). This literature has been centred on documenting and profiling these transitions, and in describing how different transitions affect certain employment conditions (e.g. hours worked, wages, and type of contract), however, to my knowledge no study has documented how employment transitions after childbirth affect job satisfaction. This is regrettable because job satisfaction is a measure of well-being that suggests whether women's employment choices fit their lives, and therefore it goes beyond objective variations in employment conditions, but measures women's reflection on them.

Germany is an interesting case study for the analysis of the effect of childbirth on job satisfaction from a women heterogeneity perspective. This is because studies on labour market transitions after childbirth in Germany show that comparatively to other developed countries childbirth has a very strong negative effect on mother's employment (Geyer and Steiner 2007). Moreover, full time continuous employment biographies are relatively rare in Germany and rarer in West Germany than in the East (Simonson et al. 2011). These findings can be explained by a rather unfavourable policy environment and conservative attitudes towards the combination of work and childbearing (e.g. Geyer and Steiner 2007, Vlasblom and Schippers 2006, Gustafsson et al. 2002, Geyer et al. 2012). The debate on labour force participation of mothers in Germany started relatively later than in other countries (Spiess and Wrohlich 2008). Although this debate has brought about a set of important family policy reforms, promoting mothers employment continues to remain at the top of the policy agenda. These arguments suggest that results for Germany may constitute a lower bound of the relationship between childbearing and job satisfaction. These findings may also contribute to the debate on mothers labour force participation by showing evidence on the effect of childbirth on a new well-being indicator.

To summarise, I make multiple contributions. I show the variation in job satisfaction following childbirth of women who take different employment decisions after the birth of their child. The approach that I follow is the one of considering women who experience the birth of their first child and compare their job satisfaction before and after childbirth, as a function of the number of years that a mother has taken off from paid employment. By doing so I do not only improve previous literature from a theoretical point of view, but also from a methodological one, as my results have a larger external validity than

previous findings. Using all waves of the German Socio Economic Panel Survey (SOEP, 1984-2012) I provide the first evidence of this association for West Germany.

The remainder of this paper is organized as follow. In section 2 I present the formal model and formulate the hypothesis for the study. In section 3 I show the econometric tools that are used to test the hypothesis. In section 4 I discuss the estimation samples, measures and methods. In section 6 I report the results, and section 7 concludes.

2 Women heterogeneity and job satisfaction: a model

Consider a job satisfaction equation of the form

$$J_{jt} = \sum_{i}^{I} a_{ijt} z_{ijt} [A_{ijt} - D_{ijt}] \tag{1}$$

$$= \sum_{i}^{I} a_{ijt} z_{ijt} [A_{ijt} - h(F_{jt}, P_{1jt}, ...P_{rjt}..., P_{Rjt})] \tag{2}$$

where J_{jt} is job satisfaction of individual j at time t, A_{ijt} is observed work/employment characteristic i, D_{ijt} is desired work/employment characteristic i. D_{ijt} is a function of private level variables P_{rjt} including a variable related to childbearing F_{jt}. The difference between actual and desired work/employment characteristics is called discrepancy (d_{ijt}). Childbearing affects job satisfaction because it affects the desired level of work/employment characteristics. In other words, job satisfaction can be seen as a linear combination of a function of discrepancies. For the case of $I = 1$ equation (2) can be simplified as

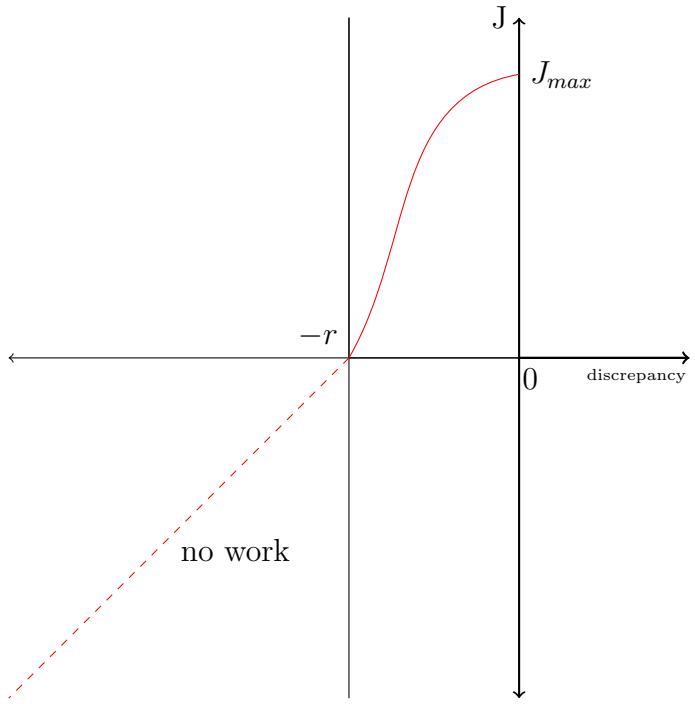
$$J_{jt} = a_{jt} + z_{ijt}(d_{ijt}) \tag{3}$$

where d_{ijt} is a discrepancy and is function of A_{ijt} and D_{ijt}. Equation (3) is represented in figure 1 for the case $z_{jt}(x) = -x^2$.

When the discrepancy is negative then job satisfaction should decrease. In particular, there should be a threshold $d_{min} = -r$ such that job satisfaction is 0 - where 0 is a valid score. For values of the discrepancy lower than d_{min} job satisfaction is negative and the individual does not work. In this model job satisfaction changes because discrepancies change, and the slope of the curve determines the rate of change. Job satisfaction is maximised for values of the discrepancy of 0.

From equation (1) we note that both a_{jt} and function $z_{jt}(\cdot)$ depend on j. As $z_j(\cdot)$ is different across individuals, individuals evaluate discrepancies in different ways. In gen-

