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Parental Leave and Life Satisfaction: The Dutch case

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Abstract

There is extensive literature on ambiguous effects of having children on life satisfaction. Although parenthood can provide a meaning of life, parenting may increase the amount of obligations and decrease leisure time, which in turn reduce life satisfaction. In the Netherlands, parental leave is a part-time work arrangement which allows parents with young children to reconcile better work and family commitments. Using data from the Dutch Longitudinal Internet Studies for the Social Sciences (LISS), we analyzed the impact of taking parental leave on the life satisfaction of parents with young children. We found that the legal framework of Dutch parental leave offering job protected leave and fiscal benefits is crucial to enhance parents' life satisfaction. Further, we estimated that short parental leave schemes are more conducive to life satisfaction than long parental leave schemes.

JEL Classification C10, H53, I31

Keywords Parental Leave scheme, Children, Happiness, Satisfaction, Work-life balance, the Netherlands

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1 Introduction

Does having children make us happy? Although there is a widespread belief that children raise happiness and that parenthood gives meaning of life, many parents indicate that parenting can also bring negative feelings (Hansen, 2012). In the popular book "All Joy and No Fun", Senior (2014) argues that a parent sense of self-worth and joy during time with children goes hand-in-hand with frustration, worry, and boredom. In this regard, researchers have found ambiguous evidence on the association between having children and changes in parental subjective well-being. A meta-analysis performs by Luhmann *et al.* (2012) report a small negative association between child birth and parents' life satisfaction. This negative effect is mainly drive by a deterioration of the relationship with partner. Although parents tend to be less satisfied after child birth, they also feel more positive affect in daily life. Child birth does not impact life satisfaction in the same way depending on individual characteristics and countries specific institutional settings. Cetre *et al.* (2016) provide a systematic analysis showing that having children have a positive impact on subjective well-being only in developed countries, and for those who become parents after the age of 30 and who have higher income. The generosity of family policies, particularly paid time off and childcare subsidies, also reduce disparities in happiness between parents and non-parents (Glass *et al.*, 2016).

All in all, as indicated by Hansen (2012) and Pollmann-Schult (2014), it seems that parenting comes with some well-being costs, ranging from psychological costs such as depression (Evenson and Simon, 2005), marital costs such as a decline in conjugal relationship satisfaction (Twenge *et al.*, 2003), increase in marital conflict (Shapiro *et al.*, 2000), financial costs (Stanca, 2012) to role conflict between work and family domains (Tausig and Fenwick, 2001). These costs are more or less high subject to age, educational level, income and family policies in living country. The widespread belief that children bring happiness is a focusing illusion: when thinking about children we think about cute children and joyful moments without thinking about potential costs to our well-being (Powdthavee, 2009).

Becoming a parent increase time constraints and family obligations which in turn reduces life satisfaction. In this regard, Hochschild (1997) speaks of an increasing 'time-bind' or a perceived imbalance between work obligations and family obligations. Individuals suffering from a 'time-bind' have the feeling that both work and family are legitimately time demanding, but that they cannot control the balance between them.

Tausig and Fenwick (2001) find that having children consistently reduces the extent to which workers feel successful in balancing their work and personal lives. In this regard, it is not surprising that single individuals and couples with no children generally report higher levels of work-life balance than single parents and couples with children. Parents may experience role conflict between work and family domains because work life and family life can be incompatible due to their

different role demands (Greenhaus and Beutell, 1985). Research on work and family roles has shown that work-family role conflict is associated with life dissatisfaction. Pichler (2009), using European Social Survey II and International Social Survey Programme (ISSP) data, concludes that a higher work-life imbalance is associated with lower levels of life satisfaction, happiness, subjective health, and emotional well-being. Drobnič *et al.* (2010) find that the meaning and importance of the work-home interface is stronger in Nordic and Western Europeans countries than in southern and Eastern European countries. Despite the fact that reported conflict between work and home is in effect weaker in North-West European societies, its negative effect on quality of life is stronger. This is called the "affluence work-home paradox": although the conflict between work and home is less in richer countries, it has a stronger negative impact on life satisfaction (Drobnič, 2010, p.222).

The literature on family involvement shows that spending leisure time with family has a positive impact on life satisfaction. The concept of family involvement includes the time and energy an individual devotes to family (Clarke *et al.*, 2004). Parenthood in itself is not related to a wife's role balance, while a husband's involvement in childcare is: the more leisure time husbands devote to their children when wives are not present and the less they work, the better the wive's role balance (Marks *et al.*, 2001). Related research shows that parents experienced higher levels of quality of life when they spent more time on their family than on work (Greenhaus *et al.*, 2003; Musick *et al.*, 2016). Therefore, it has also been found that being involved with family is associated with higher levels of emotional and social support from family members, which, in turn, is related to increased overall life satisfaction (Adams *et al.*, 1996; Tausig and Fenwick, 2001).

The most consistent work characteristic predicting work-life imbalance is the number of hours worked, thus a family leave scheme may reduce the perceived 'time-bind' of working parents and increase subjective well-being (Gornick and Meyers, 2003). Although there is an extensive literature on part-time work and life satisfaction (see for example: Booth and Van Ours, 2008; Booth and Van Ours, 2009; Booth and Van Ours, 2013; Lepinteur *et al.*, 2016; Gash *et al.*, 2010) few studies have examined the impact of parental leave on life satisfaction.

D'Addio *et al.* (2014) studied variation in women's life satisfaction around the date of reforms on birth related leave. Using the Eurobarometer, the German Socio-Economic panel (SOEP) and the British Household Panel Survey (BHPS), they find consistent evidences that women on birth-related leave score higher on life satisfaction than women who are not on leave. In contrast to the findings of D'Addio *et al.* (2014), Pezzini (2005) found no effect of high levels of work related maternity protection on women's life satisfaction. Hamplová (2018) explores the link between employment and subjective well-being among mothers with children under three years of age using the European Social Survey. She found that

homemakers are usually happier than full-time workers, however, she did not find significant differences in subjective well-being between homemakers and part-time workers. Furthermore, the cross-national variation is not linked to the length of parental leave. Using SOEP, Berger (2009) has concluded that being out of the labor force due to family duties and part-time employment has a more detrimental effect on a mother's happiness than unemployment.

Building on the existing literature on parental leave and subjective well-being, we examine in this research how parental leave policies moderate the relationship between having children and life satisfaction. Specifically, we focus on the impact of taking parental leave on life satisfaction in The Netherlands. To better understand our purpose, we present below some legislative elements of parental leave scheme in a diachronic and synchronic form. These elements seem necessary to us in the specific analysis of the Dutch case.

Parental leave scheme can increase the life satisfaction of parents with young child in two complementary ways: (1) by offering job protected leave and (2) by offering financial support during the leave (Ray *et al.*, 2010).

The European Council revised in 2010 the directive on parental leave (1995) to ensure four months of job protected leave for each parents, however, paid parental leave is not yet mandatory[1].

The Netherlands introduced a right to unpaid part-time parental leave through the Act on parental leave implemented in 1991[2]. Although the parental leave legislation was welcomed as a first step towards a society favoring work-life balance for parents, its design was controversial. The arguments referred to the rigid part-time orientation of the parental leave not promoting an equal take-up between men and women and being not in line with the directive on parental leave of the European Unions, which favored a full-time leave (Plantega and Remery, 2009).

In 1997 a new draft of the parental leave directive was proposed to tackle these problems[3]. Then, in January 2009, the length of parental leave was extended at 26 times the contractual number of working hours.

The Dutch parental leave scheme ensures job protected leave but income support is left to the decision of employers, however, some fiscal incentives exist[4], but

[1]On 6 February 2019 the Council of the European Union endorsed a provisional agreement on the directive about work-life balance for parents and careers. This provisional agreement now has to be formally adopted by the European Parliament and the Council. This directive will replace the directive on parental leave. It strengthens the existing right to four months of parental leave, by making two months non-transferable between parents and introducing compensation for these two months at a level to be determined by the member state.

[2]This act gave an unpaid part-time parental leave of a maximum of six months to employees who had been employed by their current employer for at least one year to be taken within four years after the birth of a child.

[3]The new proposal was still part-time but more individual oriented: Parents were entitled to lower their working hours by 50 percent over a period of 26 weeks and the leave could be take until the child is eight years old. Additionally, employees may request the employer's permission to spread the leave hours over a longer period than six months or to take more hours per week. Employers may not refuse unless compelling business reasons.

