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CAN MEN HAVE IT ALL?

ECONOMIC DETERMINANTS AND CONSEQUENCES OF FATHERS' PARENTAL LEAVE USE IN SWEDEN

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Abstract

This study addresses the question of economic and workplace related determinants and consequences of fathers' parental leave use in Sweden. The analysis is based on the Swedish Level of Living Survey for the years 1991 and 2000. The results show that wages and the probability of taking parental leave beyond the 'daddy month' are inversely u-shaped: with very low hourly wages it does not seem to be affordable to take longer parental leave, whereas with higher wages it does not seem to be rational. Working in the public sector increases the probability to take parental leave beyond the 'daddy month' which is rather explained by different structures and workplace cultures than by economic incentives. Wage penalties for parental leave could not be found, but fatherhood more generally seems to lead to a wage premium. Self-selection into family-compatible employments seems to be an important consequence for mothers who take extended parental leave but similar effects were not found for fathers.

Keywords Fatherhood Bonus; Parental Leave; Wage Penalty

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1 Introduction

"IN SWEDEN, MEN CAN HAVE IT ALL"
(Bennhold 2010)

The above title from a New York Times online article suggests that in contemporary Sweden, men can have it all – "a successful career and being a responsible daddy" (Bennhold 2010). The reconcilability of family and work seems to work for Swedish fathers. Today, more than 80 percent of fathers take parental leave in Sweden (Duvander and Johansson 2010, 47) and the share of days taken by fathers is nowadays almost one fourth (Försäkringskassan 2012, own calculations).

Nevertheless, the division of parental leave between parents is far from equal. Among the most common reasons for fathers not to take longer leaves are – as experienced by fathers themselves – demands of their jobs and income reductions (Brandth and Kvande 2001, 262). According to this it is rather questionable that *men can have it all* – at least in terms of choosing any division of parental leave just according to their preferences and not determined by economic necessities.

The aim of the present study is to analyze economic determinants and consequences of fathers' parental leave use. Whereas mothers' use of parental leave is in focus of research (cf. Aisenbrey et al. 2009; Anderson et al. 2002; Andersson et al. 2009; Avellar and Smock 2003; Benard and Correll 2010; Budig and England 2001; Buligescu et al. 2009; Drew et al. 1998; Evertsson and Duvander 2011; Gangl and Ziefle 2009; Gash 2009; Hong and Corman 2005; Jonsson and Mills 2001a; Magnusson 2010; Napari 2010; Petersen et al. 2010; Rønsen and Sundström 2002; Staff and Mortimer 2012), especially considering economic consequences of parental leave, comparably fewer studies focus on fathers' use of parental leave in Sweden (cf. Bekkengen 1996; Brandth and Kvande 2001; Bygren and Duvander 2004; Bygren and Duvander 2006; Duvander 2008a; Ekberg et al. 2004; Haas et al. 2002; Haas and Hwang 2009; Nyman and Petterson 2002; Rostgaard 2002). These studies mainly address determinants of paternal leave for fathers; economic consequences of fathers' parental leave use are only marginally discussed (cf. Albrecht et al. 1999; Stafford and Sundström 1996).

This study intends to provide an overall picture of economic and workplace related determinants of the length of parental leave for fathers as well as consequences of parental leave use for the situation at the workplace. The research questions are "*Which economic and workplace related determinants can be identified for the length of fathers' parental leave? Does the length of parental leave used by fathers have an effect on the subsequent workplace situation?*"

More specifically, it is analyzed if the father's education and income, the economic sector (private or public) he is working in, and his partner's socio-economic status influence the length of the parental leave he takes. As economic consequences it is analyzed if the length of the father's parental leave leads to wage penalties and (rather self-determined) workplace adjustments in form of working part-time after returning to work, avoiding to work overtime or, more generally, preferring shorter working hours. Hence, in contrast to other studies, not the self-expressed motivation of fathers for shorter or longer parental leave is in the focus of this study. Instead, the economic situation which may determine the length of fathers' parental leave and be as well influenced by the fathers' leave length itself is analyzed.

For this study, the Swedish Level of Living Survey for the years 1991 and 2000 is used. The longitudinal design of this survey allows differentiating between the workplace situation *before* and *after* the actual parental leave use. In contrast to conventional cross-sectional studies of determinants and consequences of parental leave use, the direction of cause and effect can hereby be distinguished. Another advantage of the dataset is that actual wages and not only income are available for the analysis, which are a more sensitive measure for the workplace situation and possible wage penalties. To my knowledge, consequences of fathers' parental leave use in terms of adjusting their work subsequent to their period of absence have not been addressed by other studies. This study aims at addressing fathers concrete alterations of their workplace situation as well as their desires to alter the situation (e.g. when an actual modification of the work situation is not possible or too costly). With this approach it shall be assessed if a self-selection of family-oriented men into certain types of employments exists.

The results show that it may not be affordable for men with very low wages to take longer parental leave whereas for men with higher wages, it is not rational to take an extended period of parental leave. The partner's socio-economic status does not have an effect on men's parental leave length, but their own work environment affects the probability to take parental leave beyond four weeks: men who work in the public sector have a higher probability to take longer parental leave than men who work in the private sector. This is rather explained by different organizational cultures than by extra benefits. Taking longer parental leave does not seem to be penalized by employers, whereas fatherhood seems to be awarded. Subsequent to parental leave, the results do not indicate that men – even when taking longer periods of parental leave – choose to adjust their work situations for a higher reconciliation of family and work.

After the introduction, section 2 briefly addresses the development of parental leave regulations in Sweden. Section 3 provides an overview of previous research on determinants of fathers' parental

leave use (3.1) and its consequences (3.2). Section 4 covers the main theories related to parental leave use. The dataset and methods the analysis is based on are described in section 5. In section 6, the results of the empirical analysis are presented. At last, the present study is summarized in section 7 and conclusions are drawn.

2 Regulations Regarding Parental Leave in Sweden

The Swedish parental leave policy is regarded to endorse a 'universal breadwinner model' in which women can enter the labor market in the same way as men. Since the 1970s, the Swedish welfare state has provided care services and job-protected, time-limited opportunities to leave the labor market for childcare during the child's first year or in times of sickness (cf. Tunberger and Sigle-Rushton 2011, 226). Sweden introduced a six months paid parental leave in 1974, and was hereby the first country in the world to introduce a gender-neutral scheme in which fathers and mothers have the same right to take time off (Duvander et al. 2010, 46). The Swedish parental leave system is based on labor market inclusion, that is benefits are dependent on previous earnings and parents without previous income receive only a low flat-rate. Today, 16 months are granted for both parents; 13 of those are income based (receiving 80 percent of previous earnings up to a ceiling for high earners). Some employers supplement the public compensation of 80 percent, leading to a higher replacement rate (cf. Pylkkänen 2003, 6; Hobson et al. 2006, 285). Hence, being established in the labor market before having children is supported by this system (Duvander 2008b, 6, 13).

Even though the system is gender-neutrally designed and both parents receive the same amount of income in relative terms, the family income (in absolute terms) will be diminished more by fathers taking parental leave if the father has a higher income than the mother. The upper bound of benefits might also affect men more than women, assuming men on average to have higher earnings than women[1]. Hence, the Swedish parental leave scheme gives incentives for mothers to take more leave than fathers.

Until 1995, about half of all fathers did not use any parental leave at all (Duvander 2008b, 14). The first reform to encourage a more gender-equal share of parental leave was the introduction of a father's quota in 1995. After the Norwegian model, one month was set aside for each respective parent that could not be transferred to the other parent (Duvander et al. 2010, 47). Since the vast majority of mothers was taking parental leave, this reform directly addressed fathers and became known as 'daddy month' reform (cf. Ekberg et al. 2004, 2). After the reform, about 80 percent of all fathers took parental leave (Duvander 2008b, 14). The reform is regarded to have a direct effect on a more gender-equal division of parental leave take, by increasing the share of fathers taking parental

[1] Womens' hourly wages are on average below men's but in Sweden to a lesser extent than in other countries of the European Union (cf. Jansson et al. (2003, 11)).

leave as well as by increasing the average number of days taken by fathers (cf. Ekberg et al. 2004; Duvander and Johansson 2010).

In 2002, the non-transferable parental leave was extended to two months. In contrast to the first 'daddy month', the second month was added to the general parental leave so that this did not necessarily lead to mothers' decrease in parental leave (Duvander and Johansson 2010, 5). The introduction of the second month also showed a significant effect on fathers' parental leave use, especially on the share of fathers who take more than 30 days of parental leave. Nevertheless, the introduction of the first 'daddy month' had a higher effect (cf. Duvander and Johansson 2010).

A recent policy change towards a more equal division of parental leave was introduced in 2008[2]. For every day the parental leave is shared more equally beyond the two months reserved for each parent, a tax benefit is rewarded the year after the parental leave was used. This reform is not regarded to have any statistically significant effect on the average number of days taken by fathers (cf. Duvander and Johansson 2010).

Today, around 90 percent of fathers take parental leave (Duvander and Johansson 2010, 6) and the share of days taken by fathers has increased constantly over time. In 1999, 11.6 percent of all days were taken by the father, in 2011, this share has increased to 23.7 percent (Försäkringskassan 2012, own calculations).

[2] Simultaneously, also a homecare allowance for children up to three years was launched (Duvander and Johansson (2010, 6)), a reform that does not aim for more gender-equal responsibilities in childcare.

3 Previous Research

In this section, previous research regarding determinants of fathers' parental leave use (section 3.1) and consequences of fathers' parental leave use (section 3.2), mainly in terms of wage penalties, are discussed.

In general it was found that families regard their income and workplace situation as a main determinant of how to share parental leave. Income and educational attainment tend to have a positive impact on fathers' parental leave use. Other important factors are the mother's income and work situation as well as the organizational culture of the father's workplace.

Previous Swedish research shows that a wage and career penalty exists for motherhood but fewer studies address this topic for fathers. There is evidence from other countries that a wage bonus to fatherhood exists, whereas parental leave penalties may exist for fathers in Sweden. Other consequences of parental leave such as a subsequent self-selection into family-friendly employments have been studied only marginally.

3.1 Determinants of Parental Leave Use

Even though Sweden supports equal gender roles and the Swedish state has implemented several reforms to promote a more equal division of parental leave (cf. Duvander and Johansson 2010), mothers still take the major amount of days. The share of parental leave between partners is largely influenced by their respective workplaces. Since the Swedish parental leave system is earnings related, the replacement level is determined by parents' previous income. Therefore, the family's income loss is influenced by the decision if the person with the higher or lower income takes parental leave. In a study by Nyman and Petterson (2002), 80 percent of the interviewees stated that the family's economy was the main factor behind the decision of how to share the parental leave (Nyman and Petterson 2002, 17f.). Likewise, parents could be at different stages of their careers which makes it more costly for either one to have a period of absence. Positions with high responsibilities or specialized tasks make finding substitutes more difficult and thus could lead to decisions for shorter leave.

According to a study by Bygren and Duvander, around one fifth of both men and women in Stockholm claimed that the man's work determined the division of leave (quoted in Hobson et al. 2006, 287). Fathers who state the reasons for not taking longer leaves (beyond the 'daddy month') themselves mention demands of their jobs and income reduction as the most common reasons (Brandth and Kvande 2001, 262). Interestingly, most studies found a positive relation between the

father's income and the length of parental leave[3] (Bekkengen 1996, 51; Duvander 2008b, 14f.; Jansson et al. 2003, 21; Sundström and Duvander 2002, 442), even though the income reduction (in absolute terms) is higher with higher incomes. Simulations have shown that the actual income loss even in the 1990s was rather small, being on average 143 SEK per month if the father took leave instead of the mother, and 71 SEK per month if both parents took part-time leave (assuming average incomes for both parents)[4] (Bekkengen 1996, 51f.). These findings make it questionable if income reduction is the driving factor behind shorter parental leave takes. Despite a higher absolute income reduction at the upper part of the distribution, families with high income are able to 'afford' a more equal distribution of parental leave. Similarly, higher educational levels (mostly related to high incomes) and rather gender-equal values could be the actual cause behind this effect.

For mothers, educational attainment does not seem to have any effect on their length of leave (Hobson et al. 2006, 283) but in contrast to this, education is a major determinant for the length of fathers' parental leave. In most studies it is found that the higher the father's education, the longer is his parental leave usage (Duvander 2008b, 14f.; Hobson et al. 2006, 283; Jansson et al. 2003, 21; Nyman and Petterson 2002, 25). Contrary to the previous findings, Sundström and Duvander (2002) found that fathers' higher education leads to shorter parental leave usage.[5]

The rather small group of fathers that does not take any leave at all is in economically unfavorable situations. They receive on average a larger amount of unemployment allowance and/or have more months on welfare payments than fathers who take parental leave. These fathers often receive only the minimal amount which may not suffice to support a family. Additionally, after a period of unemployment, fathers may be less willing to be absent from their newly gained job or be less willing to spend additional time at home (Nyman and Petterson 2002, 28).