Figure 1: Relationship between discrepancy and job satisfaction



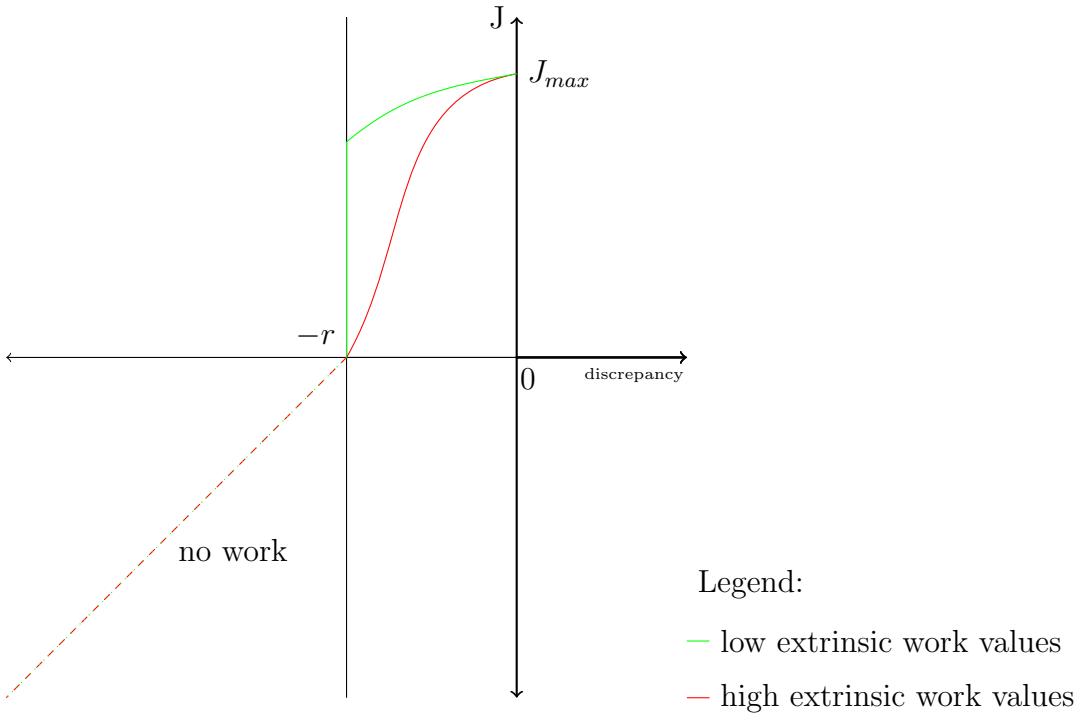
eral terms, for some individuals discrepancies matter a lot in terms of formation of job satisfaction, while for others they matter little. By definition extrinsic work values are what make individuals give importance to work characteristics. I pose as an assumption of the model that if someone values strongly one work characteristic, then they will also value strongly the discrepancy associated with the same work characteristic.

Assumption 1 *The importance given to discrepancy d_i is function of the absolute importance given to attribute i, which is given by an individual's level of extrinsic work value.*

In other words, the relationship described in figure 1 for the case of only one work characteristic varies according to how much importance individuals attach to the work characteristic under consideration, or more generally their extrinsic work values. In particular, if someone attaches little importance to a particular work characteristic (has low extrinsic work value) then any observed discrepancy will bear little relationship with his job satisfaction. In other words, the degree of extrinsic work values determine the slope of the curve. Figure 2 summarizes the relationship.

On the other hand, for each given level of extrinsic work values individuals might have different degrees of intrinsic work values. Intrinsic work values refer to the importance

Figure 2: Relationship between discrepancy and job satisfaction mediated by extrinsic work values



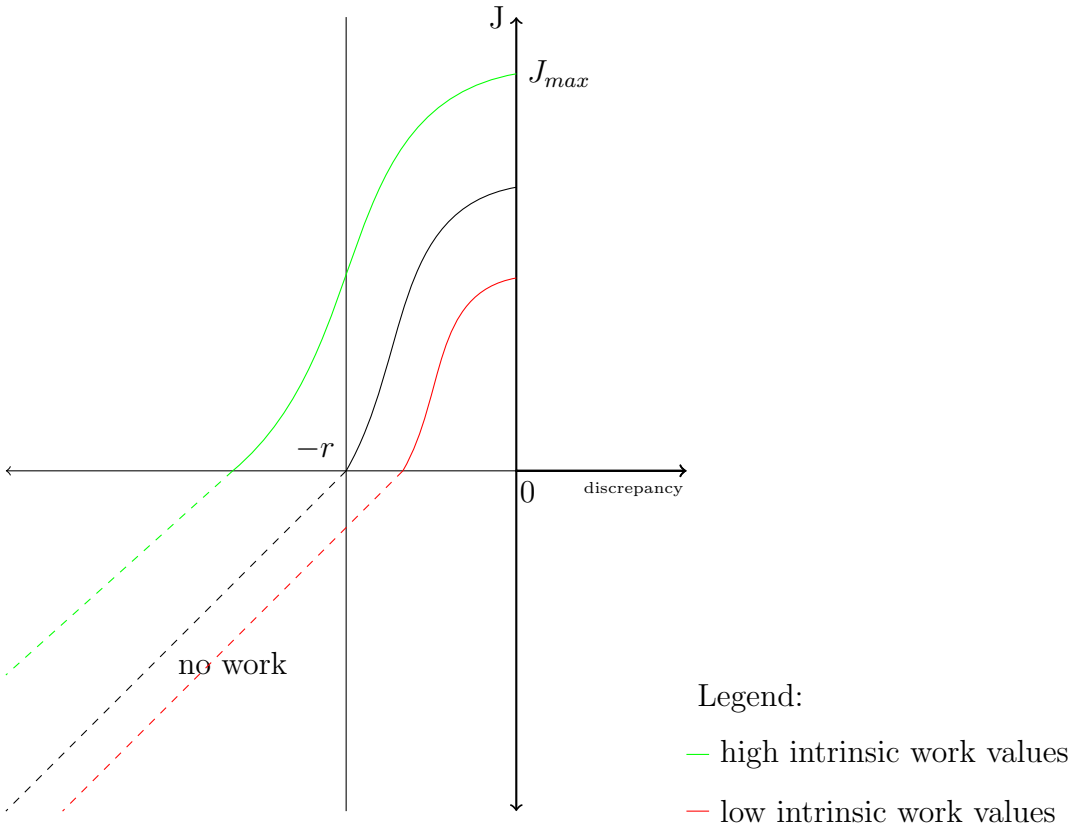
attached to employment *per se*, so they increase the value of one's job regardless of objective working conditions. Thus, intrinsic work values do not depend on the degree of discrepancies. However, for a given level of a discrepancy someone with high intrinsic work values will have higher job satisfaction than someone with low intrinsic work values. In other words, they determine a shift of the curve in figure 1, and in mathematical terms they are represented by a change in a_{jt} in equation (1). These considerations are summarised in assumption 3 and in figure 3.