[4]Since the Work and Care Act in 2001, employers could deduct 50 percent of the costs of paid leave, under the condition that payment during parental was at least 70 percent of the minimum wage. In addition, payment has to be included in the collective agreement or made available to at least three-quarter of the employees in the firm

they have a marginal impact, as only a minority of the potential leave takers are entitled to a paid parental leave (Plantega and Remery, 2009)[5].

The employees also have the possibility to finance their leave through a specific saving scheme and fiscal benefit. The Netherlands introduced the idea of an individualized adult worker model family in 2006 with the Life Course Saving Scheme (LCSS)[6].

Although the Netherlands did a first step towards a generalized paid parental leave, the take-up rate is still far from 100 percent[7]. Fathers were afraid that claiming parental leave will have an unfavorable effect on their careers, while mothers judged that the pay during parental leave was too low. Lewis (1999) calls this phenomena "the gap between policy and practice": employers do not always implement work-life policies as expected, nor do employees utilize them as extensively as they could.

To sum up, parenting implies family obligations and time constraints leading to an increase in work-family role conflict. Those conflicts have a negative impact on parent's life satisfaction. Moreover, family involvement is associated with higher levels of well-being. Thus, a way to minimize the adverse effect of parenting on parents' life satisfaction may be to provide specific working time arrangements to parents. The Dutch parental leave scheme is an example of such arrangement. It entitled parents with a child younger than eight to take a parental leave under the form of a part-time work. Although this leave is most often unpaid in the private sector, some fiscal incentives exist to encourage parents to take it. In this regards, the Dutch parental leave scheme may help parents to reconcile their family and work life and improve their life satisfaction.

Our study contributes to the literature in several ways. Firstly, few studies have addressed the relationship between parental leave schemes and subjective well-being. To fulfill this gap, we examined the association between parental leave and life satisfaction, and explore the existence of adaptation effects by studying how the length, intensity, and payment scheme of the parental leave program moderates the effect between parental leave and life satisfaction. Secondly, we payed attention to the heterogeneous relationship between parental leave and life

[5]According to Statistics Netherlands (CBS), between 2005 and 2009 nearly 25 percent of employees in the private sector taking parental leave was partly or fully paid, while around 80 percent of employees in the public sector, health care and welfare sectors was partly or fully paid

[6]Workers can save up to 12 percent of their gross annual income to take time out of the labor market. A maximum of 210 percent of the last-earned yearly wage may be saved, which amounts to three years of leave at 70 percent of the last earned income. The money is treated as deferred income and is only taxed on withdrawal. Additionally, saving on the LCSS gives the savers access to income tax relief of up to 195 euros per year (Lewis *et al.*, 2008). Moreover, Since 2009, all employees taking a parental leave get access to an extra fiscal benefit of 50 percent of the minimum wage for the statutory period of leave. In the case of full-time leave, parents will be given approximately 650 euros per month.

[7]According to the Netherlands Institute for Social Research (SCP) in 2006, 44 percent of mothers entitled to parental leave toke it, compared to 21 percent of the fathers. Moreover, according to CBS, between 2005 and 2009 around 10 percent of parents who wanted parental leave did not claim it.

satisfaction by examining for whom parental leave is most conducive to parental well-being. Finally, we analyzed the relationship between parental leave and life satisfaction for the case of the Netherlands, where we were, as we know, the first ones to study this relationship for this country.

The remainder of this paper is organized as follows: We focus on the data and methodology in Section 2. An empirical analysis of the relationship between parental leave and life satisfaction is provided in section 3, The discussion and conclusion are presented in section 4.

2 Data and Methodology

In this section we presented the variables from the Dutch Longitudinal Internet Studies for the Social Sciences (LISS), we used to study the effect of the Dutch parental leave scheme on parents' life satisfaction. Additionally, we provided descriptive statistics on life satisfaction, decision to take a parental leave, having young children, and decision to reduce working time outside the parental leave scheme.

2.1 Data

Our research was based on data taken from the Dutch Longitudinal Internet Studies for the Social Sciences (LISS) panel administered by CentERdata[8] (see for details: www.lissdata.nl). The panel is based on a true probability sample of households drawn from the population register by Statistics Netherlands consisting of more than 4500 households over 8000 individuals and 93 monthly waves from November 2007 to September 2016. In the LISS survey, individuals report on several aspects of their life, including their satisfaction with life, parental leave and background information[9]. Our common sample was unbalanced[10] and included 8,590 observations and 2,943 individuals observed over the period 2008-2013[11].

To be on parental leave a person must have at least worked with the same employer during one year, this allowed us to exclude individuals who had never worked during the entire observation period. We exclude years 2014, 2015 and 2016 from our analysis because the life satisfaction question was asked six month after the question on parental leave[12].

To analyze the impact of taking parental leave on life satisfaction, we first investigated the effect of having children younger than eight on subjective well-being. We chose the age of eight as a cutoff because only parents with children younger than eight are entitled to use the Dutch parental leave scheme. Then, we studied whether taking parental leave might influence the relationship between having young children and life satisfaction. As parental leave is a part-time work arrangement that allows parents to have more time for their children and themselves, it is reasonable to assume that while having young children has no clear impact on life satisfaction (Luhmann *et al.*, 2012), having more free time for them

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[9] The panel was extracted from the LISS database and uses information from 5 panels of the core study: "Personality Questionnaire, LISS Core Study", "Family and Household Questionnaire, LISS Core Study", "Health Questionnaire, LISS Core Study", "Work and Schooling Questionnaire, LISS Core Study", "Economic Situation: Income Questionnaire, LISS Core Study".

[10] The definitions and description of the relevant variables in the main models are provided in Tables A.1.1 and A.1.2 in the Appendix A1.

[11] Our common sample was based on observations of the last column of our baseline estimation.

[12] Note: observations after 2014 may bias our results, as individuals who answered the question on life satisfaction may no longer be on parental leave.

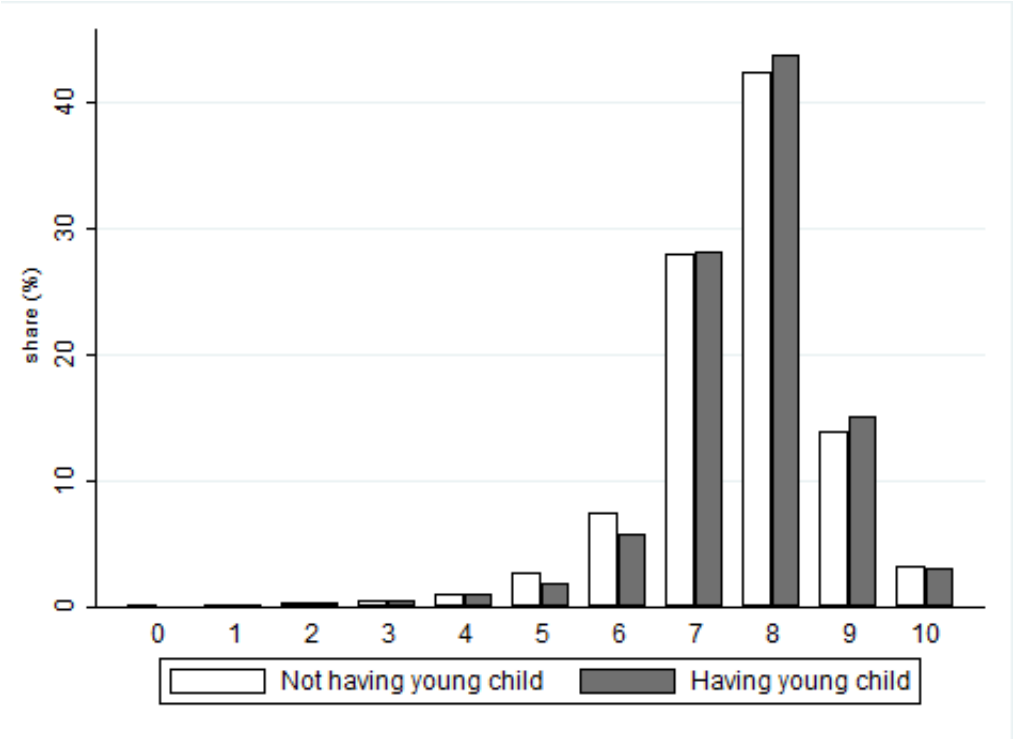
does (Tausig and Fenwick, 2001; Pichler, 2009; Drobnič *et al.*, 2010; Adams *et al.*, 1996; Greenhaus *et al.*, 2003). Further, parental leave was distinguish from working less because of children[13]. Our goal was to compare the effects of working time reduction outside the parental leave scheme with reduction of working time induced by parental leave on life satisfaction.