The decision of how the parental leave will be shared among partners cannot be regarded as an individual decision but has to be seen as a negotiation process among household members (see also section 4.1.3). Hence, not only fathers' characteristics influence the length of his parental leave usage but even mothers' characteristics have an impact on how long the father stays at home with the child. The higher the mother's educational status, the longer is the leave taken by the father (Duvander 2008b, 14f.; Hobson et al. 2006, 283; Jansson et al. 2003, 21; Näsman 1992, 14f.; Nyman

[3] In fact, the relation between income and parental leave length tends to be u-shaped, being positive until the income ceiling and then turning negative.

[4] The average monthly salary in 1995 was 20 695 SEK in the private sector and between 14 914 and 17 530 SEK in the public sector (Statistics Sweden (2012)).

[5] Generally, the empirical evidence on determinants for fathers' parental leave use is slightly contradictory. This could be due to the studies' different focus regarding children's age as well as different methods and data (Sundström and Duvander (2002, 435)).

and Petterson 2002, 41). This effect can be interpreted in terms of both, mothers' career characteristics and in terms of norms and attitudes regarding gender roles. Findings regarding mothers' income are more contradictory. Nyman and Petterson (2002) and Jansson et al. (2003) found a negative relation of mothers' income and fathers' parental leave length. The reason behind this could be that the higher income allows the mother to take longer leave and for this purpose, the length of the father's leave has to be reduced (cf. Jansson et al. 2003, 100; Hobson et al. 2006, 287). This might be true mainly for mothers who have an instrumental attitude towards work. If work is regarded mainly as means to earn money, she may want to take longer leave herself if her income allows it (cf. Bekkengen 1996, 56f.).

Other studies found the opposite effect: the higher the mother's income, the longer is the leave taken by the father (Duvander 2008b, 14f.; Näsman 1992, 14f.; Sundström and Duvander 2002, 442). This could be interpreted as mothers with higher positions and/or higher career ambitions and mothers with non-instrumental attitudes towards their work tending to take shorter leaves with the consequence of fathers taking a larger share. Lamb et al. (1988) found that fathers who were highly engaged in childcare frequently had wives with high occupational aspirations (Lamb et al. 1988, 434). In line with this, it was found that fathers who take longer leave have partners who work full-time and have a higher education or income than themselves (cf. Naz 2010, 318f.). It has to be noted that Bygren and Duvander (2006) found only little support that the mother's workplace influences the father's parental leave use in contrast to a strong support that the father's workplace influences his leave use (Bygren and Duvander 2006, 370). This finding can be related to couples' norms and attitudes, giving priority to the father's work, or to different bargaining power of parents.

Organizational cultures and values promoted at the workplace affect the length of parental leave used by men (cf. Haas et al. 2002; Bygren and Duvander 2004). In the 1980s, about 25 percent of the fathers interviewed in a study of Näsman and Falkenberg reported that they faced obstacles at the workplace to taking parental leave (Näsman 1992, 14).

Many studies indicate that working in the private sector or in smaller companies reduces fathers' parental leave usage (Näsman 1992, 14; Bekkengen 1996, 53; Sundström and Duvander 2002, 437; Bygren and Duvander 2006, 369). As the public sector is not driven by profit, costs for employee absences are easier to handle than for private companies (Bygren and Duvander 2006, 365), and for larger companies easier than for smaller companies. Such costs could include losses in production, costs for recruiting substitutes, training costs, redistribution of tasks to other employees and the like (Bygren and Duvander 2004, 171).

Apart from that, fathers working in the public sector usually receive higher replacements (e.g. 90 percent of previous income) due to collective bargaining agreements, and are more likely to work in female-dominated workplaces in which a higher degree of support and understanding for parental leave exists (cf. Haas et al. 2002, 307). Men who take the longest leave work in female-dominated professions such as nursery school teachers, recreation instructors, librarians, physiotherapists, nurses, and child minder (Bygren and Duvander 2004, 173). This may be due to a larger support at work or due to the fact that family-oriented men select themselves into family-friendly professions.

A job which allows for a flexible combination of parental leave and work seems to have some impact on the ability of men to take longer parental leaves. Hobson et al. (2006) analyzed a survey on parental leave conducted by the Swedish National Insurance Board in 2003 and found that fathers who managed to mix work and parental leave took a longer leave. Besides a causal effect of flexible working hours, this effect may also be due to a self-selection of family-oriented fathers into flexible jobs (Hobson et al. 2006, 285).

In the 2003 Eurobarometer, 43 percent of Swedes indicated that a more open-minded attitude towards parental leave from superiors and colleagues at work would encourage fathers to take parental leave (Haas et al. 2002, 306). Especially workers in management position experienced obstacles to taking parental leave (Sundström and Duvander 2002, 437) but it seems to become increasingly common that even men in top management take parental leave (cf. Haas and Hwang 2009, 313). Companies may even promote fathers' taking parental leave in order to appear as an attractive employer. In a study by Haas and Hwang (2009), an increase in formal programs to encourage fathers to take parental leave was found, but informal support such as positive reactions by managers and co-workers was reported by only less than half of all companies (Haas and Hwang 2009, 313f.).

At last, certain demographic variables are found to be related to fathers' parental leave usage: fathers take longer parental leave when they are married (Sundström and Duvander 2002, 442), are younger (Sundström and Duvander 2002, 442; Hobson et al. 2006, 283), and when they are born in Sweden (Nyman and Petterson 2002, 37).

3.2 Consequences of Parental Leave

As the previous section has shown, income and work characteristics are related to fathers' decisions about their parental leave. Besides the income reductions at the actual time of absence, anticipating parental leave to have a (negative) effect on their careers might be another reason for shorter leaves. In the following section, prior research on parenthood and parental leave penalties is reviewed.

Besides actual penalties, a self-selection into jobs with more family-friendly work-characteristics is addressed.

Empirical evidence from the U.S. has shown that motherhood has a negative effect on women's wages (Anderson et al. 2002; Avellar and Smock 2003; Budig and England 2001; Gangl and Ziefle 2009; Lundberg and Rose 2000; Staff and Mortimer 2012) which has not diminished over time (Avellar and Smock 2003) and exists even after controlling for several characteristics, such as time of absence (Budig and England 2001; Staff and Mortimer 2012). An experimental study could show that motherhood penalty beyond the penalty for being absent (which leads to e.g. human capital deprivation) existed in form of discrimination: even when rated as competent and committed as non-mothers, mothers were penalized regarding promotions, hire, and salary (Benard and Correll 2010).

Compared to European countries such as the U.K. and (West-)Germany, the U.S. American motherhood penalty appears to be smaller (Gangl and Ziefle 2009). Using a sample of twins in Denmark, Simonsen and Skipper (2005) are able to show that a motherhood wage penalty exists even when accounting for early-lifetime conditions[6]. A large part of the motherhood wage penalty – but not all – is explained by mothers' higher level of absence e.g. due to sickness or a smaller amount of overtime.

In opposition to motherhood, fatherhood is generally positively related to wages (cf. Lundberg and Rose 2000; Simonsen and Skipper 2005; Hodges and Budig 2010; Benard and Correll 2010, 621; Kmec 2011). Even though men "are also likely to be affected by negative productivity shocks caused by the arrival of a child" (Simonsen and Skipper 2005, 107), they receive substantially higher wages after the birth of a child. Similar to the wage premium for married men (cf. Akerlof 1998; Chun and Lee 2007), selection effects could be part of the explanation, meaning that more productive men have a higher chance to get married or become fathers. Nevertheless, in a study of Lundberg and Rose for the U.S. (2000), a fatherhood premium of nine percent was found, after controlling for unobservables such as ability and motivation. The earning bonus is highest for men who are white, married, college graduates and professional/managerial workers who live in households with a traditional gender division of labor (Hodges and Budig 2010). Causes for this could be positive signals of being a father such as responsibility and reliability and/or increased bargaining power in salary negotiations.

Sweden's parental leave scheme is on the one hand designed to allow the reconciliation of family and work for both, mothers and fathers, on the other hand it is rather extensive, allowing parents to

[6] Since the twin sample used does not exclusively contain monozygotic twins, genetic features are not controlled for.

be absent from work for more than a year. An extension of parental leave in the 1990s directly deferred women's return to work (Hong and Corman 2005), so that can be concluded that the extent to which parental leave is taken is rather related to the politically set parental leave length than to women's career plans. It has mainly been discussed for mothers if the Swedish parental leave regulations have "boomerang effects" (Datta Gupta et al. 2008, 67) for their careers.

Several studies have examined the effect of parental leave on mothers' occupational mobility (in terms of occupational prestige) between jobs before and after childbirth (Jonsson and Mills 2001a; Aisenbrey et al. 2009; Evertsson and Duvander 2011). Jonsson and Mills (2001a) state that "[o]ccupational stability is the main impression" (Jonsson and Mills 2001a, 112). The majority of women returns to the same employer after parental leave, a right which is ensured by the parental leave system (Jonsson and Mills 2001a, 97). Nevertheless, downward moves in occupational prestige occur and are more likely the longer the mother stays at home (Jonsson and Mills 2001a; Aisenbrey et al. 2009); correspondingly, upward prestige mobility becomes less likely with parental leaves lasting longer than 15 months (Evertsson and Duvander 2011).

Research on motherhood penalty in form of wage reductions has shown contradictory results. Stafford and Sundström (1996), using data from a Swedish telecommunication company for the 1980s, found a rather small wage penalty effect for women who took care of their newborns (1.7 percent). Generally, they found a tendency for earnings to rebound roughly after a five year period. As opposed to this, Albrecht et al. (1999) could not find any negative wage effect for women's parental leave usage. However, they found a wage penalty for other time out for caring for children and further family members.

The gender wage gap (measured as wage returns to occupational prestige) is according to Magnusson (2010) larger when women have children and becomes more pronounced for high prestige occupations. As explanation for these results, she refers to women's higher family obligations which do not allow time-consuming paid work for mothers but which is common among fathers.

Despite the fact that fatherhood is related to a wage premium whereas motherhood – and especially absence due to parental leave – seems to be penalized, it has rarely been discussed if a similar penalty exists for fathers who take parental leave or rather, prolonged parental leave.

Two earlier studies found that wage penalties for men's usage of parental leave were substantially larger for men than for women (Albrecht et al. 1999; Stafford and Sundström 1996). In contrast to mothers who basically all go on parental leave, taking longer time off for childcare could be regarded a negative labor market signal for fathers. Employers could interpret this as a higher family

(compared to work) orientation and that rather less motivated men use parental leave, an explanation which is supported by the findings of Stafford and Sundström (cf. Stafford and Sundström 1996, 620f.).

Other consequences of fathers' parental leave taking could be that fathers choose to adjust their work according to their family situation and therefore reduce their working hours, change to part-time positions or positions which allow for a higher flexibility. Only little research was found on how fathers adjust their work situation after parental leave.

The actual working hours of father are smaller for fathers with younger children than for fathers with older children (Näsman 1992), which could be related the statement above. Nevertheless, it is rather uncommon for fathers to work part-time (Näsman 1992, 6; cf. Hobson et al. 2006, 279). Duvander (2008a) found that fathers who took parental leave worked on average less hours than fathers who did not take any parental leave and that parental leave length and hours worked were negatively related, that is, the longer parental leave the fathers took, the shorter were their subsequent working hours.

4 Theory

This section addresses theoretical implications of determinants and consequences of fathers' parental leave use. Section 4.1 discusses determinants of parental leave use and parental leave length from the perspectives of Human Capital Theory, Organizational Culture Theory, the Economic Theory of the Family and Marital Bargaining, and the Doing Gender Approach. For consequences of parental leave (section 4.2), the approaches of Signaling Theory, Human Capital Theory, and Self-selection Theory are presented. Hypotheses are formulated in accordance with the theoretical implications. The hypotheses mainly address fathers since the empirical study aims at fathers as group of interest. Nevertheless, mothers are used as comparison group and therefore, theoretical considerations concerning mothers are discussed marginally.

4.1 Determinants of Parental Leave Use

In this section, theoretical approaches for economic determinants of parental leave use and length are presented. The father's own workplace may have an impact in form of (lost) earnings and the organizational culture being supportive or unsupportive of parental leave take. The mother's work characteristics in form of career ambitions and income may influence the father's parental leave length through the partner's differing marital bargaining power. Being an unconventional couple with the mother having a higher socio-economic status may have an impact on both partners' desires to display their gender by choosing a rather conventional division of parental leave.

4.1.1 Human Capital Theory

The Human Capital Theory, developed by Mincer (1958) and Becker (1962) is based on the *Rational Choice* approach. It claims to explain wage differentials between and within occupations through individuals' choices to invest (or not invest) in human capital. The term human capital refers to the idea that human abilities are transferable to economic capital. Hence, human capital investment is defined as "activities that influence future real income through the imbedding of resources in people" (Becker 1962, 9). The endowment with human capital defines a person's productivity and will consequently be rewarded by the employer in forms of wages.