Assumption 2 *An increase in intrinsic work values increases job satisfaction, for each given level of extrinsic work values.*

2.1 Women with different employment trajectories

Consider equation (1) and pose the assumption that $z_{ijt}(\cdot)$ is additive and separable. Consider two time periods t and s where $s < t$, and consider that s is the year before j has a baby (so that individual j has a baby at $s+1$) and take first differences, so that we

Figure 3: Relationship between discrepancy and job satisfaction mediated by intrinsic work values



obtain

$$J_{jt} - J_{js} = \sum_{i}^{I} a_{ijt} z_{ijt} [A_{ijt} - h(F_{jt}, P_{1jt}, ..., P_{Rjt})] - \sum_{i}^{I} a_{ijs} z_{ijs} [A_{ijs} - h(F_{js}, P_{1js}, ..., P_{Rjs})] \tag{4}$$

The estimation of (4) relies on availability of job satisfaction data at times s and t. If $t - s = 1$ then individual j works at both time periods, however most women will be in maternity leave or generally not in employment the year they give birth, and those women for which we observe job satisfaction at both t and s are likely to be a very particular group of working mothers.

The composition of the estimation sample in correspondence of each $t - s$ represents the heterogeneity that I am interested in.

2.2 Employment continuity

The group of women that is observed in employment for all $t - s > 0$ is likely to be the most selective. Previous literature suggests that women who do not take time off paid employment after childbearing may be doing so because they cannot afford to lose a job or because they receive a strong satisfaction from their job (e.g. Baxter 2008).

In particular, women who have to return soon to work after childbirth because of financial reasons tend to report feelings that they have returned sooner than preferred (Baxter 2008). These women are likely to have high extrinsic work values, that is they value their jobs based on the extent to which these can contribute to support their lives and families (Porfeli and Mortimer 2010). These women can therefore be placed on the "high extrinsic work values" curve of figure 2.

On the other hand, women might not take time off because they have very high intrinsic work values (Baxter 2008). Previous literature has shown that women who return to work soon after childbearing and do so for reasons other than financial ones tend to be more skilled women, those who have higher status occupations or who are in the highest income quintile (e.g. McRae 1993, Baxter 2008,Kanji 2010). This is reasonable as it is understood that the decision of coming back to work is the result of a bargain within the couple, and women who have high earnings (possibly higher than their partners) and high occupational status have also high bargaining power (Lundberg and Pollak 1996). These women may be placed on the "high intrinsic work values" curve of figure 3, and on the "low extrinsic work values" curve of figure 2.

Women who return to work full time after childbirth do not spend less time on housework (Bianchi 2000). This suggests that regardless of the motivations for going back to work, the group of women who return to work soon after childbirth is the most likely to have to cope with the "double burden" of paid and unpaid work. Care responsibilities are likely to affect the amount of desired work hours, in fact previous studies have reported that women with small children report they would like to work less hours (e.g. Drago et al. 2009, Holmes et al. 2012).

Thus, women who return to work soon after childbirth may experience a decrease in discrepancies, and a decrease in job satisfaction. Within this group the decrease should be stronger for women who return to work due to financial reasons.

2.3 Maternity and employment break

Other women may take time off from paid employment, either through a maternity break, or being inactive in the labour market. Women who take a maternity break are likely to return to their previous employment after childbirth, while women who leave paid employment are likely to change their previous job. Women who take time off employment are those who can afford to do so, maybe because of a second income, or high wealth. These women are likely to have low extrinsic work values, and can be placed on the "low extrinsic work values" curve of figure 2.

Germany has a history of generous maternity leave. Before 2007 German women had 24 months of paid leave available (*Elternzeit*). In 2007 a reform was introduced that reduced the length to 14 months, which remains a very generous amount (Spiess and Wrohlich 2008)). Moreover, German women tend to take up the entire amount of leave. For this reason, women who take less than 12 months of leave which were considered in the previous section should be considered separately from women who take up the entire length of leave.

Because these women decide to not to return to their job very soon after childbirth they show a low work ethic (defined as normative commitment to work as a central life interest, with employment seen as a long term career rather than a short term job (Hakim 2003)) and thus can be placed on the "low intrinsic work values" curve of figure 3.

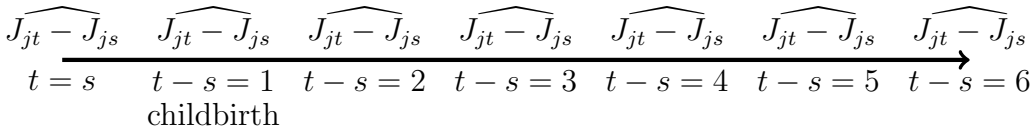
The time between childbirth and return to employment is often called a "black box", as it is not clear what mechanisms may be at work, and what changes may happen in the households and in terms of women's attitudes towards employment.

Previous research has shown that long spells of inactivity after childbirth are associated with an increase of inequalities in the household, so that women who do eventually go back to work are likely to follow traditional gender roles even more strongly than before pregnancy (Schober 2011). This suggests that these women might experience a strong change in the amount of desired employment characteristics, and a reduction in job satisfaction.

On the other hand, women who go back to work after maternity leave, may make some changes in order to make their working life fit better with family life. For instance, Felfe (2012) shows that women who remain with the same employer after childbearing accommodate through reduction in working hours. Women who take time off paid employment and who may change their employer when they go back, may choose new jobs who fit their lives very well (Budig and England 2001). Felfe (2012) shows that in Germany mothers who change employer after childbearing sort into jobs where they are less likely to work night shifts and to be exposed to high levels of stress, while they would be more likely to enjoy a flexible schedule. This is the hypothesis of compensating differentials, whereby mothers switch to jobs with lower wages but that make it easier to combine family and work. In other words, if women choose jobs that fit their lives best, it means that the new jobs have discrepancies close to 0, and that discrepancies have increased. In the models this implies a move towards the right on the horizontal axis, and an increase in job satisfaction.

To sum up, if women who do not take any break after childbearing do so because of their attachment to work, then I expect them to have a higher level of job satisfaction than women who take a maternity or employment break. This should be true even before they become mothers. On the other hand, I expect this group of women to experience a decrease in job satisfaction. The group of women who take up maternity leave or have a spell out of employment may also experience a decrease in job satisfaction if they cannot modify their employment conditions. If this is the case then the decrease in job satisfaction should be higher for women who have taken a break than women who have not, because the first have stronger extrinsic values than the latter. On the other hand, if women manage to accommodate through changes in employment conditions, then I expect them to experience an increase in job satisfaction.