Our indicator for life satisfaction was based on the question "How satisfied are you with the life you lead at the moment?" the respondent was asked to use an ordinal scale from zero to ten, from not at all satisfied to completely satisfied. This single-item scale life satisfaction question is a widely used measure of subjective well-being. It has the advantage of asking the respondent to focus on an overall evaluation of their life rather than on current feelings or specific psychosomatic symptoms. Veenhoven (2000) and Frey and Stutzer (2002), have shown that life satisfaction is closely related to a number of other potentially more objective measures of happiness.

The well-being distribution of having a child under eight or not in the Netherlands is illustrated in figure 1. Very few individuals reported a level of well-being below five or over nine, which is standard in the literature. At a first glance the average value of life satisfaction among the two groups is about the same. In figure 2, we further distinguish between parents with young children who took parental leave and those who had not. In the middle and higher score groups of seven and eight individuals not on parental leave dominate those on parental leave in percentage, while a wider share of parents on parental leave scored nine out of ten.

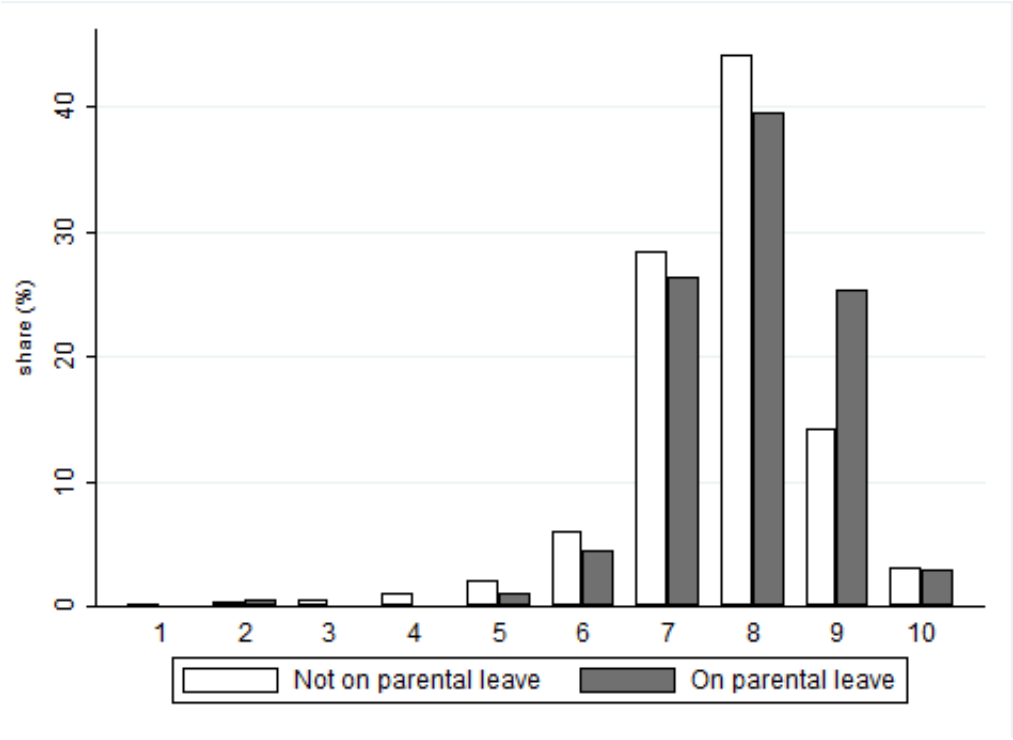
[13]Working less because of children is based on the question "How many hours per week are you working less on account of the care for your (grand) children? Do not include the hours that you have possibly taken as your parental leave". In our common sample we observed 1,584 observations of individuals reducing their working hours to take care of their children outside the parental leave scheme.

Figure 1: Well-being and Having a Young Child



Descriptive statistics are based on our common sample from LISS panel data (2008-2013)

Figure 2: Well-being of Parents and Parental Leave



Descriptive statistics are based on our common sample from LISS panel data (2008-2013)

An overview of average well-being of parents with under eight children split by gender is given in table 1. The last column in table 1 confirms the findings shown in Figure 1 and 2. Average well-being does not differ noticeably between having children younger than eight or not, and between individuals working less hours to take care of their children or not, while individuals taking parental leave are on average more satisfied with their life than those who did not. On the scale from zero to ten, parents who have not taken parental leave scored on average 7,6 while those who took parental leave scored on average 7,9. Comparing the first two columns of Table 1, the average gap between parents who took parental leave and those who did not was slightly higher for women than for men.

Table 1: Life Satisfaction having a Young Child, Taking Parental Leave and Working Less in the Netherlands; Averages and Number of Observations

	Men		Women		Average	
a. Young child						
No Young child	7.6	(2,817)	7.6	(3,167)	7.6	(5,984)
Young child	7.6	(1,357)	7.7	(1,249)	7.7	(2,606)
b. Parental leave						
No parental leave	7.6	(1,281)	7.7	(1,127)	7.6	(2,408)
Parental leave	7.8	(76)	7.9	(122)	7.9	(198)
c. Work less hours						
Not working less hours	7.6	(1,220)	7.7	(442)	7.6	(1,662)
Working less hours	7.8	(137)	7.7	(807)	7.7	(944)

Averages life satisfaction of sample a are based on our common sample from LISS panel data (2008-2013) including 8,590 observations. Averages life satisfaction of sample b and c are based on a sub-sample of individuals having children under eight years old including 2,606 observations.

The distribution of individuals having young children and not reducing their working hours, taking parental leave and working less outside the Dutch parental leave scheme is presented in table 2. The second column of table 2 describes the distribution of individuals taking parental leave; with the largest group being middle income, highly educated women in cohabitation with a single child under two years old. We observed an equal distribution across the public and private sectors, living environment and number of hours taking leave per week. The duration of parental leave generally exceed two years, however 43 percent of the respondents were effectively on parental leave for six months to up to two years. Finally, a majority of parents in the Netherlands take parental leave as a part-time work arrangement, allowing them more easily to reconcile work and parenting without completely withdrawing from the labor market.

The first column of table 2 reports the distribution of individuals having young children and not reducing their working hours. These parents have different characteristics than those taking parental leave; they mainly belong to high income category and work full-time in the private sector. The third column of table 2 shows the distribution of parents reducing their working time outside the parental leave scheme. A vast majority of them belongs to the lowest income category and are women working part-time. Notice that 10 percent of those reducing their working time are already on parental leave[14].

All in all, we observed a potential selection effect on time-varying observables such as income category, level of education, working time arrangements and working in the private or public sector.

[14]It represented 94 observations in our common sample. To ensure that these observations does not bias our estimated parameters we distinguished, in section 3.2.1, working less only, taking parental leave only, and working less and taking parental leave.

Table 2: Descriptive Statistics of Peoples Having Young Children and Taking Parental Leave, Working Less or Not Reducing their Working Time

	Young child (%)	Parental leave (%)	Work less (%)
Sex			
Men	52	38	15
Women	48	62	85
Monthly income			
0€ - 1,600€	32	39	76
1,601€ - 1,900€	24	32	10
1,901€ and more	44	29	14
Education level			
Stop before junior school	59	31	52
Higher Education	41	69	48
Marital status			
Single	8	4	8
(Un)married co-habitation	92	96	92
Working hours category excluding hours leave			
Part-time	25	49	90
Full-time	75	51	10
Sector			
Private	73	44	56
Public	27	56	44
living environment			
Rural	65	55	63
Urban	35	45	37
Age children			
Between 0 and 2 years old	30	55	31
Between 3 and 4 years old	34	33	37
Between 5 and 6 years old	33	28	37
Between 7 and 8 years old	34	19	33
Number of young children at home			
One child	67	59	61
Two children	28	35	34
Three children	4	5	4
Four children	1	1	1
Duration of parental leave			
No parental leave	100	0	90
Between one month and six months	0	26	3
Between six months and two years	0	34	4
More than two years	0	40	3
Month of leave since the person fulfill the inquiry			
No parental leave	100	0	90
Between one month and six months	0	38	5
Between six months and eighteen months	0	35	3
More than eighteen months	0	27	2
Number of hours leave per week			
No parental leave	100	0	90
One - seven hours leave (full day)	0	54	5
More than one day leave	0	46	5
Duration of parental leave and number of hours leave per week			
No parental leave	100	0	90
Full day and less than six month leave	0	11	1
Full day and Between six month and two years leave	0	18	2
Full day and more than two years leave	0	25	2
More than full day and six month leave	0	15	2
More than full day and between six month and two years leave	0	16	2
More than full day and more than two years leave	0	15	1
Observations	2,606	198	944