Two major means of investment in human capital are schooling and on-the-job training. As the term investment implies, investment in human capital is costly and these costs have to be borne by either the (future) employee or by the firm. Since schooling leads to a more general human capital (which can be used by various employers) (cf. Becker 1962, 13), the costs have mostly to be borne by

the (future) employee. Direct costs of schooling are educational services and equipment (such as tuition and books), whereas a more indirect cost is the deferral of earnings for the period of training (Mincer 1958, 284; Becker 1962, 26). Human capital investment in form of on-the-job training is generally less expensive since experience is gained while being employed.

Earnings rise as time passes due to skills and experiences gained on the job. In later years, Mincer regards the aging process to bring about a deterioration of productivity and consequently a decline in earnings, particularly in jobs that require physical strength and motor skills (Mincer 1958, 287). Similarly, a deterioration of productivity can be assumed as skills and knowledge become outdated. Therefore, a u-shaped relation between age and income can be expected in all kinds of occupation.

Taking Human Capital Theory to predict and explain length of parental leave, parental leave and other leaves of absence from work should be treated very similarly[7]. Being absent from work is related to Human Capital Theory in two ways: Firstly, while being absent, no further human capital investment in form of on-the-job training can be made, reducing future prospective earnings. Secondly, the time period in which returns from previous investments are collected, is reduced. This is accounted for to a certain extent by the fact that a *share* of the income is replaced, but parents are facing net losses either way. Additionally, replacements are only made up to a certain income ceiling, leading to a replacement level below 80 percent for high incomes (see section 2). Because even the slope of life-time earnings is steeper with higher education and a higher occupational rank (Mincer 1958, 288), the reductions in returns from investments are higher for people with higher education.

According to Human Capital Theory, wages and schooling should be negatively related to parental leave length. The longer the parental leave, the less investment in form of on-the-job training will be made and the time period in which returns from investments (which are higher for higher levels of schooling) are collected is reduced. Nevertheless, the introduction of the 'daddy month' gave a strong incentive for fathers to take at least one month of parental leave. For families with a very low income, even this may not be affordable and those families may rather choose to lose one month of parental leave than having reduced income.

Based on these theoretical remarks, the following hypotheses are formulated:

H1: The relation of previous wages and the probability to take parental leave beyond the 'daddy month' is inversely u-shaped.

H2: Schooling and length of parental leave are negatively related.

[7] An exceptional case is if being a parent and even more, taking parental leave, increases an employee's productivity (cf. Haas and Hwang (2009, 308); Jansson et al. (2003, 45)).

4.1.2 Organizational Culture Theory

The notion of organizational cultures refers to the idea that organizations are – similar to societies – social systems in which socialization processes take place, social norms and structures are founded. In this way, organizations are miniature societies with distinct cultural traits. As individuals differentiate through their personality, the individuality of organizations is expressed through their different cultures (Allaire and Firsirotu 1984, 193f.).

Culture is defined as a system of ideas which lies behind observable events (Allaire and Firsirotu 1984, 197), and the core elements of organizational culture are norms and assumptions. Norms influence the organization members' behavior by specifying what they are expected to do. Even though these are unwritten rules, they represent the shared belief of a majority of members about which behavior is appropriate and which is not (Owens and Steinhoff 1993, 10). Assumptions are less concrete than norms. They can be seen as an underlying foundation of norms, comprising shared beliefs about the basic functioning of the world, such as what is "true in the world and what is false, what is sensible and what is absurd, what is possible and what is impossible" (Owens and Steinhoff 1993, 11).

Organizational cultures and norms can be educed in various ways. According to the functionalist theory of culture, norms and institutions will develop corresponding to the members' needs. Referring to organizational cultures, it is assumed that "in order to function and thrive, organizations should accommodate in their structures and processes the desiderata of members' need satisfaction" (Allaire and Firsirotu 1984, 200). Regarding parental leave, it can be assumed that in those organizations in which a stronger support of parental leave is needed, norms and institutions for this will emerge. This could be the case in the Swedish public sector in which the majority of women is employed (cf. Korpi and Stern 2003, 20). The superior number of women in the public sector make arrangements for (long) parental leave necessary and hence lead to the development of solutions how to deal with the absence of employees[8]. Additional benefits such as the higher compensation rate in the public sector (cf. Haas and Hwang 2009, 307) directly address the needs of the majority of employees. This could then become beneficial even for men working in the public sector who can claim the same handling and benefits for their parental leave.

In a different theoretic perspective, norms and organizational culture do not evolve through commonly shared goals but through individuals pursuing their personal interests and needs. Collective structures are thus a result from a repetitive cycle of interrelated individual behavior

[8] Additionally, as the public sector is not profit driven, the absence of employees will threaten the organization to a lesser extent than organizations in the private sector (Bygren and Duvander (2006, 365)).

(Allaire and Firsirotu 1984, 205f.). Extra parental leave benefits available in the public sector such as a higher wage compensation make it more rational for individuals to take longer leave[9] and hence lead to the emergence of a social norm of prolonged parental leave. In the decision process of which amount of parental leave should be taken, the individual can refer to established routines in the workplace. A larger amount of people choosing comparable lengths of parental leave signal a positive evaluation of choosing a similar length (cf. Bygren and Duvander 2004, 172f).

To summarize, it is likely that different workplace cultures towards parental leave exist in the public and private sector. The great amount of women working in the public sector make solutions for prolonged absence necessary and could even initiate extra benefits. Those are available for all employees and make it more rational for men working in the public sector to choose longer leaves. This leads to the establishment of a social norm of taking longer parental leave in the public sector, which leads to hypothesis 3:

H3: Men in the public sector take longer parental leave than men in the private sector.

4.1.3 Economic Theory of the Family and Marital Bargaining

In Becker's "A Treatise on the Family" (1991), he applies the economic approach to family behavior. In contrast to conventional Rational Choice Theory, the family is regarded as a utility maximizing entity instead of a group of utility maximizing individuals. It is implied that the resources of all family members are pooled and allocated to various activities according to their relative efficiencies.

Becker's remarks are based on the notion that "intrinsic differences between the sexes" (Becker 1991, 37) exist. Whereas men's biological contribution to production of children is completed in a rather short amount of time, women's contribution includes carrying and delivering the baby, as well as feeding the infant. These initial differences or "comparative advantages" lead to different investments in human capital and hence to different specializations of household members:

> "If all members of an efficient household have different comparative advantages, no more than one member would allocate time to both the market and household sectors. Everyone with a greater comparative advantage in the market than this member's would specialize completely in the market, and everyone with a greater comparative advantage in the household would specialize completely there" (Becker 1991, 33).

Due to these different investments in human and household capital, wage rates are lower for women. Hence, the institution of marriage is of special importance, guaranteeing the provision of food and

[9] This is directly related to Human Capital Theory (see above). If a higher share of one's income is replaced, returns to previous human capital investments can be collected to a greater extend, even when on parental leave.

shelter for women, and the bearing and rearing of children as well as the maintenance of home for men.

Though the division of labor in contemporary Sweden is not as strict as illustrated by Becker's approach, a rather traditional division of labor is found when it comes to parental leave usage. It is very uncommon for mothers not to take any parental leave at all and for fathers to take more than few months (Bygren and Duvander 2004, 172). Apart from gender roles, this is directly influenced by the compensation structure of the leave scheme which offers low incentives for fathers to use parental leave beyond the 'daddy month'. As long as income is replaced only partially instead of fully, a key factor of how to share the leave among partners is which partner has the higher income. If relative maintenance of absolute income levels is a goal of the household (as predicted by the economic approach), the leave scheme provides incentives for the partner with the lower earnings to take up most or all parental leave. Since even in Sweden women tend to earn less than men, economic incentives trigger the household to leave the larger share of leave to the mother (cf. Datta Gupta et al. 2008, 70f.), unless she has a higher income or socio-economic status than her partner.

Empirical evidence against Becker's hypothesis of pooled income shows that, dependent on income being controlled by the husband or by the wife, family behavior such as expenditure on goods and services differs. Consequently, models which assume independent utility functions of each family member rather than a single utility function for the family were developed. The so-called *Marital Bargaining Models* are based on cooperative game theory and permit independent agency of men and women in marriage (Lundberg and Pollack 1996, 140–46).

In opposition to Becker, no innate differences between men and women are assumed but rather an analogy to the "Battle of the Sexes" game[10]. Both husband and wife may provide each one household public good (e.g. income or household maintenance), but two Nash-equilibria exist: one in which the wife provides good 1 and the husband good 2 and one where the roles are reversed. Only the alternative where both partners provide the same good is sub-optimal (as in the "Battle of the Sexes" the alternative where both partners go to different events). Since the choice between the two equilibria might be predetermined by social norms and culture, one of the two equilibria is more likely to occur (cf. Lundberg and Pollack 1996, 151).

Since both partners have independent utility functions, not cooperation between family members but bargaining between family members has to be regarded the starting point. The bargaining power

[10] In the "Battle of the Sexes", a man and a women want to spend the evening together but forgot where to meet. They have each two choices for the evening entertainment: a prize fight and a ballet, whereas the man prefers the prize fight and the women the ballet. For both it is more important to go out together than to go to the preferred entertainment (cf. Luce and Raiffa (1957, 90–94)).

then depends on who receives and controls income within the marriage (Lundberg and Pollack 1996, 174f.). Consequently, the higher the mother's income relative to the father's, the greater is her bargaining power and the more likely is her success in negotiating a more equal division of parental leave, disparate from traditional social norms and culture.

Despite the opposing theoretical foundation of Becker's family economics and the Marital Bargaining Models, both come to similar conclusions for the division of parental leave among partners. This depends on the partner's relative socio-economic status within the marriage. Hence, hypothesis 4a states:

> *H4a: If the partner's socio-economic status is higher than the own, a longer parental leave take becomes more likely.*

4.1.4 Gender Display in Relation to Housework

The ethnomethodolical approach of *Doing Gender* (cf. West and Zimmermann 1987) questions that the division of housework and rearing of children can be regarded as an economic exchange of goods, as seen from the perspective of family economics (cf. Brines 1994, 654). From the viewpoint of Doing Gender Theory, gender is not an individual characteristic but a routine accomplishment which is embedded in everyday interaction (cf. West and Zimmermann 1987; West and Fenstermaker 1995). Thereby, gender cannot permanently be achieved as a cultural correlate of sex but has to be achieved by continuously displaying it in social interactions. Housework can thus be regarded as one means to display gender. The fact that women do more of the housework (even when employed outside the home) and nonetheless regard this arrangement to be "fair" can be explained by the opportunity housework gives them to display their gender (West and Zimmermann 1987, 143).

Displaying gender becomes of special importance if men and women live in household circumstances that contradict the normal expectations of gender roles, e.g. if women are the main breadwinner or have a higher socio-economic status than their partners:

> "Because breadwinner wives and dependent husbands appear to contend with both a narrower arena for symbolic exchange and the negative reactions of others, the logic of display suggests that they are likely to compensate by adopting gender-traditional behaviors elsewhere in the marriage. Under this view, one would not expect couples supported economically by wives to divide 'women's work' in a manner consistent with the terms of the dependency model. Indeed, these couples may resort to traditional housework arrangements as a means of reclaiming gender accountability in the eyes of self, partner, and others" (Brines 1994, 664f.).

According to the hypothesis of gender display in relation to housework, despite the fact that women have a higher bargaining power when having a higher socio-economic status or income, they – consciously or subconsciously – *choose* to do most of the housework to reclaim gender accountability for themselves and for others (cf. Sullivan 2011, 1). From the perspective of gender display, women who have a higher socio-economic status than their husbands do not use their bargaining power to realize a more equal division of parental leave among the partners, on the contrary, they take longer parental leave since this is a source of displaying gender. Similarly, men who have a lower socio-economic status than their partners should, according to the theory, take no or only little parental leave to display their masculinity. Accordingly, hypothesis 4b states

> *H4b: If the partner's socio-economic status is higher than the own, taking extended parental leave becomes less likely for men.*

4.2 Consequences of Parental Leave

In this section it is theoretically considered which effect parental leave and its length has on several job characteristics. The most important one is wages, which can be influences by the fact of having children and by taking parental leave. Other factors which indicate family vs. workplace orientation are working part-time, the amount of overtime, and preferences towards working hours.

4.2.1 Signaling Theory

According to Human Capital Theory, wages are paid relative to a person's actual productivity which will be influenced by former investments in human capital. Hence, it is thought that education directly influences productivity through acquired knowledge and skills. Signaling Theory sees the interplay between education and wages differently: not the actual skills gained by education determine a person's wages but the signal which is sent out by educational certificates. This is due to imperfect information on the employer's side. At the moment of hiring, no information about the applicant's productivity is available except for statistical information, which is (from general information or previous experience) the average productivity related to certain characteristics such as college degrees, work experience, age, sex or nationality (cf. Arrow 1973; Spence 1973).

Wages are hence not paid according to a person's marginal product but according to his labor market signals.

> "For each set of signals […] that the employer confronts, he will have an expected marginal product for an individual who has these observable attributes. This is taken to be the offered wage to applicants with those characteristics" (Spence 1973, 358).

Having children and taking (a certain length of) parental leave can both serve as labor market signals, and in fact differently for men and women.