Figure 4: Distribution of job satisfaction differences over time after childbirth



3 Empirical implementation

The econometric tool used to estimate equation (1) is given by

$$J_{jt} = \sum_{i}^{I} \gamma_i(A_{ijt}) + \beta_{jt}F_{jt} + \sum_{r}^{R} \beta_r P_{jtr} + \nu_{jt} \tag{5}$$

The analysis of heterogeneity and childbearing is performed in the following way. As in section 2, let t and s be two time periods, where $s < t$, and consider that s is the year before childbirth. By taking first differences of equation (4) one obtains.

$$J_{jt} - J_{js} = \sum_{i}^{I} \gamma_i A_{ijt} - \sum_{i}^{I} \gamma_i A_{ijs} + \sum_{r}^{R} \tau_r P_{jtr} - \sum_{r}^{R} \tau_r P_{jtr} + \beta_t F_{jt} - \beta_s F_{js} + \nu_{jt} - \nu_{js} \tag{6}$$

Note that s is fixed in time, as it is always the time before childbirth, while t varies. In particular, $t - s \in (0, N)$ where N is the last time period that we observe mother j.

The heterogeneity that I am interested in here is defined by the rate of return to employment of women after childbirth. The group of women who contributes to the estimation of $J_{jt} - J_{js}$ varies as $t - s$ varies. Thus, the heterogeneity is identified as the distribution of $J_{jt} - J_{js}$ over $t - s$.

However, some covariates may only be measured for time periods $t > t'$, where $t' > s$. Thus, let equation (6) define job satisfaction at time s and equation (7) job satisfaction at $t > s$.

$$J_{js} = \sum_{i}^{I} \gamma_i A_{ijs} + \sum_{r}^{R} \tau_r \bar{P}_{jsr} + \beta_t F_{js} + \nu_{js} \tag{7}$$

$$J_{jt} = \sum_{i}^{I} \gamma_i A_{ijt} + \sum_{i}^{I} \tilde{\gamma}_i \tilde{A}_{ijt} + \sum_{r}^{R} \tau_r \bar{P}_{jtr} + \beta_t F_{jt} + \nu_{jt} \tag{8}$$

where A_{ijs} are the workplace and employment characteristics that are measured both at time s and t, while $\tilde{A}_{ijt}$ are those that are observed only at time $t > t'$. Taking first

differences we now have

$$J_{jt}-J_{js}=\sum_{i}^{I}\gamma_i A_{ijt}-\sum_{i}^{I}\gamma_i A_{ijs}+\sum_{i}^{I}\tilde{\gamma}_i\tilde{A}_{ijt}+\sum_{s}^{S}\tau_s P_{jts}-\sum_{s}^{S}\tau_s P_{jts}+\beta_t F_{jt}-\beta_s F_{js}+\nu_{jt}-\nu_{js} \tag{9}$$

Moreover, note that by the set up of the problem $F_{js}=0$, while $F_{jt}=1\ \forall t>s$, so that the difference $F_{jt}-F_{js}$ is constant for all j; thus, it does not contribute to the estimation of $J_{jt}-J_{js}$ and can be omitted. This leads to equation (9), which is the econometric tool that I will use to estimate the effect of childbearing on job satisfaction.

$$J_{jt}-J_{js}=\sum_{i}^{I}\gamma_i A_{ijt}-\sum_{i}^{I}\gamma_i A_{ijs}+\sum_{i}^{I}\tilde{\gamma}_i\tilde{A}_{ijt}+\sum_{s}^{S}\tau_s P_{jts}-\sum_{s}^{S}\tau_s P_{jts}+\nu_{jt}-\nu_{js} \tag{10}$$

4 Estimation Sample and Population

I use one sample of women from the SOEP for West Germany. For the purpose of this study residency in west Germany is not a relevant criteria. Instead, I would like to use a measure of "origin", that is an indication whether the woman is likely to have been exposed to either one of the region specific values. For doing so I exploit a question in the SOEP that asks respondents where they were residing in 1989, the year before the fall of the Berlin wall. Due to mobility restrictions between the two parts of Germany is likely that a woman who was residing in West Germany in 1989 has also spent many years before that in the same region, thus being exposed to specific attitudes and values. For this reason, when talking about West Germans, I am actually referring to women who were in West Germany in 1989. This implies that I can only consider birth cohorts before 1989, which is not a strong restriction given that later cohorts were only in their early 20s at the last available wave of the SOEP in 2012.

Thus, the samples considered are working age women (16-66) who grew up in West Germany. The lower bound of the age range has been chosen with regards to the fact that the first SOEP interview happens at age 16. The upper bound of the age range has been chosen with reference to the fact that currently the legal retirement age for women in Germany is 65. However, this threshold might not be appropriate for older cohorts as until 1992 there was easy access to early retirement schemes in Germany, while legal retirement age for women was set at 60.

I restrict the sample to first births only. The rationale is that many women are already out of employment before the birth of their second child, in most cases because working mothers tend not to space births too much. Thus restricting the analysis to first births

leads to an adequate sample size. There are 1,353 women who have a first birth in the sample of women who grew up in West Germany. As I am interested in variations in job satisfaction before and after birth I have to restrict the sample to women who were in employment the year before first birth. This restriction causes 485 women to leave the sample, so that the final sample size is 895. After conditioning on availability of full employment history I am left with a sample of 810 first-time mothers. Of these 51 did not take any maternity or employment break after childbirth. The large majority (607) had a maternity break of at least 12 months, and the remaining 152 had an employment break of at least 12 months.

The population of inference of this study is therefore the one of working mothers. I do not attempt to generalise the results to women who have not been in paid employment, neither to childless women.

5 Analysis

5.1 Descriptive findings

I begin by describing the samples used in the analysis. First, I profile the employment trajectories of women around time of first birth. In doing so I am interested in distinguishing women who do not quit employment and those who do and women who take up maternity leave. Then I describe the groups of women according to their background and levels of job satisfaction before childbirth.

In figure 5 I profile the employment trajectories off all first time mothers. The sample used to construct this figure is not the one that will be used in the analysis, but the one of all women who are observed to give birth to their first children regardless of their employment status before birth. The first striking result is that even 7 years after childbirth the employment rate of mothers has not gone back to the levels before birth. On the other hand, the share of women not employed increases within the first few years after birth and then remains stable, suggesting that some women leave employment and do not come back.