Descriptive statistics are based on our common sample from LISS panel data (2008-2013)

2.2 Econometric Model

Our dependent variable life satisfaction was measured on an ordinal scale from zero to ten. Unbalanced panel data allowed us to control for time-invariant unobserved personal characteristics using a linear robust fixed effects model. In this model the dependent variable was assumed to be cardinal, however when analyzing subjective well-being, the linear fixed effects estimation performs as well as the fixed effects ordered logit estimation (Ferrer-i-carbonell, 2004)[15]. Our model was specified as:

$$LS_{it} = \beta_0 + \beta_1\ YoungNoLeave_{it} + \beta_2\ (Young_{it} \times Leave_{it}) \\ +\beta_3\ (Young_{it} \times Work.Less_{it}) +\ X_{it}\beta_4 + \alpha_i + \varepsilon_{it}$$

Where i $(i = 1, 2, ..., n)$ refers to individuals t $(t = 1, 2, ..., T)$ stands for year and LS_{it} is the self-reported life satisfaction of individual on a scale from zero to ten. β_0 is the constant, $YoungNoLeave_{it}$ is a dummy vector of having a child younger than eight and not taking parental leave, $Young_{it} \times Leave_{it}$, denotes the interaction effect between having a *young child* and taking a *parental leave*, $Young_{it} \times Work.Less_{it}$ designate the interaction effect between having a *young child* and *working less* to take care of young child[16] and X_{it} represents the vector of covariates that may be correlated to both *parental leave* and *Life satisfaction* such as *work hours categories* (Booth and Van Ours, 2013), having a *one year old child*[17], *work satisfaction*, *social contact satisfaction* and *moment feeling*. Additionally, we controled for the usual demographic and socio-economic variables like *age, living environment, health, the education level* of the respondent, *marital status, employment status*, the *log of personal net monthly income in Euros* and *year dummies* (Booth and Van Ours, 2008). α_i represents individual specific time-invariant effects, such as *personality* and ε_{it} is the error term.

[15] According to Ferrer-i-carbonell and Frijters (2004) assuming ordinality or cardinality of life satisfaction scores makes qualitatively little difference, whilst allowing for fixed effects may change results substantially.

[16] That is the hours working less to take care of young child in addition to parental leave hours i.e. parental leave hours are not taking into account.

[17] Booth and Van Ours (2008) control for *child age categories*, as our variable *young child* is a dummy we could not control for each young child age categories, otherwise we would have colinearity issues. So, we only controled for having a *one year old child*, because parents of a new born child or newly adopted child are entitled to paternity and maternity leave.

3 Empirical Results

In this section we presented results from our baseline estimates. Further, we performed a sensitivity analysis to test the validity of our results. Then, we investigated the existence of reverse causality. Finally, we analyzed of how the life satisfaction of different parental sub-groups is influenced by the Dutch parental scheme.

3.1 Baseline Estimates

The results of our linear fixed effects model are presented in table 3[18]. All of our models were estimated using cluster-robust standard errors at the individual level. Our results confirmed the U-shaped relationship between life satisfaction and age (Blanchflower and Oswald, 2008). we found that having a child younger than eight has no significant effect on life satisfaction, while taking parental leave increases life satisfaction on average by 0.2 points. The total effect of having young child and taking parental leave was denoted by the sum of the two estimated coefficients β_2 and β_3. Considering the last model specification in table 3, having a child younger than eight and taking parental leave increase life satisfaction by 0.17 on average. The Wald-test revealed a significant difference in estimated coefficients between having a young child and not being on parental leave and the interaction between having a young child and taking parental leave. Such as, having a young child but not taking parental leave does not significantly impact life satisfaction, while taking parental leave increases life satisfaction.

Reduction of working time that is not part of the parental leave scheme does not have a significant association with life satisfaction, although the difference in coefficients between working less to take care of a young child and taking parental leave is not statistically significant. Looking at Column 5 of Table 3, we noticed that when we added subjective control variables, such as work satisfaction, social contact satisfaction and moment feelings the significance and the size of the coefficient slightly decreased, but remained statistically significant.

We found a positive moderating role of parental leave on the relationship between having a young child and life satisfaction. This result confirmed our first hypothesis that, in the Netherlands, parental leave reduces the "time-bind" (Hochschild, 1997) generated by having young child i.e. it increases the extent to which workers feel successful in balancing their work and personal lives. Parental leave in the Netherlands induces a reduction in work-life imbalances leading to higher life satisfaction.

[18]Full estimates can be found in the appendix Table B.1

Table 3: Summary Baseline Model - Parameter Estimates Effects of Parental leave on Life satisfaction in the Netherlands

Variable	(1)	(2)	(3)	(4)	(5)
Young child (β_1)	0.04 (0.06)	-	-	-	-
Young child and not on parental leave (β_2)	-	-0.00 (0.07)	-0.02 (0.07)	-0.05 (0.05)	-0.05 (0.06)
Young child and on parental leave (β_3)	-	0.22 (0.07)***	0.21 (0.08)***	0.21 (0.08)***	0.17 (0.08)**
Young child and working less because of child (β_4)	-	0.08 (0.07)	0.06 (0.07)	0.06 (0.07)	0.07 (0.06)
$\beta_2 + \beta_3$	-	0.22	0.19	0.16	0.12
$\beta_2 + \beta_4$	-	0.08	0.04	0.01	0.02
Wald tests					
p-value (β_1=β_2)	-	0.01***	0.01***	0.01***	0.01***
p-value (β_2=β_3)	-	0.17	0.12	0.13	0.31
R-Squared within	0.01	0.01	0.01	0.02	0.23
Control variables	Year Dummies	Year Dummies	Set of covariates	Set of covariates	Set of covariates
Observations	8,590	8,590	8,590	8,590	8,590
Individuals	2,943	2,943	2,943	2,943	2,943

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Individual fixed effects specifications; based on our common sample from LISS panel data (2008-2013)
All estimates include dummy variables for year of survey and constant term
Column 3, 4 and 5 includes each additional set of covariates described in the statistical method section

3.2 Robustness Test

We perform a sensitivity analysis to confirm the robustness of our results. Using an alternative definition for the dependent variable life satisfaction, re-running the regressions using an ordered logit fixed effects model and distinguishing working less in addition from parental leave from working less outside the parental leave scheme. Then, we looked at the reverse causality issue and estimated the impact of lag life satisfaction on the actual decision to take parental leave.

3.2.1 Sensitivity Analysis

First we replaced the dependent variable life satisfaction with happiness[19]. Our estimation results are presented in Table 4[20]. Having re-estimated the model using the happiness as dependent variable, our conclusions did not change in that there was still a positive association between parental leave and happiness as a subjective well-being indicator.

The estimated results using ordered logit fixed effects are displayed in table 5[21]. In line with the findings of Ferrer-i-Carbonell and Frijters (2004) assuming cardinality or ordinality in the subjective well-being data makes qualitatively little difference, and re-running the regression using an ordered logit fixed effects model gave similar results to those found using linear fixed effects model. In contrast to our baseline estimates, however, the estimated effect of taking parental leave on life satisfaction was significantly different from the estimated impact of working less to care of children on life satisfaction.

In a last specification we distinguished working less in addition from parental leave from working less outside the parental leave scheme in table 6[22]. As mentioned in the descriptive statistics part there were 94 observations for which individuals are taking parental leave and reducing their working hours at the same time. This distinction does not change our main findings. Taking parental leave and additionally reducing working hours, or not still largely and significantly impact life satisfaction, while reducing working hours outside the parental leave scheme does not affect life satisfaction. Nevertheless, the Wald-test revealed a significant difference in estimated coefficients between taking parental leave and additionally reducing working hours and only reducing working hours outside parental leave scheme. Such as, only reducing working hours without the legal framework of parental leave does not significantly impact life satisfaction, while taking parental leave and reducing working hours increases life satisfaction.

[19]The respondent answered the question; "On the whole, how happy would you say you are ?" on an ordinal scale from zero (totally unhappy) to ten (totally happy).