Employers using their general knowledge about the gender division of childcare assume that the major work is done by mothers. Resources such as time and energy may no longer be available for the employer but will instead be consumed by household and childrearing tasks. Experimental research indicates that mothers are perceived as less competent and less committed to paid work than non-mothers (cf. Benard and Correll 2010, 617). Being a mother may consequently have negative effects on her wages.

Previous research indicates that the opposite is true for fathers. Since generally, fathers are less affected by childrearing tasks, only positive attributes such as loyalty and dependability, kindness and expressiveness are related to being a father (cf. Benard and Correll 2010, 621; Hodges and Budig 2010, 718). These assumptions lead to hypothesis 5:

> *H5: Men experience earning bonuses to fatherhood whereas women experience earning deductions to motherhood.*

Concerning parental leave, the effects for mothers and fathers should be reverse. Since basically all mothers take parental leave, there is no parental leave effect beyond the effect of motherhood[11].

Parental leave for men, especially beyond the 'daddy month', could nevertheless be interpreted as negative labor market signal: Men who are highly committed to their careers take no or short parental leave, whereas men who take longer parental leave may be less ambitious, less committed and devote more time and energy to tasks at home (cf. Albrecht et al. 1999, 310; Datta Gupta et al. 2008, 78). For the effects of parental leave length, hypothesis 6 is formulated:

> *H6: Taking parental leave beyond the 'daddy month' will lead to a wage penalty for men.*

4.2.2 Human Capital Theory

From the viewpoint of Human Capital Theory (for basic assumptions of the theory, see section 4.1.1), taking parental leave should have the same effect for men and women. For both, a negative effect on wages is assumed since any period of absence means that no further human capital investment (mainly in form of experience and on-the-job training) takes place. This leads subsequently to lower earnings compared to those who have only short periods of absence or continuous work histories. Additionally, absence generally leads to human capital depreciation, e.g. in form of outdated knowledge.

[11] It could rather be imagined that all women in childbearing ages – as actual or prospective mothers – experience wage deductions, which could be described as statistical discrimination (for statistical theories of discrimination in the labor market, see Aigner and Cain (1977)).

Generally, absence for reasons of parental leave and for any other reason should have the same effect on wages (apart from additional negative effects from *parenthood* on productivity), and the same effect for men and women. Therefore, hypothesis 7 states:

H7: The longer the parental leave, the larger the negative effect on wages.

4.2.3 Self-selection Theory

Self-selection Theory criticizes the assumptions of Human Capital Theory that only the amount of human capital determines wage differences. Instead, it is assumed that not only amounts, but even different *kinds* of human capital exist (Polachek 1981).

Applied to sex differences in occupational structures, it is assumed that men and women have different average lifetime labor force participations. Given that the goal for both is to maximize lifetime earnings, it becomes rational to choose different occupations. This is because of *atrophy,* which is defined as "the loss in earnings potential when skills are not continuously used" (Polachek 1981). Temporarily dropping out of the labor force has negative effects on earnings, obviously for the drop-out period itself but even in form of lower reentry earning levels (compared to if one had worked continuously). Occupations in which wage losses are smallest have the lowest atrophy rates (Polachek 1981).

Individuals then choose occupations with atrophy rates that match their (anticipated) drop-out time. Occupations with low atrophy rates obviously penalize time of absence the least and therefore are chosen by individuals with longer desired periods of absence, even though the initial wages might be smaller. Using different strategies for investing in different kinds of human capital assures according to the Self-selection approach that both, men and women, meet their goal of maximizing life-time earnings.

Self-selection Theory directly relates to parental-leave, indicating that women choose different educational paths and hence, different employers if they are planning to take time out from work for childrearing. To study the effect on wages, life-time earnings would have to be available.

Relaxing the assumption of maximizing life-time earnings as ultimate goal, it is plausible that family-oriented women and men willingly forego higher earnings to obtain less well paid but family-friendly employment (Gash 2009, 571).

Through this explanation, self-selection is an alternative explanation for possible parental leave wage penalties. Because this cannot directly be tested with the available data, several hypotheses are formulated that indicate possible self-selection effects. Family-friendly working conditions are characterized as workplaces which give the possibility of working part-time and not to work

overtime. It is assumed that men who take extended periods of parental leave also show a stronger family orientation after returning to work and consequently adjust their working conditions.

H8: The longer the parental leave, the higher is the probability to work part-time after returning to work.

H9: The longer the parental leave, the lower is the probability to work overtime after returning to work.

The final hypothesis does not address actual working conditions but related preferences (assuming that changing working conditions may not always be possible).

H10: The longer the parental leave, the higher is the probability to prefer shorter working hours after returning to work.

5 Data and Methods

In the sections 5 and 6, the empirical study of determinants and consequences of fathers' parental leave use is presented. In section 5, the dataset and the methods which are used to analyze the research questions are described. The analysis is based on the Swedish Level of Living Survey for the years 1991 and 2000. Besides linear regressions, binary and multinomial logistic regressions are used to address the research questions.

5.1 Data and Variable Description

The analysis is based on the Swedish Level of Living Survey (Levnadsnivåundersökningen, LNU). This survey is a nationally representative longitudinal survey with so far six waves. The first wave was conducted in 1968, comprising 6 000 individuals aged 15 to 75. After the second and third wave in 1974 and 1981, respectively, the fourth wave 1991 brought further potentials for causal analysis to the data. Event history data for family events, educational history and economic activities were collected (Jonsson and Mills 2001b). The last publicly available wave (2000) carried on the previous content, and added additional information on children living in the same households and partners. The latest wave was collected in 2010 (The Swedish Institute for Social Research 2012).

To answer the research question, two waves (1991 and 2000) are used. After merging, information from both years is available for 3 762 individuals.

Starting from 1991, information about parental leave was collected from parents. Due to problems with the 1991 questionnaire, retrospective data on leave of absence due to childbirth is not reliable for men (Jonsson and Mills 2001b, 235). Hence, the parental leave information comes only from the 2000 wave. There, information about the year of birth of all children who belong to the household as well as length of each parent's parental leave for (biological/adopted) children born after 1982 was collected. The corresponding question was "About how many days of parental leave have you taken for this child? *Specify approx. number of days or months"*. In the dataset, this variable was categorized into weeks[12].

Since the 1991 wave's work characteristics are used (which partially contain information about the work situation in 1990), the parental leave variable should only contain parental leave which was taken between 1990 and 2000. Because no information is available for the timing of parental leave, the child's year of birth was taken as a proxy. Parental leave was only included if the child was born 1990 or later. Hence, parental leave which was taken for older children during the period 1990 to

[12] For fathers who took only 10 days of parental leave, the variable was rounded to two weeks.

2000 was not included in the variable, which could be one possible source of error for the subsequent analyses. The parental leave taken for all children was summed and divided by the number of children born during that period, at last containing average weeks of parental leave taken per child born 1990 or later.

The parental leave variable was categorized for men and women conferring to theoretically plausible groups and the variable distribution.

Table 1: Average Parental Leave per Child for Men and Women 1990 to 2000

	Parental Leave Variable		Children born 1990-2000	
Men	Frequency	Percent	Frequency	Percent
no parental leave	1 511	81.06	53	13.05
1 to 2 weeks	119	6.38	119	29.31
3 to 4 weeks	95	5.10	95	23.40
more than 4 weeks	139	7.46	139	34.24
	1 864	100.00	406	100.00
Women				
no parental leave	1 393	75.34	3	0.65
1 to 52 weeks	182	9.84	182	39.65
53 to 77 weeks	123	6.65	123	26.80
more than 77 weeks	151	8.17	151	32.90
	1849	100.00	459	100.00

Source: LNU 2000

Table 1 contains the distribution of the categorized parental leave variable and an overview over the variable's distribution only for people who had children in the period. For both men and women, the category "no parental leave" in the actual variable contains people who did not take any parental as well as people who did not get any children in the period 1990 to 2000. This category is by far the largest, containing more than three quarters of all observations. For men, the category "1 to 2 weeks" contains fathers who took rather short leave, less than the 1995 introduced 'daddy month'[13]. The category "more than 4 weeks" contains fathers who decided to take a longer leave, exceeding the 'daddy month'.

For women, the category "1 to 52 weeks" represents a normal parental leave length of up to one year[14], whereas the two longer categories contain mothers who must have extended their parental leave length by reducing the number of days the replacement is paid for[15].

[13] In the data it is not differentiated between the ten 'daddy days' which are available for men around the time of birth and real parental leave. Thus it is plausible that this category mainly contains fathers who took only the ten 'daddy days'.
[14] This category is rather broad but due to the extremely small number of women in the dataset who took parental leave of six months or less it is not possible to split this category.

Regarding only people who actually had children in the period, it is rather uncommon not to take any parental leave (13 percent of all fathers and not even one percent of all mothers decided not to take any leave). Approx. one third of fathers takes parental leave of more than four weeks, which is more than the 'daddy month'. For women, the largest category is one to 52 weeks (almost 40 percent), but still about one third takes extended parental leave of more than 77 percent.

Table 2 contains all variables (except the parental leave variable described above) which were used for the analysis[16]. The variables are described below.

The wage variables for 1991 and 2000 are provided in the dataset. They contain gross hourly wages which are calculated from information about monthly or weekly wages, fixed hourly wages, individual or group piecework wages, bonuses and wage benefits for unusual working times, with help of normal working hours per week.

Migration indicates if the interviewee has a migration background. For this, information about the parents' nationality at time of the interviewee's birth is used. If one or both parents were not Swedish citizens by that time, value 1 was assigned. *Public sector* contains basically the same information for both years (value 1 if working in the public sector, value 0 if working in the private sector) but for 1991, the more detailed information available in the dataset was categorized.

The variable *partner's SES higher* was created using the information about the interviewee's and the partner's professions, categorized in EGP classes[17]. For the interviewees, the information was used from the LNU 1991 dataset but since this was not available for partners, their EGP category was taken from the LNU 2000 dataset[18]. The 17 categories in 1991 and the 15 categories in 2000 were collapsed to seven categories (I to VII). The value 1 was assigned if the partner's socio-economic status in 2000 was higher (equivalent to lower EGP category) than the interviewee's socio-economic status in 1991.

[15] By accepting a replacement rate below 80 percent, parental leave can be extended substantially (cf. Duvander (2008b, 13)). Parents can choose a replacement for anything between one and seven days a week, whereas the latter equals the 80 percent replacement.
[16] Note that the year in the variable name relate to the dataset; the year to which the variable is related might differ.
[17] The EGP class scheme categorizes occupations into social classes (cf. Erikson and Goldthorpe (1992)).
[18] Assuming that changes in the rather broad categorization of seven EGP classes between 1991 and 2000 are less likely.

Table 2: Variables for Analysis

Variable	Type	Description
wage 1991	continuous	gross hourly wages in SEK calculated from different wage information (incl. bonuses) and average weekly working hours
wage² 1991	continuous	square of wage 1991
log wage 2000	continuous	gross hourly wages in SEK, logged calculated from different wage information (incl. bonuses) and average weekly working hours
age 1991	continuous	age in years in 1991, calculated from year of birth
age² 1991	continuous	square of age 1991
age 2000	continuous	age in years in 2000, calculated from year of birth
migration	dummy	value 1 if one or both parents were not Swedish citizens at the time of interviewee's birth
years of schooling 1991	continuous	total years of schooling and vocational training in 1991 (from elementary school upwards)
years of schooling 2000	continuous	total years of schooling and vocational training in 2000 (from elementary school upwards)
public sector 1991	dummy	value 1 if working in public sector (employed by state, municipality or county) in 1991
public sector 2000	dummy	value 1 if working in public sector in 2000
partner's SES higher	dummy	value 1 if socio-economic status of partner is higher than own (measured as EGP classes, 7 categories)
having children 2000	dummy	value 1 if children living in household in 2000
years of experience 2000	continuous	approx. number of years in paid work
years of experience² 2000	continuous	square of years of experience 2000
working overtime 1991	dummy	value 1 if number of hours worked overtime during one week (last week before interview) in 1991 > 0
working overtime 2000	dummy	value 1 if number of hours worked overtime during one week (last week before interview) in 1991 > 0
working part-time 1991	dummy	value 1 if part-time employed during 1990
working part-time 2000	dummy	value 1 if part-time employed during 1999
working time preference 1991	dummy	value 1 if shorter working hours compared to current ones are preferred (accounting for according wage deductions) in 1991
working time preference 2000	dummy	value 1 if shorter working hours compared to current ones are preferred (accounting for according wage deductions) in 2000
working hours 2000	continuous	normal working hours per week in 2000

Working overtime indicates if the interviewee has worked overtime the last week before the interview or not; for this, the approx. hours worked overtime were categorized. *Working part-time* is related to the years before the interview, 1990 and 1999, respectively. It has the value 1 if the interviewee was part-time employed during the last year before the interview (which does not exclude also being full-time employed during that year), including sick-leave and holidays. The variable *working time preference* states if a person preferred shorter working hours compared to current ones. The respective question was "Is your normal worktime of ..... hours what suits you best or would you prefer shorter or longer working hours? Take into account that your wages would

diminish or increase accordingly". *Working hours 2000* is a continuous variable containing normal hours worked per week in the year 2000.