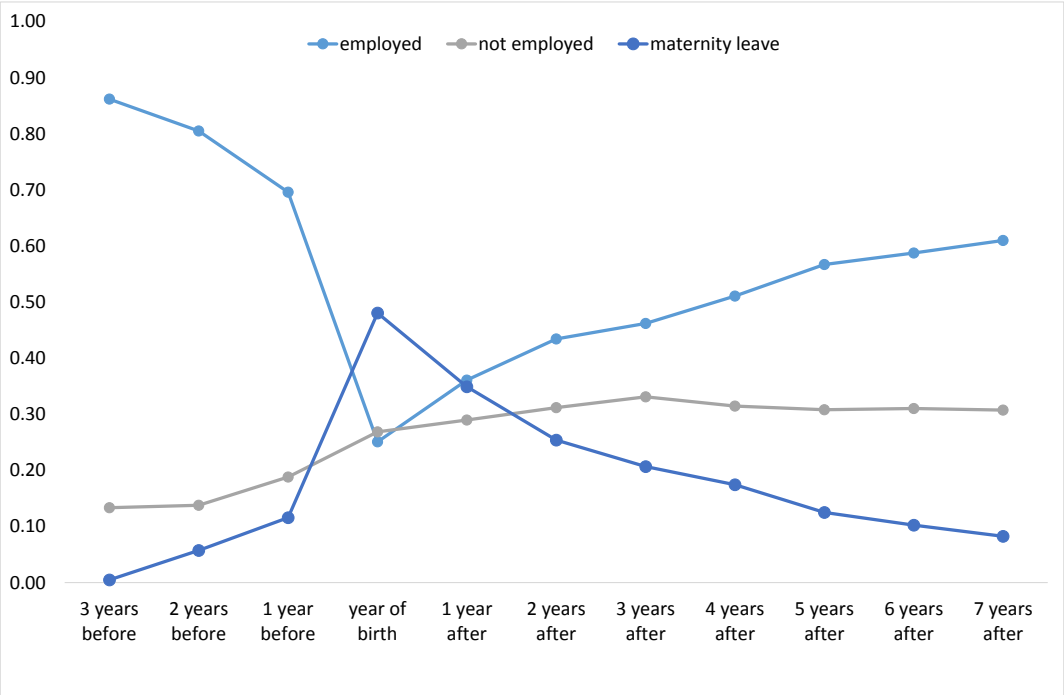
The motivation of this study is that women who experience different employment trajectories after first birth are different in a way that may also affect the relationship between childbearing and job satisfaction. I describe the baseline differences of these women in table 1. There are not many observable differences between women who do not take any breaks and women who go in maternity leave. Women continuously employed are slightly older and their partners earn on average less than women who take up some

maternity leave. However, education level and own labour earnings are similar.

Women who are continuously employed seem to have jobs that are in a slightly higher occupation level. On the other hand, women who take an employment break seem to be quite different. They are younger, and less likely to be partnered. However, if they have a partner their partners earn on average much more compared to the partners of the women in the first two groups. These women have also a lower level of education, spend more time on chores and are more likely to be employed part time the year before birth.

These descriptives hint at the possibility that these mothers might also be different in terms of their job satisfaction levels before birth. In section 2.2 I hypothesized that women who do not take any breaks from employment after childbirth may do so because of financial reason or because of strong attachment to their work. Their average high socio-economic background suggests that the second case is more likely. Thus I expect these women to have high intrinsic work values and have higher job satisfaction levels than the other groups. In figure 6 I plot average levels of job satisfaction up to three years before birth of the first child. The trends and levels of job satisfaction for the three groups are in fact different. Mother who will be continuously employed after the birth of their first child have a higher job satisfaction level already before the birth of the child. On the other hand, women who will take a maternity break have a consistently lower and stable level of job satisfaction. The trend of job satisfaction for women who take employment break is decreasing the years before childbirth. These findings seem to confirm the prediction that women who take no break are more attached to their job and have higher intrinsic work values.

Figure 5: Employment trajectories around first birth

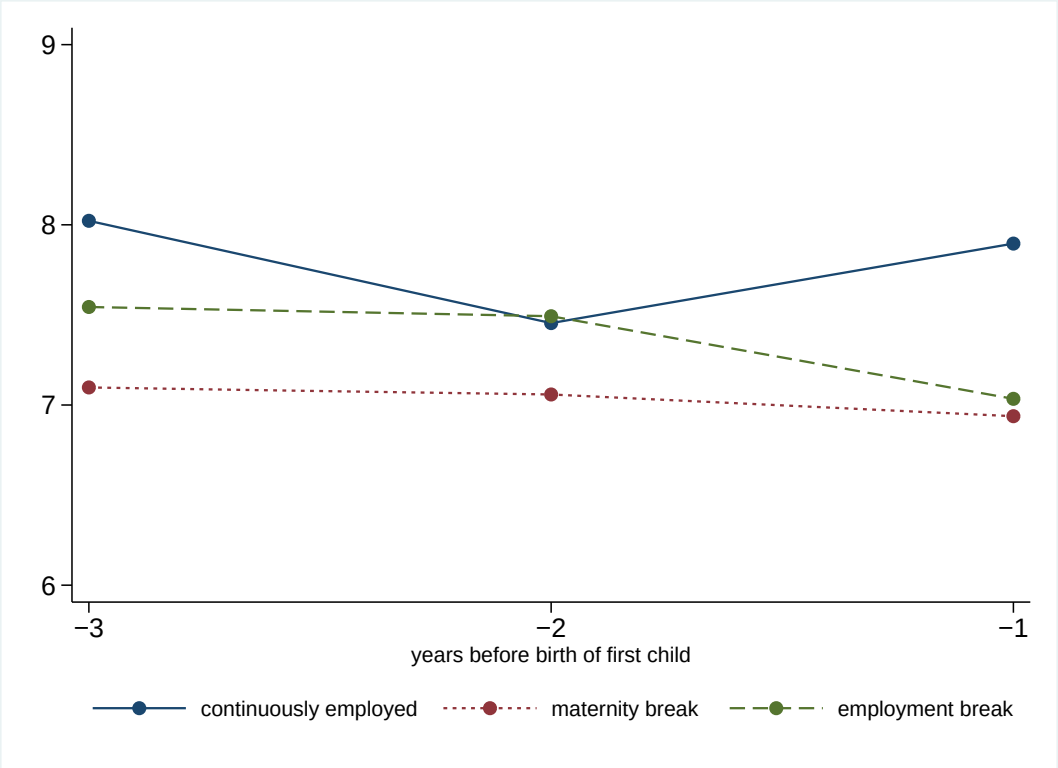


Notes: share of women in employment, not employed or in maternity leave each year before and after birth of the first child.