[20]Full estimates can be found in the appendix Table C.1.1

[21]Full estimates can be found in the appendix Table C.1.2

[22]Full estimates can be found in the appendix Table C.1.3

To conclude, using happiness as a dependent variable in table 4, re-runing the analysis using ordered logit random effect in table 5 and distinguishing working less in addition from parental leave from working less outside the parental leave scheme produced substantively the same results as those presented in our baseline estimate in Table 3.

Table 4: Sensitivity analysis - Parameter Estimates Effects of Parental leave on Happiness

Variable	(1)	(2)	(3)	(4)	(5)
Young child (β_1)	0.08 (0.06)	-	-	-	-
Young child and not on parental leave (β_2)	-	0.04 (0.07)	0.01 (0.07)	0.02 (0.07)	-0.00 (0.06)
Young child and on parental leave (β_3)	-	0.21 (0.09)**	0.21 (0.09)**	0.20 (0.09)**	0.16 (0.08)**
Young child and working less because of child (β_4)	-	0.09 (0.07)	0.06 (0.07)	0.07 (0.07)	0.09 (0.06)
Wald tests					
p-value (β_2=β_3)	-	0.06*	0.04**	0.06*	0.03**
p-value (β_3=β_4)	-	0.25	0.18	0.22	0.40
R-Squared within	0.01	0.01	0.01	0.02	0.22
Control variables	Year Dummies	Year Dummies	Set of covariates	Set of covariates	Set of covariates
Observations	8,541	8,541	8,541	8,541	8,541
Individuals	2,938	2,938	2,938	2,938	2,938

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Individual fixed effects specifications; based on our common sample from LISS panel data (2008-2013)
All estimates include dummy variables for year of survey and constant term
Column 3, 4 and 5 includes each additional set of covariates described in the statistical method section

Table 5: Sensitivity analysis - Parameter Estimates Effects of Parental leave on Life Satisfaction - Ordered Logit Fixed Effects

Variable	(1)	(2)	(3)	(4)	(5)
Young child (β_1)	0.11 (0.18)	-	-	-	-
Young child and not on parental leave (β_2)	-	-0.09 (0.17)	-0.13 (0.17)	-0.14 (0.17)	-0.21 (0.16)
Young child and on parental leave (β_3)	-	0.66 (0.22)***	0.66 (0.23)***	0.65 (0.23)***	0.69 (0.27)**
Young child and working less because of child (β_4)	-	0.05 (0.08)	0.05 (0.08)	0.03 (0.08)	-0.01 (0.08)
Wald tests					
p-value (β_2=β_3)	-	0.00***	0.00***	0.00***	0.00***
p-value (β_3=β_4)	-	0.01***	0.01***	0.01**	0.01**
log likelihood	-3.453	-3.447	-3.441	-3.408	-2.635
Control variables	Year Dummies	Year Dummies	Set of covariates	Set of covariates	Set of covariates
Observations	8,590	8,590	8,590	8,590	8,590
Individuals	2,943	2,943	2,943	2,943	2,943

Robust standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1
Ordered logit fixed effects specifications; based on our common sample from LISS panel data (2008-2013)
All estimates include dummy variables for year of survey and constant term
Column 3, 4 and 5 includes each additional set of covariates described in the statistical method section

Table 6: Sensitivity analysis - Parameter Estimates Effects of Working Less on Life Satisfaction

Variable	(1)	(2)	(3)	(4)	(5)
Young child (β_1)	0.04 (0.06)	-	-	-	-
Young child and not on parental leave (β_2)	-	0.01 (0.07)	-0.02 (0.07)	-0.01 (0.07)	-0.04 (0.06)
Young child and on parental leave (β_3)	-	0.28 (0.11)**	0.25 (0.11)**	0.25 (0.11)**	0.19 (0.10)*
Young child and on parental leave and working less (β_4)	-	0.28 (0.11)**	0.25 (0.11)**	0.24 (0.11)**	0.23 (0.11)**
Young child and working less (β_5)	-	0.10 (0.08)	0.07 (0.08)	0.07 (0.08)	0.08 (0.06)
Wald tests					
p-value (β_2=β_3)	-	0.01***	0.01***	0.01***	0.01**
p-value (β_3=β_4)	-	0.99	0.96	0.93	0.74
p-value (β_3=β_5)	-	0.11	0.09*	0.09*	0.27
p-value (β_4=β_5)	-	0.08*	0.08*	0.09*	0.16
R-squared within	0.01	0.01	0.01	0.02	0.23
Control variables	Year Dummies	Year Dummies	Set of covariates	Set of covariates	Set of covariates
Observations	8,590	8,590	8,590	8,590	8,590
Individuals	2,943	2,943	2,943	2,943	2,943

Robust standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1
Individual fixed effects specifications; based on our common sample from LISS panel data (2008-2013)
All estimates include dummy variables for year of survey and constant term
Column 3, 4 and 5 includes each additional set of covariates described in the statistical method section

3.2.2 Reverse causality

To check the validity of our results we needed to take into account the possibility of omitted variable bias and reverse causality in the estimation of the coefficient of taking parental leave on life satisfaction. Using the linear fixed effects model, we removed omitted fixed variable bias due to individual-specific unobserved heterogeneity related to both parental leave and life satisfaction, i.e. the phenomenon that fixed individual characteristics, such as personality, may influence the choice to take parental leave and life satisfaction at the same time. The linear fixed effects model does not consider possible reverse causality, i.e. the fact that an individual whose life satisfaction increases is more likely to take parental leave. Someone who becomes more satisfied with his or her life may be more willing to take free time to enjoy spending time with his or her children. Likewise, a person going through a depressive episode after the birth of a child may be more disposed to spend time at work.

To examine whether or not reverse causality was an issue, we looked at changes in life satisfaction over time and if they might influence the decision to take parental leave. We estimated a linear fixed effects model in which the dependent variable was the interaction effect between having a *child younger than eight* or not and *taking parental leave* or not with independent variables *life satisfaction* divided by 100[23] in earlier periods and the same covariates as before.

If a higher level of life satisfaction increased the probability of being on parental leave later on we could have a reverse causality issue. We used three different lags for life satisfaction to allow for effects that take shape quickly or more slowly. The relevant parameter estimates of lagged life satisfaction are presented in table 7. Estimations a, b and c indicated that a positive shock to happiness of an individual not on parental leave does not increase his or her probability to take parental leave one, two or three years later. Rows d to f show that after controlling for covariates, past life satisfaction does not influences the choice to take parental leave. The same estimation for the sub sample of parents with young child are shown in table 8. None of the results are sizable or significant, from this we concluded that reverse causality from life satisfaction to future choice to take parental leave was not an issue (see also Chen and Van Ours, 2018).

[23]We divide the life satisfaction by 100 to display larger marginal effects.

Table 7: Parameter Estimates Effects of Subjective Well-being on the Choice to Take Parental Leave; Individual Fixed Effects

	Parental leave$_t$	Nb. observations	R-squared within	Nb. Individuals
a. Life satisfaction$_{t-1}$	0.18 (0.19)	5,360	0.07	2,029
b. Life satisfaction$_{t-2}$	-0.55 (0.40)	3,607	0.10	1,456
c. Life satisfaction$_{t-3}$	-0.32 (0.30)	2,474	0.11	1,228
d. Life satisfaction$_{t-1}$	0.12 (0.17)	5,360	0.01	2,029
e. Life satisfaction$_{t-2}$	-0.66 (0.40)	3,607	0.01	1,456
f. Life satisfaction$_{t-3}$	-0.03 (0.29)	2,474	0.04	1,228

Robust standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1.
Individual fixed effects specifications; based on our common sample from LISS panel data (2008-2013)
Estimates of sample a, b, c include dummy variables for year of survey and constant term
Estimates of sample d, e, f additionally include a set of covariates described in the statistical method section

Table 8: Parameter Estimates Effects of Subjective Well-being on The Choice to Take Parental Leave - Subsample of parents; Individual Fixed Effects

	Parental leave$_t$	Nb. observations	R-squared within	Nb. Individuals
a. Life satisfaction$_{t-1}$	0.99 (0.62)	1,388	0.42	668
b. Life satisfaction$_{t-2}$	-1.03 (1.44)	816	0.51	413
c. Life satisfaction$_{t-3}$	-0.68 (0.99)	504	0.47	297
d. Life satisfaction$_{t-1}$	0.57 (0.70)	1,388	0.03	668
e. Life satisfaction$_{t-2}$	-2.30 (1.39)*	816	0.04	413
f. Life satisfaction$_{t-3}$	0.19 (1.73)	504	0.09	297

Robust standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1
Individual fixed effects specifications; based on our common sample from LISS panel data (2008-2013)
Estimates of sample a, b, c include dummy variables for year of survey and constant term
Estimates of sample d, e, f additionally include a set of covariates described in the statistical method section

3.3 Heterogeneity Analysis

In this section, we present an analysis of how the life satisfaction of different parental sub-groups is associated with parental leave in the Netherlands. Firstly, we examined how the Dutch parental leave scheme may shape the relationship. Secondly, we explored the influence of socio-demographic characteristics on the estimate impact of parental leave on life satisfaction.