5.2 Methods

In total, six models (with different specifications) for both men and women were estimated to address the research questions. To study determinants of parental leave, two multinomial logistic regression models with the categorized parental leave variable as dependent variable were estimated. Multinomial logistic regressions are used to estimate probabilities of belonging to certain groups, dependent on the influence of the independent variables. Since the category *no parental leave* contains both, people who had children during the period but did not take any parental leave and people who did not have any children during the period, a strict hierarchy of the categories cannot be assumed. Therefore, multinomial models were preferred to ordinal models. As base category, the respective shortest duration of parental leave (1 to 2 weeks for men, 1 to 52 weeks for women) was chosen. In the tables below, relative risk ratios are reported. Those are (similar to odds ratios for binary logistic regressions, see below) defined as exponents of the coefficient (exp(b)). They are interpreted as the relative risk of choosing another parental leave length, compared to the relative risk of taking 1 to 2 weeks (for men). Relative risk ratios can take values from 0 to ∞; a value above one is interpreted as a positive effect and a value below one as a negative effect. Hence, the values 2 and 0.5 represent the same effect size: the relative risk being twice or half the size as compared to the base category (cf. Kühnel and Krebs 2010; UCLA: Academic Technology Services).

For consequences of parental leave take, linear and logistic regressions are estimated. To analyze the effect of parental leave on wages, a linear regression with logged hourly wages in 2000 as dependent variable is estimated[19]. The logistic regression models were estimated to analyze the effect of parental leave take on subsequently working part-time, working overtime, and on preferences about working hours. Logistic regression models were estimated for these binary dependent variables since compared to linear models, logistic regression models overcome the problem that probabilities below zero and above one could be predicted. Additionally, using a linear model for binary dependent variables would per definition produce heteroscedastic residuals, leading to incorrect inference statistics estimations (cf. Kohler and Kreuter 2008, 260–62). As for the multinomial logistic regressions, not the coefficient itself but the exponent of the coefficient (exp(b)), the odds ratio, is reported. Again, odds ratios can take values from 0 to ∞ and are interpreted similarly to relative risk ratios.

[19] Note that the p-values reported are based on robust standard errors due to heteroskdedastic models.

As Goodness-of-fit, R^2 is provided for the linear regressions and McFadden's Pseudo-R^2 is provided for the multinomial and binary logistic regressions. To account for rising values due to the inclusion of more variables, for both measures adjusted versions are reported. For the multinomial logistic regressions, additionally Likelihood-ratio tests are provided to evaluate if all coefficients associated with each independent variable have a significant effect on the dependent variable.

6 Results

The results from the statistical analysis of the LNU 1991 and 2000 dataset are presented below. Section 6.1 covers the two multinomial logistic regression models which were used to estimate determinants of parental leave length and in section 6.2, results for the linear regression and three binary logistic regression addressing consequences of fathers' parental leave usage are presented.

6.1 Determinants of Parental Leave Use

To study the determinants of parental leave, two multinomial logit models with different specifications were estimated. Model 1 tests the effect of previous wages, education and working in the public sector on parental leave length. Model 2 addresses the question if the partner's socio-economic status has an impact on parental leave length.

6.1.1 The Impact of Previous Wages, Education, and Working in the Public Sector on Length of Parental Leave

Table 3 and Table 5 contain the results for the first multinomial logistic regression model (Model 1) for men and women. Model 1 tests the impact of wages, schooling and working in the public vs. the private sector on the length of parental leave. As stated above, the shortest parental leave length (1 to 2 weeks for men, 1 to 52 weeks for women) was chosen as base category. The direction of the impact (in contrast to using regular cross-sectional data) is determined by time: since the three independent variables of interest were measured before parental leave was taken, it can be ruled out that the causal direction is reverse[20].

The first specification of Model 1 (I) contains only the 1991 wages and squared wages as independent variables[21]. Only the relative risks of a parental leave length of more than for weeks compared to one to two weeks are significant. The squared term equals one and the relative risk ratio of previous wages is 0.96. This can be interpreted as a slightly decreased chance of taking longer parental leave (more than four weeks) compared to those taking short parental leave, when wages rise. The effect size is similar for all categories, but insignificant.

[20] Nevertheless, a real causal interpretation is not possible since logit models and linear regression models represent control strategies. The interpretation of the results in terms of causality depends on the correct model specification (variables chosen as controls) and on negligible influence of unobserved characteristics (such as social milieus and lifestyles, attitudes, and abilities).

[21] Previous research as well as theory predicts a u-shaped relation between previous wages and length of parental leave. Graphing the two variables in form of a scatterplot (here not included) made this assumption reasonable and therefore, the linear and the squared term were included in the model.

Table 3: Model 1 – The Impact of Wages, Schooling, and Working in the Public Sector on Length of Parental Leave (Men)

Men	I			II			III			IV		
base category: 1 to 2 weeks	*no parental leave*	*3 to 4 weeks*	*> 4 weeks*	*no parental leave*	*3 to 4 weeks*	*> 4 weeks*	*no parental leave*	*3 to 4 weeks*	*> 4 weeks*	*no parental leave*	*3 to 4 weeks*	*> 4 weeks*
	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR
wage 1991	0.97	0.96	0.96**	0.91***	0.96	0.95*	0.91***	0.96	0.94*	0.91***	0.96	0.94*
wage² 1991	1.00	1.00	1.00*	1.00***	1.00	1.00	1.00***	1.00	1.00	1.00***	1.00	1.00
age				1.15***	0.99	1.00	1.15***	0.98	0.99	1.15***	0.98	0.98
migration				0.89	0.84	1.09	0.95	0.81	1.02	0.95	0.81	1.01
years of schooling 1991							0.94	1.06	1.12**	0.94	1.05	1.08
public sector 1991										1.06	1.13	1.83*
N	1345			1345			1345			1345		
Goodness-of-Fit: Pseudo R_{McF}^2	0.013			0.177			0.187			0.190		
Adjusted Pseudo R_{McF}^2	0.001			0.157			0.164			0.162		

Source: LNU 1991 and LNU 2000

** p-value < 0.1; ** p-value < 0.05; *** p-value < 0.01*

Table 4: Likelihood-ratio Test Model 1(Men)

	Chi²	df	P > Chi²
wage 1991 and wage² 1991	23.98	6	0.001
age	295.41	3	0.000
migration	0.26	3	0.968
years of schooling 1991	13.76	3	0.003
public sector 1991	5.14	3	0.162

Source: LNU 1991 and LNU 2000

Table 5: Model 1 – The Impact of Wages, Schooling, and Working in the Public Sector on Length of Parental Leave (Women)

Women	I			II			III			IV		
base category: 1 to 52 weeks	*no parental*	*53 to 77 weeks*	*> 77 weeks*	*no parental*	*53 to 77 weeks*	*> 77 weeks*	*no parental*	*53 to 77 weeks*	*> 77 weeks*	*no parental*	*53 to 77 weeks*	*> 77 weeks*
	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR
wage 1991	1.06***	1.03	1.02	0.98	1.06	1.03	0.99	1.06	1.04	0.99	1.06	1.04
wage² 1991	1.00***	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
age				1.22***	0.99	1.01	1.22***	0.99	1.01	1.22***	0.98	1.01
migration				0.95	0.44*	0.66	0.95	0.44*	0.66	0.95	0.44*	0.66
years of schooling 1991							0.91**	1.02	0.91	0.91*	1.01	0.91
public sector 1991										0.92	1.26	0.94
N	1396			1396			1396			1396		
Goodness-of-Fit: Pseudo R_{McF}^2	0.010			0.261			0.264			0.265		
Adjusted Pseudo R_{McF}^2	0.000			0.244			0.244			0.241		

Source: LNU 1991 and LNU 2000

** p-value < 0.1; ** p-value < 0.05; *** p-value < 0.01*

Table 6: Likelihood-ratio Test Model 1 (Women)

	Chi²	df	P > Chi²
wage 1991 and wage² 1991	11.80	6	0.067
age	519.88	3	0.000
migration	4.76	3	0.190
years of schooling 1991	6.55	3	0.088
public sector 1991	1.66	3	0.647

Source: LNU 1991 and LNU 2000

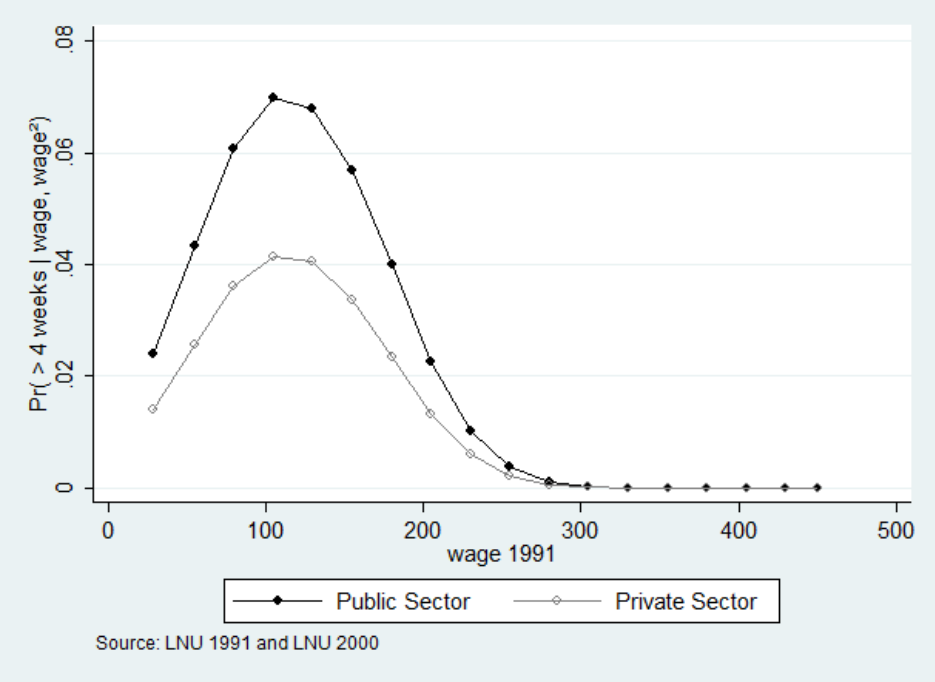
In specification II, demographic controls (age and migration) were added. The effects for the parental leave categories are rather unchanged by the inclusion of the demographic controls, as in specification III, in which years of schooling was added as a control variable. The effect of schooling is positive for the two categories with longer parental leave take, indicating that the relative risks of taking three to four weeks or even more than four weeks (as compared to taking one to two weeks) are larger with higher schooling, whereas the relative risks of not taking any parental leave/not having children in the period are smaller with higher schooling[22]. The effect is only significant for the longest parental leave category. With a one year longer education, the relative risk of taking more than four weeks parental leave (instead of one to two weeks) is 1.12 times higher. The length of education thus seems to positively influence the length of parental leave.

The full specification of Model 1 (specification IV) includes working in the public sector in 1991 as independent variable. The effect of previous wages remains the same. The effect of schooling is slightly decreased in size for the parental leave categories "three to four weeks" and "more than four weeks", and is now insignificant for all categories. The relative risk ratios for working in the public sector in 1991 of all categories are larger than one and thus denote a positive relationship. This could indicate that a norm of taking short parental leave (one to two weeks) exists in many firms of the private sector, but the relative risk ratio is only significant for the longest parental leave category. Comparing taking more than four weeks of parental leave to taking one or two weeks, working in the public sector seems to substantially influence the relative risk of taking longer leave: the relative risk of taking more than four weeks is almost twice as high (1.83) as compared to the relative risk of taking one to two weeks. The goodness-of-fit statistics for the full model is 0.241 (adjusted Pseudo-R^2) but the main increase in the goodness-of-fit was caused by the inclusion of the demographic controls.

The Likelihood-ratio test (Table 3Table 3) specifies if each of the independent variables has a significant impact on the dependent variable by excluding it from the full model and comparing the likelihood-ratio statistic of the full and the restricted specification. According to this, all variables except migration background and working in the public sector have a significant influence on the parental leave length at the 0.01 level. Whereas working in the public sector has a significant effect for the category "more than four weeks", it does not have a significant effect in the overall model. Taking exceptionally long parental leave may hence be influenced by the working environment in the

[22] Due to the heterogeneity in the latter category, the interpretation becomes difficult and will not be in the focus of the discussion.