Table 1: Background characteristics the year before birth

	continuously employed	maternity break	employment break
age at birth	30.863	29.861	27.822
	(0.656)	(0.181)	(0.332)
labour earnings	2254.469	2276.022	1910.382
	(192.940)	(40.429)	(105.490)
partner's labour earnings	2406.541	2765.789	2959.214
	(206.475)	(63.259)	(541.313)
proportion partnered	0.8627	0.849	0.769
	(0.048)	(0.015)	(0.034)
proportion in low education	0.224	0.2364	0.344
	(0.060)	(0.017)	(0.039)
proportion with medium education	0.428	0.422	0.419
	(0.071)	(0.020)	(0.040)
proportion with high education	0.347	0.341	0.236
	(0.069)	(0.020)	(0.035)
weekly hours spent on chores	1.98	1.634	2.2206
	(0.183)	(0.046)	(0.112)
part-time	0.098	0.108	0.164
	(0.042)	(0.013)	(0.030)
average occupational autonomy	2.862	2.751	2.52
	(0.134)	(0.040)	(0.090)
sample size	51	607	152

Figure 6: Pre-trends in job satisfaction

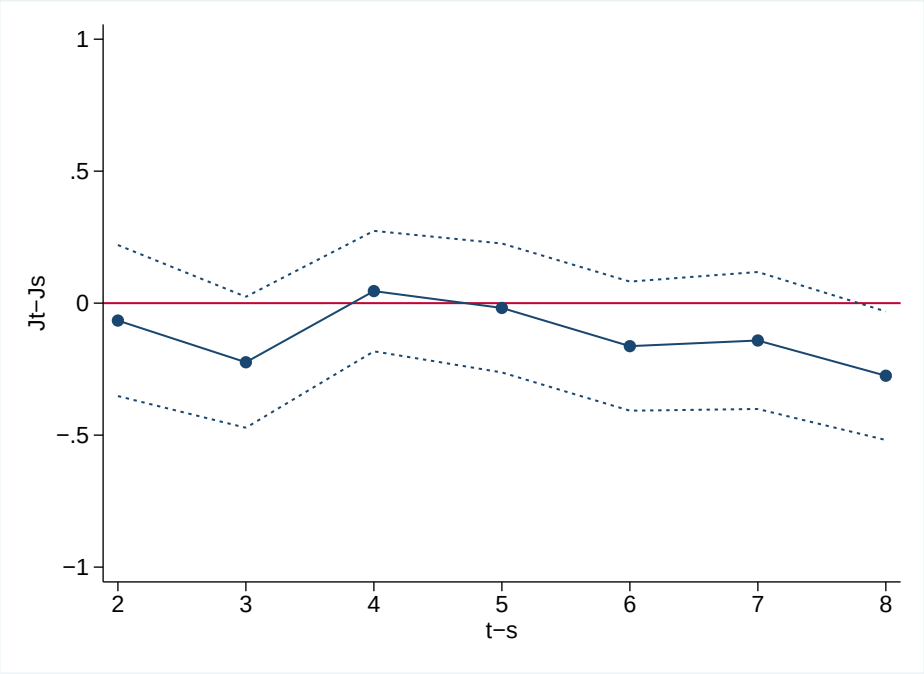


5.2 The effect of birth of first child on job satisfaction

For investigating the heterogeneity among women with different employment trajectories I estimate equation (9) with OLS regressions, one for each value of $t - s$ and plot the predicted values for each value of $t - s$ as shown in figure 4. The dependent variable for these estimations is therefore the difference in job satisfaction scores at each value of $t - s$.

In figure 7 I report simple mean differences of job satisfaction scores before and after giving birth for different values of $t - s$. In this case s corresponds to the year before birth, while t varies between 1 and 7. Thus a value of $t - s = 1$ corresponds to the difference in job satisfaction levels between the year of birth and the year before birth, a value of $t - s = 2$ between the first year after birth and the year before birth and so on.

Figure 7: Mean job satisfaction differences before and after birth, 95% confidence interval



Notes: $t - s$ are differences in year from the year before birth (s). A value of 0 of difference in job satisfaction indicates that there is no difference in job satisfaction scores between the year before birth and the year considered.

The group of women that contributes to the estimation of ΔJ in correspondence of each value of $t - s$ is different. In particular, women who make up the estimation sample for $t - s = 1$ are those who work both the year before birth and the year of birth, and so on. The group of women becomes more heterogeneous as $t - s$ increases: for instance, for value $t - s = 4$ there are both women who have worked all years since birth, and those who have taken three years off and come back to work the fourth year after birth. Thus the estimates of figure 7 mask a lot of heterogeneity and grouping these women together leads to the finding that there are not significant variations in job satisfaction before and after childbirth, as the confidence interval crosses the 0 line at all time. Moreover, at each point of $t - s$ we observe the combination of two effects: the return into the labour market for women that had quit during the years before, and the effect of time for the women who remained in employment up to the time period observed.

In order to investigate further the role of heterogeneity in explaining variations in job satisfaction around childbirth I regress differences in job satisfaction scores over a set of relevant covariates. These estimations correspond to equation (9). I report both unconditional and conditional models. The unconditional model explores the variations in job

satisfaction between t and s as a function of the length of maternity and employment break only. In the conditional models I add also the variation in certain employment and household characteristics in order to test which mechanism might be driving the changes in job satisfaction.

The unconditional models are reported in table 2. As the length of maternity and out of employment spell are not defined at $t - s = 1$ I only report results for $t - s > 1$.

Table 2: Unconditional models

$J_t - J_s$	t-s=2	t-s=3	t-s=4	t-s=5	t-s=6	t-s=7
length of maternity break	0.075	-0.005	0.143	-0.221	-0.414**	-0.324**
	(0.303)	(0.216)	(0.245)	(0.186)	(0.175)	(0.138)
length out of employment spell	0.174	0.397**	0.094	0.193	0.227*	0.196*
	(0.277)	(0.188)	(0.216)	(0.150)	(0.133)	(0.105)
constant	0.232	-1.277**	-0.536	-0.742	-0.925	-0.562
	(0.579)	(0.645)	(0.812)	(1.056)	(1.188)	(0.991)
year dummies	✓	✓	✓	✓	✓	✓
Observations	331	377	390	399	403	429

The results are sensitive to the introduction of covariates. This suggests that changes in employment and household factors play a role in explaining variations in job satisfaction. The results of the conditional model show that the more time women have taken out of employment (that is, that they have been inactive, and not in maternity leave), the more likely they are to experience an increase in job satisfaction when they come back to work.

For maternity leave, the results are not as clear cut. It seems like length of maternity leave does not have a significant effect for women who return to work within the first 3 years from childbirth, however there is a strong negative effect for women who return to work later on. This might be due to the fact that these women have combined different maternity leaves from different births, and the longer they have been away from their job the more likely their previous jobs do not fit their lives.

From these estimates I construct the profiles of job satisfaction of different women around time of childbirth. The profiles allow me to link better the results in table 3 with the analysis in part 1.