3.3.1 Variation in Parental Leave Scheme

The estimated coefficient of our linear fixed effects model by length of parental leave is shown in table 9, panel a. Taking parental leave is related to an average life satisfaction increase of about 0.3 points for parents who are on parental leave for one month up to one and a half years. A similar significant coefficient size is found for parents during parental leave of between six months to eighteen months. Parents on parental leave for more than one and a half years, however, no longer enjoyed the benefits of this leave. This result may be explain by the process of hedonic adaptation (Brickman and Campbell, 1971) which suggest that individuals return to baseline levels of happiness following a change in life circumstance[24]. A possible explanation is that after two years parents get used to their part-time work arrangement and their extra free time no longer increases their life satisfaction. Additionally, Adema *et al.* (2015) find that across European countries negative wage and slower career opportunity progression largely follow long periods of leave from work, e.g. one or two years or more. As a consequence, when the parental leave arrangement is spread over an extended period it may generate negative work outcomes for career progression and wages that offset the work-life balance benefits of taking parental leave.

Estimated effects of parental leave weekly hours on life satisfaction are presented in table 8, panel b. The size of estimated coefficient does not differ significantly by the number of weekly working hours of parental leave. A reduction of working hours may impact life satisfaction in two contrasting ways. Firstly, taking more hours per week off may help an individual to balance life and work in a better way, leading to an increase in life satisfaction. Secondly, in contrast, reducing an individual weekly working hours can induce lower earnings, reduce their capacity to deal with work demands, restrict their career opportunities, and encourage negative judgments from co-workers (Garnero, 2016). Hence, taking beyond a certain amount of leave per week may have negative work outcomes for an individual: reducing weekly working hours may exceed the work-life balance benefits of parental leave.

[24]Clark *et al.* (2008) find that individuals may completely adapt to life events such as marriage, divorce, widowhood, birth of child, and layoff.

Table 9: Heterogeneity Analysis - Parameter Estimates Effects of Parental Leave Scheme on Life Satisfaction in the Netherlands

Variable	Life satisfaction
Panel a. Length of Parental Leave	
Young child and not on parental leave (β_1)	-0.10 (0.14)
Betw. one month and six months leave (β_2)	0.30 (0.13)**
Betw. six month and eigtheen month leave (β_3)	0.27 (0.12)**
More than one and a half year leave (β_4)	-0.03 (0.16)
Young child and working less because of child (β_5)	0.01 (0.13)
p-value (β_1=β_2)	0.07*
p-value (β_1=β_3)	0.07*
p-value (β_1=β_4)	0.78
p-value (β_2=β_3)	0.84
p-value (β_2=β_4)	0.04**
p-value (β_3=β_4)	0.29
p-value (β_2=β_5)	0.19
p-value (β_3=β_5)	0.21
p-value (β_4=β_5)	0.86
R-Squared within	0.24
Control variables	Set of covariates
Observations	8,590
Individuals	2,943
Panel b. Parental Leave Weekly Hours	
Young child and not on parental leave (β_6)	-0.08 (0.14)
Betw. one and seven hours leave per week (β_7)	0.21 (0.11)*
More than one day leave per week (β_8)	0.15 (0.14)
Young child and working less because of child (β_9)	0.04 (0.13)
p-value (β_6=β_7)	0.17
p-value (β_6=β_8)	0.34
p-value (β_7=β_8)	0.66
p-value (β_7=β_9)	0.40
p-value (β_8=β_9)	0.64
R-Squared within	0.24
Control variables	Set of covariates
Observations	8,590
Individuals	2,943

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Individual fixed effects specifications; based on our common sample from LISS panel data (2008-2013)
Estimates include dummy variables for year of survey, constant term and all controls of our baseline model

3.3.2 Socio-Demographic Characteristics

The estimated coefficient of our linear fixed effects model by socio-demographic characteristics are shown in table 10. Although we can see that taking parental leave has a more profound impact on the life satisfaction of (1) men, (2) the lower educated, (3) those belonging to the high income category, (4) and employees working in the public sector, none of the differences are statistically significant. In part, the non-significance of the results can be explained by the limited number of people in the sample taking parental leave. Follow-up research is necessary to examine those differences e.g. gender discrepancy in the effects of parental leave.

Table 10: Life satisfaction and Parental Leave by Socio-economic Characteristics in the Netherlands

	Young child and on parental leave	Observations	R-squared within	Individuals
Panel a. Sex				
Males (β_1)	0.30 (0.12)***	4,174	0.23	1,404
Females (β_2)	0.12 (0.10)	4,416	0.24	1,539
p-value (β_1=β_2)	0.12			
Panel b. Education Level				
Stop at junior college level or before (β_3)	0.28 (0.15)*	5,394	0.24	1,864
Higher education (β_4)	0.11 (0.09)	3,196	0.23	1,096
p-value (β_3=β_4)	0.18			
Panel c. Income category				
0 - 1,600€ (β_5)	0.03 (0.14)	4,000	0,23	1,500
1,601€ - 1,900€ (β_6)	0.30 (0.16)*	1,583	0.23	721
1,901€ and more (β_7)	0.38 (0.14)***	3,007	0.25	1,120
p-value (β_5=β_6)	0.70			
p-value (β_5=β_7)	0.24			
p-value (β_6=β_7)	0.37			
Panel d. Work Hours Category				
Part-time (β_8)	0.16 (0.11)	4,182	0.24	1,527
Full-time (β_9)	0.18 (0.11)	4,154	0,22	1,504
p-value (β_8=β_9)	0.90			
Panel e. Sector				
Private (β_{12})	0.16 (0.12)	5,050	0.22	1,802
Public (β_{13})	0.20 (0.10)**	3,483	0.27	1,194
p-value (β_{12})=(β_{13})	0.81			

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Individual fixed effects specifications; based on our common sample from LISS panel data (2008-2013)
Estimates include dummy variables for year of survey, constant term and all controls of our baseline model

4 Discussion

We investigated the relationship between parental leave and life satisfaction. We showed that although having a child younger than eight has no significant effect on parental life satisfaction, life satisfaction is significantly higher among parents with a young child who are on parental leave. This finding confirms the idea that a family leave scheme reduces the perceived 'time bind' of parents and increases their subjective well-being. At the same time, a reduction of working time to take care of children outside the Dutch parental leave scheme does not affect life satisfaction, indicating that the legal framework of parental leave offering job protected leave, the legal obligation for an employer to accept rescheduling a parents' work arrangement, the possibility to use the LCSS, access to fiscal benefit, and in some case financial support is crucial to enhance parents life satisfaction when taking temporary leave of absence in the form of parental leave to take care of their children. To test the robustness of our results we performed several sensitivity analyses. The findings hold using different estimation strategies and alternative definitions of the dependent variable. Additionally, we did not find evidence of existing reverse causality. The heterogeneity analysis revealed that short parental leave schemes are significantly more conducive to life satisfaction than long parental leave schemes, and no significant differences between subgroups were found.

Our results may have some implications for public policy. The use of parental leave should be promoted and encouraged by the State and by companies. The recent European directive on work-life balance for parents careers will, in this regard, help to promote paid parental leave supported by national laws. More generally, family friendly policies could be encouraged by public policy in order to avoid work life imbalances caused by parenthood.