Figure 1: Predicted Probabilities of Taking Parental Leave of More than Four Weeks Dependent on Previous Wages (Men)



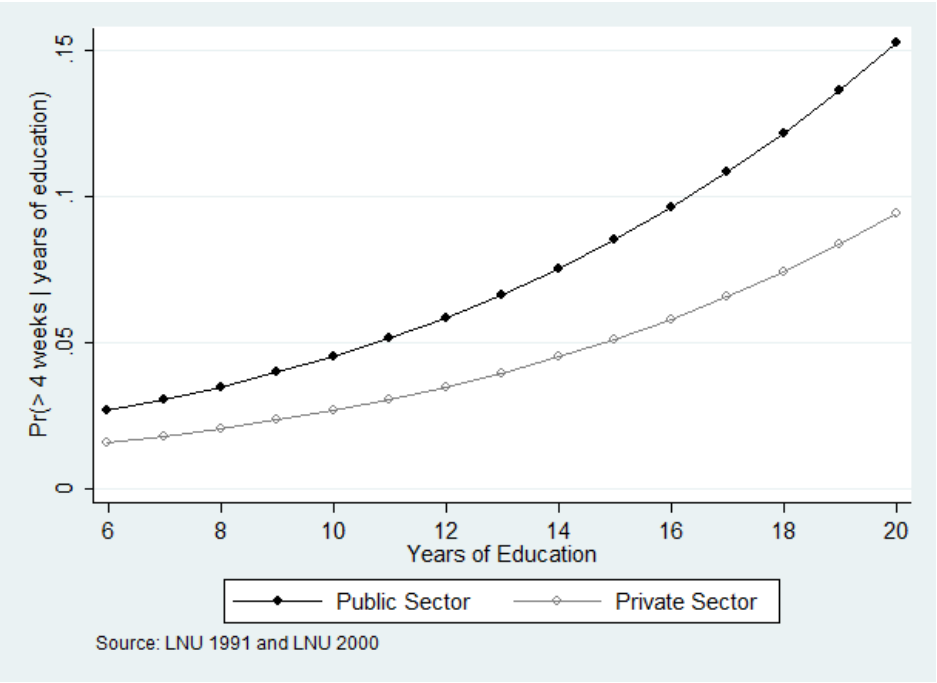
public sector whereas more generally speaking, length of leave is not necessarily influenced by working in a certain sector.

For women, wages do not have a significant impact on parental leave length, but the effect sizes are generally comparable. In contrast to men, having a migration background seems to influence the parental leave length negatively. The relative risks of women who have a migration background to take longer parental leave are roughly half the size/two thirds the size compared to the base category (but only the effect of the category "53 to 77 weeks" is significant). Compared to men, higher education does not seem to lead to longer parental leave, but the effects are insignificant. Also, working in the public sector does not significantly influence the length of parental leave. The goodness-of-fit statistics show that for women, a higher amount of the variance is explained by this model than for men. Again, mainly demographic variables account for that. The Likelihood-ratio test shows (similar to the men's model) a significant influence of all variables except migration background and working in the public sector, but only at the 0.10 level.

Another way of interpreting the results of multinomial logistic regressions is to plot predicted probabilities[23] [24]. This is especially useful for transformed variables such as the square of wage. Figure 1 displays the predicted probabilities of being in the category "more than 4 weeks" for the

[23] Note that the figures display probabilities and not (as the tables) relative risk ratios which are interpreted differently.
[24] Alternatively, a model with categorized wages was estimated but the results did not display any additional information or a clearer picture of the relationship and are thus not included.

Figure 2: Predicted Probabilities of Taking Parental Leave of More than Four Weeks Dependent on Years of Education (Men)



private and the public sector, dependent on previous wages and squared wages. For both sectors, the probabilities of taking a long period of parental leave are rather small, but the differences between the sectors are apparent[25]. For both sectors, the probability of taking long parental leave is very small for low wages and rises with wages until gross wages of slightly more than 100 SEK per hour. For wages above that, the probability of taking long parental leave diminishes again. Despite the same trend for both sectors, the probability of taking parental leave of more than four weeks is higher for all wages until about 300 SEK per hour and more, where the probability becomes zero for both sectors.

Figure 2 shows a similar graph for years of education. The slope is positive for all levels of education but gets slightly steeper at about twelve years of education. Generally, longer education seems to have a positive impact on the length of parental leave and education beyond high school levels (about twelve years) seems to enforce this effect. Again, probabilities are very small for both sectors but are apparently larger for the public sector. In the latter, schooling beyond high school seems to have an even greater impact.

[25] To test if the effects of wages on length of parental leave differ between public and private sector, a model with an interaction term of wages and sector was tried, but the interaction did not show any significant effect. As can be seen in Figure 1, the relation between the variables is generally the same for both sectors, but is slightly more pronounced for the public sector.

As predicted by Human Capital Theory, high wages have a negative relation with the probability of taking longer parental leave (beyond the 'daddy month') for men. Even though replacements correspond to a share of previous income, net losses exist for the time parental leave is taken and returns to previously made human capital investments cannot be collected the same way as when no parental leave or only short leave was taken. Nevertheless, up to an hourly wage of approx. 100 SEK, the relation of previous wages and the probability of taking parental leave of more than four weeks is positive. This is not in line with Human Capital Theory but could be explained by the actual necessity to work when wages are very low. For low-income groups, even an income deduction of ten or 20 percent may not be affordable. Hence, Hypothesis 1 *"The relation of previous wages and the probability to take parental leave beyond the 'daddy month' is inversely u-shaped"* can be confirmed.

Schooling, nevertheless, should be negatively related to length of parental leave (as predicted by Human Capital Theory). Not only actual returns in form of wages depend on the years of schooling, but even future returns should be higher because the slope of returns is steeper for higher education. When controlling for wages, this does not seem to be the case. Instead, the relative risks of taking three to four weeks or four and more weeks of parental leave compared to the base category are larger than one, indicating that each year of schooling increases the odds to take longer leave. These results should of course be handled with caution as in the last specification none of the relative risk ratios of *years of schooling* is significant. However, Hypothesis 2 *"Schooling and length of parental leave are negatively related"* cannot be confirmed. Instead, schooling might be positively related to taking parental leave beyond two weeks, which could rather be explained by different attitudes and social milieus than by Human Capital Theory.

Organizational Culture Theory predicts a positive relation between working in the public sector and parental leave length. Because of the large amount of women in the public sector, taking long parental leave is very common among employees which might have led to strategies how to handle extended leaves of absence, making it easier even for men to make use of these structures. Additionally, income replacement levels are higher in the public sector, making it more rational to take longer leaves than in the private sector since the returns to human capital will be collected to a greater extent. Even though working in the public sector increases the odds to take long parental leave, the effect of wages is basically the same in both sectors. As can be seen in Figure 1, in both the public and the private sector, hourly wages above approx. 100 SEK reduce the probability of taking more than four weeks of parental leave. If the latter argument was true, one could expect that the higher replacement level in the public sector would be a good incentive even for men with higher wages to take longer leave but this is not the case. Instead it seems to be plausible that different

structures in the public sector facilitate taking longer leave, and, as a consequence, a (weak) norm of longer leave among men may have established in the public sector (certainly considering that overall, the probability of taking leave beyond the 'daddy month' is still small, even in the public sector).

Hence, Hypothesis 3 *"Men in the public sector take longer parental leave than men in the private sector"* can be confirmed.

6.1.2 The Impact of the Partner's Socio-economic Status on Length of Parental Leave

The second multinomial logit model tests if the partner's socio-economic status has any impact on the length of parental leave. The results for this model can be seen in Table 7 for men and in Table 9 for women. Specification I contains only a dummy variable indicating if the partner's socio-economic status is higher than the interviewees (measured in EGP classes). Men who have partners with a higher socio-economic status than themselves do not seem to take longer parental leave, compared to the base category. The relative risk ratios for the categories "3 to 4 weeks" and "more than 4 weeks" show in the expected direction (indicating a positive effect) but are insignificant. Only relative risk ratios for the category "no parental leave" are significant, showing that the odds not to take any parental leave *or* not to have any children in the period are roughly half the size as compared to the base category.

Specification II includes demographic controls and specification III extends the model by adding previous wages and years of schooling. The magnitudes are changed in the latter specification, now indicating larger – but still insignificant – effects. In this specification, wages do not have any effect on the length of parental leave[26]. The magnitude of years of schooling is similar as compared to Model 1 and significant for the category "more than 4 weeks".

The likelihood-ratio test indicates for the overall model significant effects at the 0.01 level of all independent variables (except migration) on the length of parental leave.

[26] Alternatively, a specification which controlled for EGP class as categorical variable instead of wages was estimated. The magnitudes and p-values of the other independent variables remained largely unchanged and the effects of the EGP class categories were all insignificant.

Table 7: Model 2 – Impact of Partner's Socio-economic Status on Length of Parental Leave (Men)

Men	I			II			III		
base category: 1 to 2 weeks	*no parental leave*	*3 to 4 weeks*	*> 4 weeks*	*no parental leave*	*3 to 4 weeks*	*> 4 weeks*	*no parental leave*	*3 to 4 weeks*	*> 4 weeks*
	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR
partner's SES higher	0.54***	1.30	1.04	0.51***	1.32	1.06	0.44***	1.41	1.17
age				1.09***	0.98	0.99	1.11***	0.97	0.97*
migration				0.78	0.82	0.89	0.76	0.79	0.83
wage 1991							0.99***	1.00	1.00
years of schooling 1991							0.92**	1.07	1.10**
N	1846			1846			1846		
Goodness-of-fit: Pseudo R_{McF}^2	0.013			0.140			0.174		
Adjusted Pseudo R_{McF}^2	0.007			0.127			0.155		

Source: LNU 1991 and LNU 2000

** p-value < 0.1; ** p-value < 0.05; *** p-value < 0.01*

Table 8: Likelihood-ratio Test Model 2 (Men)

	Chi^2	df	$P > Chi^2$
partner's SES higher	49.60	3	0.000
age	349.40	3	0.000
migration	0.93	3	0.818
wage 1991	38.17	3	0.000
years of schooling 1991	33.86	3	0.000

Source: LNU 1991 and LNU 2000

Table 9: Model 2 - The Impact of Partner's Socio-Economic Status on Length of Parental Leave (Women)

Women	I			II			III		
base category: 1 to 52 weeks	*no parental leave*	*53 to 77 weeks*	*> 77 weeks*	*no parental leave*	*53 to 77 weeks*	*> 77 weeks*	*no parental leave*	*53 to 77 weeks*	*> 77 weeks*
	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR
partner's SES higher	0.53***	0.69	0.68*	0.55***	0.69	0.68*	0.52***	0.69	0.66*
age				1.17***	1.00	1.01	1.19***	0.99	1.02
migration				1.06	0.49*	0.99	0.93	0.50*	0.96
wage 1991							0.99**	1.00	1.00
years of schooling 1991							0.87***	1.00	0.88***
N	1824			1824			1825		
Goodness-of-fit: Pseudo R_{McF}^2	0.005			0.238			0.251		
Adjusted Pseudo R_{McF}^2	0.000			0.227			0.235		

Source: LNU 1991 and LNU 2000

** p-value < 0.1; ** p-value < 0.05; *** p-value < 0.01*

Table 10: Likelihood-ratio Test Model 2 (Women)

	Chi^2	df	$P > Chi^2$
partner's SES higher	11.183	3	0.011
age	652.522	3	0.000
migration	3.876	3	0.275
wage 1991	14.029	3	0.003
years of schooling 1991	20.616	3	0.000

Source: LNU 1991 and LNU 2000

For women, the picture is largely changed as compared to men. In specification I, the relative risk ratios for women not taking any parental leave/not having any children in the period are – as for men – roughly half the size, indicating that the odds not to have any children (or not to take any parental leave) are only half as large as taking one to 52 weeks of parental leave when the partner's socio-economic status is higher. In contrast to men, even the two categories with longer parental leave lengths have relative risk ratios smaller than one (with the relative risk ratio for taking more than 77 weeks parental leave being significant). The parental leave length does not rise when the partner's socio-economic status is higher. The odds of taking very long parental leave (more than 77 weeks) are only two thirds the size as compared to the base category when the partner's socio-economic status is higher, and do not change by including the demographic controls. Controlling for the women's own socio-economic status by adding wages and education does not change the effects. In the full model, wages do not seem to have any impact, whereas a higher education decreases the odds to take a very long parental leave (compared to taking one to 52 weeks). The likelihood-ratio test indicates that all variables except migration significantly influence mothers' parental leave length.

Becker's Economic Theory of the Family as well as Marital Bargaining Models predict that fathers whose partners have a higher socio-economic status than themselves take longer parental leave. Assuming higher income coinciding with a higher socio-economic status, it becomes more rational that the partner with the lower income (in this case the man) takes longer parental leave to reduce the family's net losses for the time of absence to a minimum. According to Marital Bargaining Models, bargaining power in a relationship depends on the income contributed by each partner. If the woman has a higher income and/or better career opportunities, her bargaining power rises. Consequently she might be able to negotiate a more equal division of parental leave, even opposing traditional views and social norms about how to share the parental leave.

The opposite would be expected from Doing Gender Theory. Here, gender is not an individual characteristic but has to be frequently displayed in social interactions. This is even of greater importance for couples who do not meet social expectations of status allocation among partners. If the mother has a higher socio-economic status than the father, the possibilities to display gender become more limited. Housework, caring for children and parental leave are opportunities to display one's gender for women, not to involve in these tasks is an opportunity to display one's gender for men.