In figure 9 I report the simulated changes in job satisfaction for three groups of women. These women have the following in common: were in paid employment the year before giving birth to their first child, and do not give birth to a second child (up until the wave

Table 3: Changes in job satisfaction scores as a function of covariates

$J_t - J_s$	t-s=1	t-s=2	t-s=3	t-s=4	t-s=5	t-s=6	t-s=7
length of maternity break		-0.263	0.013	0.011	-0.123	-0.327**	-0.253
		(0.459)	(0.256)	(0.225)	(0.166)	(0.152)	(0.157)
length out of employment spell		0.568	0.338	0.438*	0.272*	0.305**	0.247**
		(0.388)	(0.250)	(0.225)	(0.155)	(0.120)	(0.124)
occupational autonomy	0.155	-0.129	0.061	-0.001	0.07	-0.013	-0.039
	(0.458)	(0.276)	(0.194)	(0.191)	(0.141)	(0.151)	(0.162)
labour earnings (log)	-0.402*	0.015	0.274	0.324**	0.220**	-0.058	0.043
	(0.237)	(0.186)	(0.176)	(0.138)	(0.094)	(0.119)	(0.155)
household income (log)	-0.159	0.336*	0.025	0.399**	-0.234	-0.155	-0.157
	(0.530)	(0.201)	(0.122)	(0.196)	(0.217)	(0.125)	(0.156)
switch to part time	0.907*	-0.067	-0.17	0.408	-0.271	-0.236	-0.422
	(0.507)	(0.275)	(0.263)	(0.280)	(0.245)	(0.282)	(0.284)
new job	-0.629	0.528*	0.477	-0.249	0.086	-0.472	-0.091
	(0.737)	(0.306)	(0.302)	(0.325)	(0.349)	(0.343)	(0.385)
new partner	-0.047	-1.613***	-0.773**	-0.869*	-0.717	-0.847*	-0.536
	(0.780)	(0.506)	(0.371)	(0.443)	(0.486)	(0.455)	(0.470)
new baby		-0.611	0.033	0.758**	0.595**	0.476*	0.166
		(0.628)	(0.403)	(0.322)	(0.265)	(0.277)	(0.268)
constant	0.49	0.138	-1.039	-0.958	-0.827	-1.042	-0.763
	(1.613)	(0.665)	(0.707)	(0.826)	(1.142)	(1.277)	(1.061)
year dummies	✓	✓	✓	✓	✓	✓	✓
Observations	151	282	330	348	353	377	387

Notes: standard error clustered at individual level. Standard error in parenthesis.

they are observed). The line labeled "no maternity leave, no employment break" represents women that at each point in time are employed and have not had spells of maternity leave or employment break since I started following them the year before childbirth. The line labeled "employment break" identifies women who are employed at each point in time considered but have at least one year of employment break before that time period. By construction all these women were employed the year before birth and not employed the year of childbirth. The line labeled "maternity leave" is constructed similarly except that these women are in employment the year before childbirth and in maternity leave the year of birth.

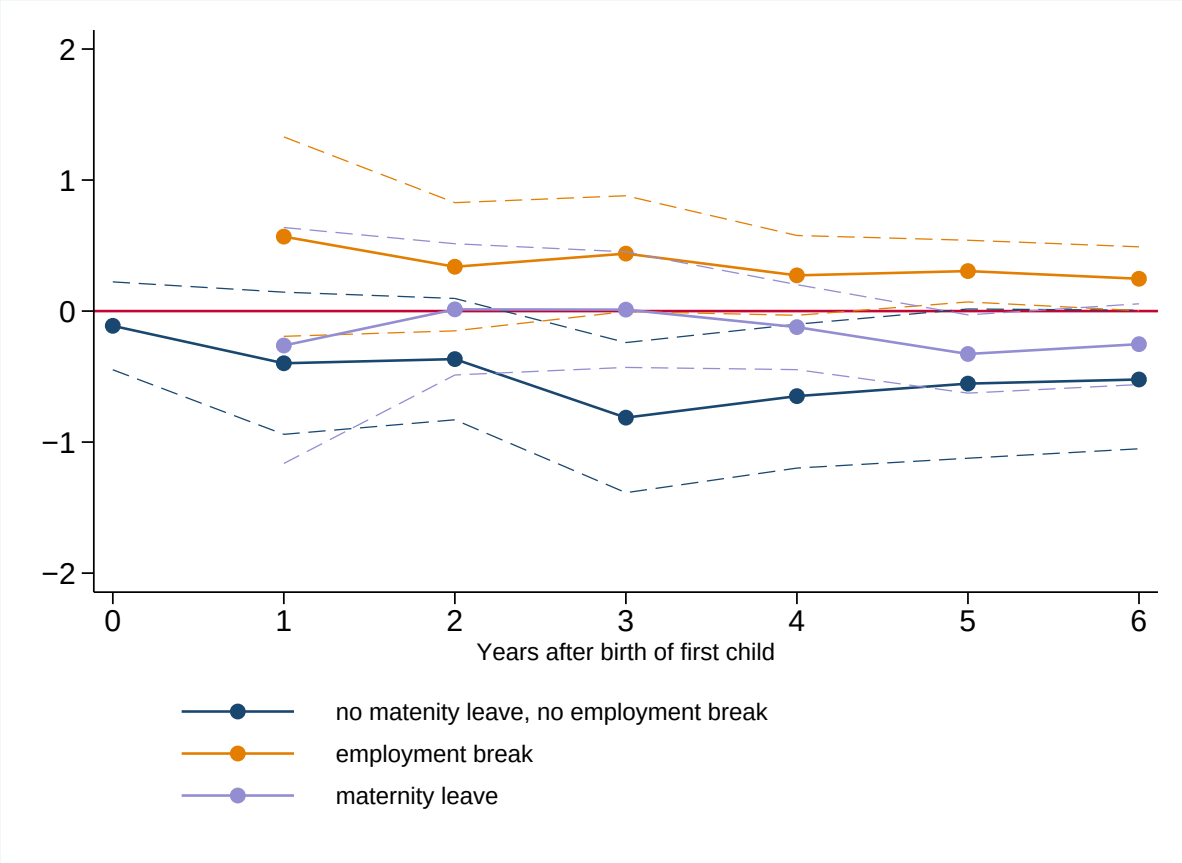
The lines represent the expected change in job satisfaction score with respect to the score expressed the year before childbirth computed at the average length of maternity (or employment) break for the estimation sample in correspondence of each $t - s$.

Figure 9 can be considered a useful summary of the relationship between job satisfaction and childbirth for women with heterogeneous labour force behaviour after childbirth. Women who take no break after childbirth experience a decrease in job satisfaction. This decrease is largest and statistically significant when the child is around 3 and 4 years old. Women who take up maternity leave avoid a dip in job satisfaction level after they return to employment. However, for women who take longer maternity leave they can expect a significant decrease in job satisfaction when the child is 5 and 6 years old. On the other hand, the opposite is true for women who take employment break. They experience an increase in job satisfaction when they come back to work which is significant from when the child is 3 years old.