Our study has some limitations that should be addressed in future research. One, we have an external validity issue as the analysis was restricted to the Netherlands the results we have found may not be generalized to other countries. In this regard, cultural specificities and legislation on birth-related leave and childcare systems may moderate the effect of parental leave on life satisfaction. Two, we dealt with reverse causality by estimating the impact of parental leave on past life satisfaction but this did not allow us to resolve this issue completely in the absence of a good instrumental variable or natural experiment. An experimental analysis needs to be undertaken to identify clearly the causal impact of parental leave on life satisfaction. Three, although we included a number of time-varying covariates and applied fixed effects model to account for time-invariant unobservables, we cannot entirely settle the concern of the possible time-varying unobservables. Four, although we explored for whom the relationship is prevalent, a more detailed heterogeneity analysis is needed. We should look at how different life styles may shape the relationship between parental leave and life satisfaction. For instance,

family and career oriented individuals may experience parental leave in different ways. Such a study would require a larger number of people taking parental leave in the data set. Five, we assumed that parental leave reduces work-life imbalances, and so induces higher life satisfaction, however, we lacked the information needed to undertake a mediation analysis. All these limitations need to be addressed in future research.

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Appendix A: Details on our Data

A1: Definitions and Description of Variables

The life satisfaction indicator and other variables on parental leave are collected on a monthly basis, but each module is repeated in different months during the year. Merging module by month implies an important data loss. In our analysis all variables were specified on an annual basis.

Table A.1.1: Variables Definition

Variable	**Definition**
Life satisfaction	Score on question "How satisfied are you with the life you lead at the moment?" (zero to ten)
Young child	Dummy variable if children younger than eight
Parental leave	Dummy variable if currently on parental leave
Parental leave hours	0 "No parental leave" 1 "1-7 hours per week" 2 "More than one day leave per week"
Duration of parental leave	0 "No parental leave" 1 "between 1 month and 6 months" 2 "between 6 months and two years" 3 "More than two years"
Parental leave number of month	Number of month the individual is on parental leave at the moment he fulfill the inquiry
Work less for child	Dummy variable if currently working less in order to take care of children (excluding parental leave hours)
Age	Age of the respondent
Living environment	Urban character of place of residence (one to five)
Disease	Dummy variable if suffer from any kind of long-standing disease
Education level	0 "Stop before junior high school" 1 "higher education"
Marital status	Dummy variable if (un)married co-habitation, with(out) children
Log personal net income	log of net monthly individual income in euros
Part-time	Weekly working hours between 11-35 hours according to employment contract (including parental leave hours)
Full-time	Weekly More than 35 hours according to employment contract (including parental leave hours)
One year children	Dummy variable if having one year old child
Number of young children	Number of children younger than eight
Happiness	Score on question "On the whole how happy would you say you are?" (zero to ten)
Moment feel	Score on the question "Did you felt happy over the past month? How do you feel at the moment" (one to seven)
Work satisfaction	Score on the question "How satisfied are you with your current work ?" (zero to ten)
Social contact satisfaction	Score on the question "How satisfied are you with your social contacts ?" (zero to ten)
Year	Year dummies (2008-2013), reference year is 2013

Descriptive statistics are based on our common sample from LISS panel data (2008-2013)

Table A.1.2: Descriptives Statistics

Variables	Mean	Standard deviation	Min	Max	Observations
Life satisfaction	7.6	1.2	0	10	8,590
Happy	7.7	1.1	0	10	8,541
Young child	0.3	0,5	0	1	8,590
Young child and no parental leave	0.2	0.4	0	1	8,590
Number of young child	0.4	0.8	0	5	8,590
Parental leave	0.02	0,15	0	1	8,590
Parental leave weekly hours	0.22	1.5	0	40	8,589
Length of parental leave (number of month)	28	26	1	216	8,579
Length of parental leave since the person fulfill the inquiry (number of month)	14.5	17	1	136	8,579
Work less for child	0,18	0,39	0	1	8,590
Sex	0.5	0.5	0	1	8,590
Age	47.4	9.3	21	90	8,590
Urban	3	1.2	1	5	8,590
Public	0.4	0.5	0	1	8,533
Disease	0.2	0,4	0	1	8,590
Missing(Disease)	0.1	0.3	0	1	8,590
Education level	1.1	0.8	0	2	8,590
Marital status	0,9	0,3	0	1	8,590
Part-time	0.5	0.5	0	1	8,590
Full-time	0.5	0.5	0	1	8,590
Log net income	7.3	0.8	0	12.1	8,590
One year children	0.05	0.2	0	1	8,590
Moment feel	5.8	0.9	1	7	8,590
Work satisfaction	7.5	1.5	0	10	8,590
Social contact satisfaction	7.2	1.5	0	10	8,590

Descriptive statistics are based on our common sample from LISS panel data (2008-2013)

Appendix B: Parameter Estimates Baseline model

Table B.1: Parameter Estimates Effects of Parental Leave on Life Satisfaction in the Netherlands

VARIABLES	(1) Life satisfaction	(2) Life satisfaction	(3) Life satisfaction	(4) Life satisfaction	(5) Life satisfaction
Young child	0.04	-	-	-	-
	(0.06)				
Young child and not on parental leave	-	-0.00	-0.02	-0.02	-0.05
		(0.07)	(0.07)	(0.07)	(0.06)
Young child and on Parental leave	-	0.22***	0.21***	0.20***	0.16**
		(0.08)	(0.08)	(0.08)	(0.08)
Young child and working less because of children	-	0.08	0.06	0.05	0.07
		(0.07)	(0.07)	(0.07)	(0.06)
Age	-	-	-0.15**	-0.13**	-0.09*
			(0.07)	(0.06)	(0.06)
Age square times 100	-	-	0.10**	0.09*	0.06
			(0.05)	(0.05)	(0.04)
Living environment	-	-	-0.05	-0.05	-0.06
			(0.12)	(0.11)	(0.09)
Disease	-	-	-	-0.19***	-0.12**
				(0.06)	(0.05)
Missing(Disease)	-	-	-	-0.07	-0.04
				(0.05)	(0.04)
Education level	-	-	-	0.36*	0.34**
				(0.19)	(0.17)
Marital status	-	-	-	0.56***	0.43***
				(0.17)	(0.13)
Part-time (ref: Unemployed or OLF)	-	-	-	0.11	0.12
				(0.13)	(0.11)
Full-time (ref: Unemployed or OLF)	-	-	-	0.02	0.05
				(0.15)	(0.13)
Log of net individual income	-	-	-	-0.00	-0.03
				(0.03)	(0.03)
One year old child	-	-	-	0.00	0.01
				(0.05)	(0.05)
Work satisfaction	-	-	-	-	0.07***
					(0.01)
Moment feeling	-	-	-	-	0.44***
					(0.02)
Social contact satisfaction	-	-	-	-	0.08***
					(0.01)
2009	-0.04	-0.04	0.01	0.01	0.05*
	(0.03)	(0.03)	(0.04)	(0.03)	(0.03)
2010	-0.05*	-0.06*	0.06	0.05	0.06
	(0.03)	(0.03)	(0.05)	(0.05)	(0.04)
2011	-0.10***	-0.10***	0.06	0.06	0.07
	(0.03)	(0.03)	(0.06)	(0.06)	(0.05)
2012	-0.18***	-0.18***	0.03	0.03	0.06
	(0.038)	(0.038)	(0.08)	(0.08)	(0.07)
2013	-0.18***	-0.18***	0.09	0.09	0.12
	(0.04)	(0.04)	(0.10)	(0.10)	(0.08)
Constant	7.68***	7.68***	12.57***	11.14***	6.71***
	(0.03)	(0.03)	(1.94)	(1.97)	(1.70)
Observations	8,590	8,590	8,590	8,590	8,590
R-squared	0.01	0.01	0.01	0.02	0.23
Number of individuals	2,943	2,943	2,943	2,943	2,943

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Estimation based on our common sample from LISS panel data (2008-2013)