Model 2 uses EGP classes as a proxy for job posts and income[27]. For men, the relative risk ratios for the two longer parental leave categories point in the direction which is theoretically predicted by the Economic Theory of the Family and Marital Bargaining Models, but the effects are insignificant. Hence, hypothesis 4a *"If the partner's socio-economic status is higher than the own, a longer parental leave take becomes more likely"* cannot be confirmed.

Hypothesis 4b *"If the partner's socio-economic status is higher than the own, taking extended parental leave becomes less likely for men"* can nevertheless not be confirmed. The results do not show that the odds of taking shorter leave are higher for men whose socio-economic status is lower than their partner's.

For women, the results are not in accordance with the Economic Theory of the Family or Marital Bargaining Models. Instead, taking extended parental leave can be regarded a means to display gender. For women whose partner's socio-economic status is higher than their own, it is not as necessary to use extremely long parental leave as an opportunity to do gender, which could explain the lower odds of taking long parental leave (more than 77 weeks) for women whose partners have a higher socio-economic status. Accordingly, it may be possible that women whose partners have a lower socio-economic status than themselves are more likely to choose extended parental leave[28].

[27] Neither partner's years of schooling nor partner's income or wages are available in the dataset.

[28] A model estimating the effect of having a partner with lower socio-economic status than the own (compared to similar or higher) for women in fact shows a positive effect of having a partner with lower socio-economic status on length of parental leave. The relative risk of taking extended parental leave of more than 77 weeks is 1.35 times higher as compared to the base category (otherwise the model is identical to Model 2, specification III), but the effect is insignificant.

6.2 Consequences of Parental Leave

In this section, four different models for men and women are presented which test the impact of having children and the parental leave length on subsequent work aspects. Most importantly, Model 3 tests if having children and independent from that, taking parental leave, has an effect on subsequent wages. The Models 4 and 5 study if any self-chosen adjustments to the situation at work (in form of working part-time or not working overtime) were made after the parental leave, whereas Model 6 addresses the impact of taking parental leave on attitudes towards working hours.

6.2.1 The Impact of Having Children and Length of Parental Leave on Wages

For Model 3, linear regressions with different specifications were run[29] which are presented in Table 11 for men and in Table 12 for women. As for determinants of parental leave, a causal interpretation cannot be made with high levels of certainty but it can be ruled out that the direction of the relation is reverse. The dependent variable wages as well as the work related independent variables were measured after the parental leave was taken, which consequently determines the direction of influence.

As predicted by previous research and theory, for men, having children is supposed to be positively related to wages whereas length of parental leave is supposed to be negatively related to subsequent wages. Specification I contains only the effect of the independent variable "having children in 2000" on log wages. A positive significant effect was found: by having children, wages are increased by six percent. Taking into account that not having children but *being in childbearing ages* could have a positive impact on wages for reasons of previous experience and high productivity in these ages, demographic controls were added in specification II. For age, a linear and a squared term were added since the relation between age and wages is reversely u-shaped, but no significant effect of age was found. The effect of children on wages increases slightly.

[29] Due to problems with heteroskedasticity, robust standard errors were used.

Table 11: Model 3 – The Impact of Having Children and Length of Parental Leave on Subsequent Wages[1] (Men)

Men	I	II	III	IV	V	VI	VII[2]	VIII[2]
	coef	coef	coef	coef	coef	coef	coef	coef
having children 2000	0.06***	0.07***	0.06**	0.06***	0.05**	0.03*	0.07	0.05
age		0.01	0.00	0.00	0.00	-0.02***	0.01	-0.01
age²		0.00	0.00	0.00	0.00	0.00***	0.00	0.00
migration		-0.03	-0.06*	-0.06**	-0.06*	-0.04	-0.06*	-0.07**
years of experience 2000			0.01***	0.01***	0.01***	0.00	0.01***	0.01*
years of schooling 2000			0.05***	0.05***	0.05***	0.04***	0.04***	0.04***
working overtime				0.15***	0.15***	0.11***	0.14***	0.12***
public sector 2000				-0.14***	-0.14***	-0.11***	-0.13***	-0.12***
average length of parental leave (base: no parental leave)								
1 to 2 weeks					-0.01	-0.01	0.01	0.02
2 to 4 weeks					0.06*	0.04	0.02	0.01
more than 4 weeks					-0.02	-0.03	-0.06	-0.07
wage 1991						0.00***		0.00***
_cons	4.80***	4.39***	4.07***	3.95***	3.92***	4.54***	3.93***	4.34***
N	1109	1109	1109	1109	1109	1109	574	574
Goodness-of-Fit: R^2	0.009	0.030	0.219	0.314	0.317	0.452	0.240	0.312
Adjusted R^2	0.009	0.026	0.215	0.309	0.310	0.446	0.225	0.297

Source: LNU 1991 and LNU 2000

** p-value < 0.1; ** p-value < 0.05; *** p-value < 0.01*

[1] with robust standard errors

[2] specification VII and VIII for subgroup: no children in 1991

In specification III, years of experience and years of schooling were added as further personal characteristics which may be related to both, having children and wages. The coefficients for these variables are significant and positive, indicating an increase in wages for each year of experience by one percent and each year of schooling by five percent. The coefficient for having children is only slightly reduced as compared to specification II, and again slightly reduced to 0.05 as further work characteristics are included (specification IV). Working overtime increases wages by 15 percent whereas working in the public sector decreases wages by 14 percent.

Table 12: Model 3 – The Impact of Having Children and Length of Parental Leave on Subsequent Wages[1] (Women)

Women	I	II	III	IV	V	VI
	coef	coef	coef	coef	coef	coef
having children 2000	-0.01	-0.04**	-0.03*	-0.02	-0.05***	-0.04***
age		0.03***	0.01	0.01	0.02**	0.00
age²		0.00***	0.00**	0.00**	0.00**	0.00
migration		-0.06***	-0.07***	-0.07***	-0.07***	-0.05**
years of experience 2000			0.01***	0.01***	0.01***	0.00***
years of schooling 2000			0.04***	0.04***	0.04***	0.03***
working overtime				0.09***	0.09***	0.08***
public sector 2000				-0.11***	-0.11***	-0.10***
average length of parental leave (base: no parental leave)						
1 to 52 weeks					0.10***	0.08***
53 to 77 weeks					0.03	0.00
more than 77 weeks					0.04*	0.02
wage 1991						0.00***
_cons	4.65***	4.18***	3.95***	3.89***	3.79***	4.08***
N	1072	1072	1072	1072	1072	1072
Goodness-of-Fit: R^2	0.001	0.018	0.193	0.260	0.270	0.364
Adjusted R^2	0.000	0.014	0.188	0.255	0.262	0.356

Source: LNU 1991 and LNU 2000

** p-value < 0.1; ** p-value < 0.05; *** p-value < 0.01*

[1] with robust standard errors

In specification V, average length of parental leave is included in the model. The four categories of this variable were included as three dummy variables, with "no parental leave" as base category. The coefficients of the other variables remain all unchanged after including length of parental leave. For the variable itself, the category "2 to 4 weeks" shows a positive significant effect, whereas the other categories do not show any significant effect on log wages. This is rather surprising since the opposite direction of the effect was expected. It could be assumed that either, unobserved background characteristics explain this relation or that taking parental leave of approx. the length of the 'daddy month' is considered a positive trait and therefore denotes a positive labor market signal (e.g. responsibility). In specification VI, wages in 1991 were included. It can be assumed that certain unobserved characteristics such as ability and motivation already influenced wages in 1991, which is why by including previous wages it may be indirectly controlled for such unobservables. The magnitudes of the effects of education, working overtime and working in the public sector are reduced in this specification which could be explained by (indirectly) controlling for unobservables

through wages. The effect of parental leave (2 to 4 weeks) is now slightly reduced and becomes insignificant. Similarly, the effect of children is reduced to 0.03 but still significant. Nevertheless, since the variable "having children" refers to all children living in the household, even those being born before 1990, the variable wage 1991 could possibly be influenced by the fact of having children. Therefore, it is not clear if the magnitude in specification V or VI is closer to the real effect size. The goodness-of-fit for the full model is 0.446 (adjusted R^2), stating that about 45 percent of the variance in wages is explained by the independent variables.

For women, the effect of having children is negative. In specification V and VI, the effect indicates wage deductions of five and four percent, respectively, when having children. Unexpectedly, taking parental leave has a positive effect on wages. Taking one to 52 weeks increases wages by eight percent (specification VI). The negative effect of children is (for a parental leave length up to a year) balanced with the positive effect of parental leave. As for men, this could most likely be explained by unobserved background characteristics. A positive labor market signal of taking a rather normal parental leave length of one to 52 weeks may be possible since it represents the presence of a work orientation besides a family orientation. Nevertheless, this explanation is rather unlikely since long leaves of absence are linked to relatively high costs for the employer and thus it is rather doubtful that those would be rewarded.

It is also remarkable that the returns to schooling and working overtime are slightly smaller for women, whereas the penalty for having a migration background (after controlling for relevant personal and work characteristics) is slightly larger than for men. However, the wage deduction for working in the public sector is also slightly smaller. Generally, the coefficients for men and women are comparable in size. The goodness-of-fit measures for Model 3 for women are smaller than those for men, specifying that a larger amount of variance in the dependent variable remains unexplained.

For men, two additional specifications were run to get closer to a causal explanation for the effect of having children on wages. For this, the sample was reduced to men who did not have any children in 1991, now containing 574 observations. Specification VII is identical to specification V except for the sample adjustment. The effect sizes remain roughly the same for all variables (but the effect of having children becomes insignificant). In specification VIII, similar to specification VI, wages in 1991 were included. Since for the subsample, wages in 1991 could not be affected by the fact of having children, this specification should lead to a rather causal interpretation of the relation between having children and wages. The magnitude of the effect of having children is – as in specification V – 0.05 but is insignificant. It can be expected that this is mainly due to the sample size; if no effect had existed, even the effect size should have diminished substantially. In the

adjusted sample, the effect of parental leave length is insignificant but points in size and direction rather towards the theoretical expectations.

Having children could serve as a labor market signal for employers, signaling that men who are fathers are more responsible, loyal, dependable and kind than non-fathers. These are favorable characteristics even at the workplace and may therefore be rewarded with higher wages. This is only true as long as men are involved in childrearing tasks only to a certain extent since being occupied with raising children itself could lead to less time for work, increased tiredness and less commitment to work. Consequently, having children should have the reverse effect for women. The results of Model 3 support the theoretical notions of Signaling Theory. A positive effect of having children on wages was found for men whereas the opposite was true for women. Therefore, hypothesis 5 *"Men experience earning bonuses to fatherhood whereas women experience earning deductions to motherhood"* can be confirmed. The estimated earning bonus of fatherhood is three to five percent.

Hypothesis 6 predicted *"Taking parental leave beyond the 'daddy month' will lead to a wage penalty for men"*. This was explained by both, Human Capital Theory and Signaling Theory. Since any leave of absence from work leads to deterioration of existing human capital and further human capital accumulation (mainly in form of on-the-job training) is not possible during the period of leave, the subsequent wages should be lower than for those who did not take any or shorter leave. Accordingly, even the length of leave should have an impact on subsequent wages. Hypothesis 7 predicted *"The longer the parental leave, the larger the negative effect on wages"*.

From the viewpoint of Signaling Theory, taking parental leave – especially beyond the 'daddy month' – could signal a weak work orientation and a higher commitment to family and therefore work as a negative labor market signal for men. However, this could not be confirmed by the results in Model 3. Parental leave length does not have any significant effect on wages for men. In Specification VI and VII, negative effects of taking parental leave beyond the 'daddy month' existed but were insignificant. Hence, hypothesis 6 and 7 cannot be confirmed.

6.2.2 The Impact of Parental Leave Length on Adjusting Work Situations and Preferences towards Work Situations

Model 4, Model 5 and Model 6, which are presented in this section, test if the situation at the workplace will be adjusted after taking parental leave or if the preferences towards the work situation change through taking (longer) parental leave. The underlying assumption is that fathers who take parental leave (especially beyond the 'daddy month') have a higher family orientation. Even after returning to work, they will try to adjust their working conditions in form of working part-time or

not to work overtime to balance work life and family life. Hence, for these models it is assumed that working part-time or overtime is a decision made by the employee. In Model 6, more generally it is assumed that preferences change by taking (longer) parental leave (even if the actual work situation cannot be adjusted).

Table 13 and Table 14 present the results of binary logistic regressions for men and women, respectively. The dependent variable is working part-time in 2000. The first specification contains only the categories of the variable *parental leave length* as independent variable. For men, the odds ratios indicate a negative relationship between the two variables but none of the effects is significant. Adding the demographic controls (specification II) and working in the public sector (specification III) do not change the magnitudes or the level of significance. However, working in the public sector is positively related to working part-time: the odds of working part-time are more than 1.5 times (precisely 1.63) higher if working in the public sector compared to working in the private sector. In the last specification, working part-time in 1991 is added as a control to differentiate the effects of attitudes/motivation selecting into part-time and the effect of being a father as cause of selection into part-time. The magnitudes of the effects remain similar and insignificant. Working in the public sector is no longer significant, and – as expected – working part-time in 1991 has a substantial impact on working part-time in 2000. Nevertheless, the goodness-of-fit measures are very small and indicate a rather poor fit of the model.