The results support some of the predictions. In particular, the decrease in job satisfaction after childbirth for women who do not take any break is confirmed in the data, suggesting that this group of women may be struggling in obtaining the employment characteristics that they desire. The results for women who take up maternity leave do not follow the predicted pattern. These women experience a decrease in job satisfaction, but a smaller one compared to women who did not take maternity leave. This finding might be a combination of two effects: some women may be able to accommodate through reduction of working hours and schedules after childbirth (which would drive job satisfaction up), but other women might find this difficult (which would push job satisfaction down). Lastly, the positive effect of childbirth on job satisfaction for women who have an employment break suggests that when these women find a new job, they might choose a job that fits their new lives of mothers.

Tables 2 and 3 can only give a suggestion regarding the possible mechanisms at work. When controlling for covariates the signs of the coefficient for length of maternity break for the second year after childbirth reverse. This change might be explained by changes in household income or by a change in job (as these are the only positive and statistically significant coefficients). When controlling for covariates the coefficients of length out of employment spell increase in magnitude. This suggests that the changes in employment variables affect positively job satisfaction.

Figure 8: Simulations - different lengths of maternity leave



Notes: a difference of 0 means that the job satisfaction levels the years before childbirth and the corresponding year are estimated to be the same.

6 Conclusions

In this paper I provided the first empirical evidence of the association between childbearing and job satisfaction in West Germany. Moreover, I have suggested a strategy for assessing the heterogeneity of this effect among women with different employment trajectories around the time of birth of their first child. The main results and contributions of

this paper can be summarised as follows.

Women heterogeneity plays an important role, as the relationship between childbearing and job satisfaction is strongly dependent on employment behaviour after childbearing. Ignoring the fact that different women have different work values and attachment to the labour market may lead to misleading results. This finding is a contribution both for the literature on women heterogeneity and on job satisfaction.

I have identified three groups of women according to their labour market behaviour after childbearing: those who quit employment, those who keep their job but go on maternity leave for at least 12 months, and those who keep their job and only take a short spell of maternity leave. These three groups differ in terms of their work values and attachment to labour market. In particular, I hypothesized that women who leave their jobs in correspondence of childbirth are the ones with weakest intrinsic work values and strongest extrinsic work values, the opposite instead would be true for women with no breaks.

In West Germany the experience of women who quit their jobs after childbearing is different from the one of women who take up maternity leave and keep their jobs.

Women who go in maternity leave experience no large variations in job satisfaction within the first few years they return to work. However, there is a negative trend, which becomes significant around the time children are 5 years old. Women who take maternity leave have the lowest pre-childbearing level of job satisfaction, and the negative trend after childbirth suggests that this group of women may be the one with lowest average job satisfaction level.

Women who do not take any spells out of employment after childbirth and take maternity leaves shorter than 12 months experience a large decrease in job satisfaction. However, these womens are the ones with the highest average level of job satisfaction before birth. This is consistent with the idea that these women are career-oriented and have high intrinsic work values, which explain their high levels of job satisfaction. In my framework decreases in job satisfaction are explained with decreases in discrepancies between what women obtain from their jobs and what they desire from them. Stress and difficulties in conciliating family and work that are often documented among the population of mothers of dependent children may be the signal of a decrease in discrepancies, as women may desire less work hours for instance, more flexibility and so on, but may not be able to obtain them. Thus difficulties in balancing work and life are compatible with a decrease

in discrepancies, and may explain decreases in job satisfaction for some mothers. Overall, the strongest negative effect of childbearing on job satisfaction happens at the time that children are around three years old. This finding has potentially policy implications. In fact, in West Germany there is a shortage of kindergarten places for children younger than 3. Blum and Erler (2013) report that in 2012 the coverage of childcare facilities can only provide places for 22.3% of all children. In 2000 this figure was 9.5%. The fact that this is the time when we see mothers who go back to work experience the largest decrease in job satisfaction is a strong call for more widely available childcare facilities for mothers with children of this age.

Spells of inactivity are associated with an increase in job satisfaction at women's return in the labour market. However, the trend in job satisfaction up to three years before childbirth is decreasing suggesting that the increase in job satisfaction experienced after birth should be more appropriately considered a "regression to the mean", that is a return to their baseline level of job satisfaction. Decreases in job satisfaction are known to predict the decision of quitting a job (e.g. Clark 2001), which is consistent with the decision of mothers of not returning to work immediately after childbearing. The rather large increase in job satisfaction at their return (with respect to the year before they quit) and the positive association between length of inactivity spell and job satisfaction are supportive of the compensating wage differential hypothesis, whereby women would sort in family friendly jobs that fit their lives better. This argument seems to be supported also by the fact that women who take up maternity leave and do not quit their jobs do not experience an increase in job satisfaction. In other words, both groups of women do not work within the first 14 weeks after childbirth. However, women who take up maternity leave know that they will return to their previous jobs, and the scope of changing employment conditions is not as large as for women who change employer (Felfe 2012).

The methods used in this study have some advantages with respect to previous literature and some limitations. In this study I consider variations in job satisfaction rather than group differences. The findings show the importance of considering before-after differences, as cross-sectional comparisons of mothers' job satisfaction would not reveal the true extent of variation (e.g. Hodson 1989, Crosby 1982, Hanson and Sloane 1992). First-difference regressions also provide the advantage that we can avoid worrying about the possible confounding effect of time-invariant characteristics (e.g. personality traits), as these are automatically controlled for. On the other hand, one limitation of my strategy is that I cannot rule out the hypothesis that these associations may be explained by selection into either maternity break or employment inactivity. Nevertheless, it is interesting to document the fact that the different strategies that women can choose to deal

with the double burden of combining work and family bear different consequences for job satisfaction.

The fact that taking an employment break after childbearing leads to an increase in job satisfaction at the return to employment should not be considered a finding supportive of the retreat of mothers of young children from employment. First, the results should not be interpreted in a causal fashion. Thus, we cannot assert that taking an employment break after childbearing is a practice that increases job satisfaction, as the relationship may be driven by the characteristics of these women, as the descriptives in section 5.1 seem to suggest. Moreover, these are women who were likely to be dissatisfied with their previous jobs. Rather, more effort should be put in making sure that women do not experience a decrease in job satisfaction after childbirth. In particular, if it is true that the increase in job satisfaction for women with small children is explained by sorting into family friendly jobs then there is a strong call for employers to provide flexibility and implement employment practices that make it easier to combine a career with the new life as a mother.

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