Appendix C: Robustness Test

Appendix C.1: Sensitivity Analysis

Table C.1.1: Parameter Estimates Effects of Parental Leave on Happiness

VARIABLES	(1) Happy	(2) Happy	(3) Happy	(4) Happy	(5) Happy
Young child	0.08	-	-	-	-
	(0.06)				
Young child and not on parental leave	-	0.04	0.01	0.02	-0.00
		(0.07)	(0.07)	(0.07)	(0.06)
Young child and on Parental leave	-	0.21**	0.21**	0.20**	0.16**
		(0.09)	(0.09)	(0.09)	(0.08)
Young child and working less because of children	-	0.09	0.06	0.07	0.09
		(0.07)	(0.07)	(0.07)	(0.06)
Age	-	-	-0.18***	-0.17***	-0.14***
			(0.06)	(0.06)	(0.05)
Age square times 100	-	-	0.12***	0.11***	0.09**
			(0.04)	(0.04)	(0.04)
Living environment	-	-	0.06	0.06	0.05
			(0.08)	(0.08)	(0.06)
Disease	-	-	-	-0.18***	-0.11**
				(0.06)	(0.05)
Missing(Disease)	-	-	-	-0.09**	-0.06
				(0.05)	(0.04)
Education level	-	-	-	0.22	0.20
				(0.19)	(0.18)
Marital status	-	-	-	0.32**	0.20**
				(0.13)	(0.10)
Part-time (ref: Unemployed or OLF)	-	-	-	0.18	0.21*
				(0.13)	(0.11)
Full-time (ref: Unemployed or OLF)	-	-	-	0.22	0.26**
				(0.14)	(0.13)
Log of net individual income	-	-	-	0.01	-0.02
				(0.02)	(0.02)
One year old child	-	-	-	0.02	0.02
				(0.05)	(0.04)
Work satisfaction	-	-	-	-	0.04***
					(0.01)
Moment feeling	-	-	-	-	0.41***
					(0.02)
Social contact satisfaction	-	-	-	-	0.05***
					(0.01)
2009	-0.07**	-0.07**	-0.00	0.00	0.04
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
2010	-0.09***	-0.09***	0.04	0.05	0.05
	(0.03)	(0.03)	(0.04)	(0.04)	(0.04)
2011	-0.11***	-0.11***	0.08	0.09	0.10*
	(0.03)	(0.03)	(0.06)	(0.06)	(0.05)
2012	-0.18***	-0.18***	0.06	0.07	0.09
	(0.04)	(0.04)	(0.07)	(0.07)	(0.06)
2013	-0.15***	-0.15***	0.15*	0.17*	0.19***
	(0.04)	(0.04)	(0.09)	(0.09)	(0.08)
Constant	7.75***	7.75***	13.13***	12.11***	8.35***
	(0.03)	(0.03)	(1.67)	(1.74)	(1.55)
Observations	8,541	8,541	8,541	8,541	8,541
R-squared	0.008	0.009	0.012	0.018	0.219
Number of individuals	2,938	2,938	2,938	2,938	2,938

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Estimation based on our common sample from LISS panel data (2008-2013)

Table C.1.2: Parameter Estimates Effects of Parental Leave on Life Satisfaction - Ordered Logit Fixed Effects

	(1)	(2)	(3)	(4)	(5)
VARIABLES	Life satisfaction	Life satisfaction	Life satisfaction	Life satisfaction	Life satisfaction
Young child	0.11	-	-	-	-
	(0.18)				
Young child and not on parental leave	-	-0.09	-0.13	-0.14	-0.21
		(0.17)	(0.17)	(0.17)	(0.16)
Young child and on parental leave	-	0.66***	0.66***	0.65***	0.69**
		(0.22)	(0.23)	(0.23)	(0.27)
Young child and working less because of children	-	0.05	0.05	0.03	-0.01
		(0.08)	(0.08)	(0.08)	(0.08)
Age	-	-	-0.40**	-0.35*	-0.32*
			(0.18)	(0.18)	(0.18)
Age square times 100	-	-	0.27**	0.24*	0.22
			(0.14)	(0.14)	(0.13)
Living environment	-	-	-0.12	-0.15	-0.34**
			(0.24)	(0.20)	(0.14)
Disease	-	-	-	-0.53***	-0.17
				(0.16)	(0.16)
Missing(Disease)	-	-	-	-0.20	-0.19
				(0.14)	(0.14)
Education level	-	-	-	1.25***	0.61
				(0.39)	(0.50)
Marital status	-	-	-	0.97***	0.75***
				(0.30)	(0.25)
Part-time (ref: Unemployed or OLF)	-	-	-	0.22	0.46
				(0.36)	(0.32)
Full-time (ref: Unemployed or OLF)	-	-	-	-0.01	0.32
				(0.42)	(0.38)
log of net individual income	-	-	-	-0.01	-0.08
				(0.09)	(0.09)
One year old child	-	-	-	-0.03	-0.01
				(0.15)	(0.15)
Work satisfaction	-	-	-	-	0.23***
					(0.03)
Moment feeling	-	-	-	-	1.18***
					(0.07)
Social contact satisfaction	-	-	-	-	0.18***
					(0.04)
2008	0.55***	0.55***	-0.12	-0.15	-0.28
	(0.12)	(0.29)	(0.29)	(0.28)	(0.12)
2009	0.40***	0.40***	-0.12	-0.15	-0.11
	(0.11)	(0.11)	(0.24)	(0.24)	(0.24)
2010	0.36***	0.36***	-0.02	-0.05	-0.15
	(0.11)	(0.11)	(0.19)	(0.19)	(0.19)
2011	0.23***	0.23**	-0.03	-0.06	-0.15
	(0.10)	(0.10)	(0.15)	(0.14)	(0.14)
2012	-0.01	-0.01	-0.14	-0.16	-0.23**
	(0.10)	(0.10)	(0.11)	(0.11)	(0.11)
Observations	8,590	8,590	8,590	8,590	8,590
log likelihood	-3.453	-3.448	-3.441	-3.408	-2.635
Number of individuals	2,943	2,943	2,943	2,943	2,943

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Estimation based on our common sample from LISS panel data (2008-2013)

Table C.1.3: Parameter Estimates Effects of Working Less on Life Satisfaction

VARIABLES	(1) Life satisfaction	(2) Life satisfaction	(3) Life satisfaction	(4) Life satisfaction	(5) Life satisfaction
Young child	0.04	-	-	-	-
	(0.06)				
Young child and not on parental leave	-	0.01	-0.02	-0.01	-0.04
		(0.07)	(0.07)	(0.07)	(0.06)
Young child and on parental leave	-	0.28**	0.25**	0.25**	0.19*
		(0.11)	(0.11)	(0.11)	(0.10)
Young child and on parental leave and working less	-	0.28**	0.25**	0.24**	0.23**
		(0.11)	(0.11)	(0.12)	(0.11)
Young child and working less	-	0.10	0.07	0.07	0.08
		(0.08)	(0.08)	(0.08)	(0.06)
Age	-	-	-0.15**	-0.13**	-0.09*
			(0.07)	(0.07)	(0.06)
Age square times 100	-	-	0.10**	0.09*	0.06
			(0.05)	(0.05)	(0.04)
Living environment	-	-	-0.05	-0.04	-0.06
			(0.12)	(0.11)	(0.09)
Disease	-	-	-	-0.19***	-0.12**
				(0.06)	(0.05)
Missing(Disease)	-	-	-	-0.07	-0.04
				(0.05)	(0.04)
Education level	-	-	-	0.44***	0.30**
				(0.17)	(0.12)
Marital status	-	-	-	0.56***	0.43***
				(0.17)	(0.13)
Part-time (ref: Unemployed or OLF)	-	-	-	0.11	0.12
				(0.13)	(0.11)
Full-time (ref: Unemployed or OLF)	-	-	-	0.02	0.05
				(0.15)	(0.13)
Log of net individual income	-	-	-	-0.00	-0.03
				(0.03)	(0.03)
One year old child	-	-	-	0.01	0.01
				(0.05)	(0.05)
Work satisfaction	-	-	-	-	0.07***
					(0.01)
Moment feeling	-	-	-	-	0.44***
					(0.02)
Social contact satisfaction	-	-	-	-	0.08***
					(0.01)
2009	-0.04	-0.04	0.01	0.01	0.05*
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
2010	-0.05*	-0.05*	0.06	0.06	0.06
	(0.03)	(0.03)	(0.05)	(0.05)	(0.04)
2011	-0.10***	-0.10***	0.06	0.06	0.08
	(0.03)	(0.0335)	(0.06)	(0.06)	(0.05)
2012	-0.18***	-0.18***	0.04	0.04	0.06
	(0.04)	(0.04)	(0.08)	(0.08)	(0.07)
2013	-0.18***	-0.17***	0.09	0.09	0.13
	(0.04)	(0.04)	(0.10)	(0.10)	(0.08)
Constant	7.68***	7.68***	12.52***	11.29***	6.92***
	(0.03)	(0.03)	(1.95)	(1.94)	(1.66)
Observations	8,590	8,590	8,590	8,590	8,590
R-squared	0.01	0.01	0.01	0.02	0.23
Number of individuals	2,943	2,943	2,943	2,943	2,943

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Estimation based on our common sample from LISS panel data (2008-2013)