For women (Table 14), the length of parental leave seems to have a rather substantial impact on working part-time in 2000. In the first specification, the odds of working part-time are larger than one for all parental leave categories (compared to not taking any parental leave/not having children in the period). As theoretically expected, the longer the leave, the higher are the odds of working part-time. Whereas the odds of working part-time are roughly 1.5 times higher for those who took one to 52 weeks of parental leave, they are 1.7 times higher for those who took 53 to 77 weeks and even almost 2.5 times higher for those who took more than 77 weeks of parental leave. Adding demographic controls (specification II) and working in the public sector (specification III) as controls increases the effect magnitudes. Especially the difference between the two shorter leave categories and the last leave category are remarkable.

Table 13: Model 4 – The Impact of Parental Leave Length on Working Part-time (Men)

Men	I	II	III	IV
	OR	OR	OR	OR
average length of parental leave				
(base: no parental leave)				
1 to 2 weeks	0.46	0.44	0.44	0.54
2 to 4 weeks	0.73	0.72	0.70	0.75
more than 4 weeks	0.60	0.59	0.58	0.56
age		1.00	0.00	1.00
migration		1.22	1.21	1.15
public sector 2000			1.63*	1.36
working part-time 1991				5.75***
N	1176	1176	1176	1176
Goodness-of-fit: Pseudo R_{McF}^2	0.006	0.007	0.013	0.055
Adjusted Pseudo R_{McF}^2	-0.012	-0.019	-0.016	0.022

Source: LNU 1991 and LNU 2000

** p-value < 0.1; ** p-value < 0.05; *** p-value < 0.01*

Table 14: Model 4 – The Impact of Parental Leave Length on Working Part-time (Women)

Women	I	II	III	IV
	OR	OR	OR	OR
average length of parental leave				
(base: no parental leave)				
1 to 52 weeks	1.54**	2.62***	2.61***	3.35***
53 to 77 weeks	1.71**	2.87***	2.89***	3.71***
more than 77 weeks	2.48***	4.07***	4.08***	4.88***
age		1.04***	1.04***	1.04***
migration		0.66**	0.66**	0.72
public sector 2000			1.52***	1.57***
working part-time 1991				3.72***
N	1180	1180	1180	1180
Goodness-of-fit: Pseudo R_{McF}^2	0.016	0.038	0.045	0.108
Adjusted Pseudo R_{McF}^2	0.010	0.029	0.034	0.096

Source: LNU 1991 and LNU 2000

** p-value < 0.1; ** p-value < 0.05; *** p-value < 0.01*

Controlling for working part-time in 1991 (specification IV) increases the magnitude of parental leave length substantially. For the first two categories, the odds of working part-time are roughly 3.5 times higher and for the longest parental leave length, the odds are almost five times higher (as

compared to the base category). The goodness-of-fit measures are substantially larger than for the men's model. Hence, for women, a substantial effect of parental leave length on subsequently working part-time exists.

The results of the binary logistic regression (Model 5) – the impact of parental leave length on working overtime – are presented in Table 15 for men and Table 16 for women. The first specification contains only the odds ratios of parental leave length in categories as independent variable and working overtime as dependent variable. Compared to the category "no parental leave", the odds for working overtime are larger than one for all parental leave lengths – contradictory to theory. However, only for the shortest length (one to two weeks) the effect is significant but becomes insignificant when controlling for age and migration background (specification II). At least for the longest parental leave length (more than four weeks), the effect points now in the expected direction – with parental leave beyond the 'daddy month', the odds of working overtime are decreased. Nevertheless, the effect is insignificant and does not change even when controlling for years of schooling and working in the public sector (specification III) and working overtime in 1991 (specification IV). Hence, for men, length of parental leave does not have any significant effect on working overtime subsequent to the leave period.

For women, the effect magnitudes rather point in the theoretically expected direction. The odds of working overtime are smaller for all parental leave categories compared to the base category and decrease with the length of parental leave. However, only for the longest parental leave length (more than 77 weeks), the effect is significant. The odds of working overtime are roughly halved in size and do not change as further controls are added. For both men and women, years of schooling has a positive impact on working overtime whereas working in the public sector has a negative effect. Working overtime in 1991 increases the odds of working overtime in 2000 but does not change the effects of parental leave length for women. As for working part-time, women who take extended leave periods seem to adjust their working conditions after returning to the job in terms of not working overtime.

Table 15: Model 5 – The Impact of Parental Leave Length on Working Overtime (Men)

Men	I	II	III	IV
	OR	OR	OR	OR
average length of parental leave				
(base: no parental leave)				
1 to 2 weeks	1.74**	1.50	1.38	1.33
2 to 4 weeks	1.17	0.98	0.93	0.88
more than 4 weeks	1.02	0.86	0.80	0.84
age		0.98**	0.99	0.99
migration		1.11	0.99	0.99
years of schooling 2000			1.18***	1.16***
public sector 2000			0.53***	0.55***
working overtime 1991				2.20***
N	975	975	975	975
Goodness-of-fit: Pseudo R_{McF}^2	0.004	0.008	0.055	0.073
Adjusted Pseudo R_{McF}^2	-0.002	-0.001	0.043	0.059

Source: LNU 1991 and LNU 2000

** p-value < 0.1; ** p-value < 0.05; *** p-value < 0.01*

Table 16: Model 5 – The Impact of Parental Leave Length on Working Overtime (Women)

Women	I	II	III	IV
	OR	OR	OR	OR
average length of parental leave				
(base: no parental leave)				
1 to 52 weeks	1.01	0.86	0.81	0.87
53 to 77 weeks	0.80	0.64	0.63	0.63
more than 77 weeks	0.62*	0.51**	0.51**	0.52**
age		0.98	1.00	0.99
migration		0.67*	0.59**	0.60**
years of schooling 2000			1.17***	1.17***
public sector 2000			0.63***	0.66***
working overtime 1991				1.59**
N	973	973	973	973
Goodness-of-fit: Pseudo R_{McF}^2	0.003	0.008	0.050	0.054
Adjusted Pseudo R_{McF}^2	-0.004	-0.002	0.036	0.039

Source: LNU 1991 and LNU 2000

** p-value < 0.1; ** p-value < 0.05; *** p-value < 0.01*

Table 17 and Table 18 present the results for the binary logisitic regression (Model 6) for men and women. Model 6 estimates the impact of parental leave length on the odds to prefer shorter working hours. For men, specification I shows that taking parental leave, compared to not taking parental leave/not having any children in the period, increases the odds of preferring shorter working hours. Unexpectedly, for the shortest parental leave length the odds for preferring shorter working hours are highest and only this effect is significant. Controlling for age and migration background (specification III) increases the odds ratios for all categories and now, even the odds ratios for "more than 4 weeks" are significant. In specification IV, normal working hours per week and preferring shorter working hours in 1991 were added as controls. Through including working hours preference in 1991, it should be accounted for general motivation which is independent from family orientation. The odds ratio for "one to two weeks" is slightly increased and remains, as the effect for "more than four weeks" significant. Taking parental leave or more generally, being a father, increases the odds of preferring shorter working hours but it does not seem to be the length of parental leave which determines that.

For women, similar results can be found. Not surprisingly, those who took parental leave (and have rather small children at home) have higher odds of preferring shorter working hours than those who did not take any parental leave or did not have any children in the period. In specification I , the odds of preferring shorter working hours are more than 1.5 times higher for those who were on parental leave (except for the middle category) compared to the base category. In specification II and III the effects are insignificant but increase in size and become significant again (for the shortest and longest leave category) in the full model (specification IV). For women, the model points in the theoretically expected direction with the longer parental leave category having substantially larger odds of preferring shorter working hours than the shorter one. For women who took on average one to 52 weeks of parental leave per child, the odds of preferring shorter working hours are about 1.7 times higher compared to the base category, whereas for women who took more than 77 weeks, the odds to prefer shorter working hours are more than twice as high. Hence, for women, length of parental leave – and not only the fact of having small children or taking parental leave – seems to be a stronger indicator for working hours preference.

Table 17: Model 6 – The Impact of Parental Leave Length on Working Time Preference (Men)

Men	I	II	III	IV
	OR	OR	OR	OR
average length of parental leave (base: no parental leave)				
1 to 2 weeks	1.56*	1.73**	1.72**	1.79**
2 to 4 weeks	1.13	1.28	1.25	1.33
more than 4 weeks	1.41	1.58*	1.56*	1.56*
age		1.01	1.01*	1.01
migration		1.00	0.96	0.98
years of schooling 2000			1.03	1.03
public sector 2000			1.10	1.16
working hours 2000				1.06***
working time preference: shorter 1991				3.19***
N	1145	1145	1145	1145
Goodness-of-fit: Pseudo R_{McF}^2	0.004	0.006	0.009	0.037
Adjusted Pseudo R_{McF}^2	-0.003	-0.005	-0.006	0.019

Source: LNU 1991 and LNU 2000

** p-value < 0.1; ** p-value < 0.05; *** p-value < 0.01*

Table 18: Model 6 – The Impact of Parental Leave Length on Working Time Preference (Women)

Women	I	II	III	IV
	OR	OR	OR	OR
average length of parental leave (base: no parental leave)				
1 to 52 weeks	1.56**	1.32	1.30	1.69**
53 to 77 weeks	1.30	1.09	1.09	1.37
more than 77 weeks	1.71**	1.46	1.50	2.11***
age		0.99	0.99	0.99
migration		0.90	0.87	0.85
years of schooling 2000			1.04*	1.01
public sector 2000			1.08	1.12
working hours 2000				1.12***
working time preference: shorter 1991				1.69**
N	1163	1163	1163	1163
Goodness-of-fit: Pseudo R_{McF}^2	0.007	0.009	0.012	0.080
Adjusted Pseudo R_{McF}^2	0.000	-0.001	-0.002	0.062

Source: LNU 1991 and LNU 2000

** p-value < 0.1; ** p-value < 0.05; *** p-value < 0.01*

Figure 3: Predicted Probabilities of Preferring Shorter Working Hours Dependent on Normal Working Hours (Men)

Figure 3 and Figure 4 present the predicted probabilities of preferring shorter working hours dependent on normal working hours for the shortest and longest parental leave categories for men and women. For both, men and women, it can be seen that the probability of preferring shorter working hours rises continuously with normal weekly working hours which is not much surprising. Men and women who work only ten hours per week have a predicted probability of less than 0.1 of preferring shorter working hours. As working hours increase, the predicted probabilities also increase up to approx. 0.4 for men and approx. 0.6 for women who work 50 hours a week. The effect seems to be generally the same for men and women taking shorter or longer parental leave. For men, the predicted probabilities of fathers taking one to two weeks are slightly higher compared to fathers taking more than four weeks. Opposite to expectations, fathers who took longer parental leave do not have a higher probability to prefer shorter working hours. The difference between the two groups is negligible but the slightly higher probabilities for men with parental leave of one and two weeks might indicate that those fathers who did not spend significant time with their children at home have a stronger desire for that.

For women, the effect is reverse. Mothers who took shorter parental leave have lower predicted probabilities of preferring shorter working hours than mothers who took more than 77 weeks of parental leave (except for women working only ten hours per week for which the predicted

Figure 4: Predicted Probabilities of Preferring Shorter Working Hours Dependent on Normal Working Hours (Women)

probabilities are the same). This is rather according to the theoretical expectations, assuming a higher family orientation (and thus a stronger desire for spending less time at work) for women who took longer parental leave. For both parental leave categories, the effect becomes more pronounced for women working more than 30 hours a week, an effect which cannot be found for men. This might indicate that more generally mothers (compared to women who did not get any children in the period or did not take any parental leave) desire to work part-time of approx. 30 hours a weeks.

Self-selection Theory predicts that men and women choose different employers because they anticipate different periods of absence from the labor force (but still want to maximize their lifetime earnings). Relating Self-selection Theory more generally to choosing employers and working conditions according to one's preferences, it was expected that family oriented men and women not only take longer than usual periods of parental leave but even adjust their working conditions after returning to the job. Hypothesis 8 stated that *"The longer the parental leave, the higher is the probability to work part-time after returning to work"*. For men, no such effect was found. Parental leave length did not have any effect on subsequently working part-time. Therefore, hypothesis 8 has to be disproved. For women, a rather strong effect of parental leave length on working part-time was found. The longer the parental leave, the higher were the odds of subsequently working part-time. Especially women, who extended their period of parental leave substantially and took (on average) more than 77 weeks

per child, have high odds to work part-time after the period of parental leave. For those women, a strong family orientation and hence, a self-selection to family friendly employments can be assumed.

Similar to the results for working part-time, the results for working overtime suggest that men do not adjust their working conditions whereas women do. Hypothesis 9 *"The longer the parental leave, the lower is the probability to work overtime after returning to work"* could not be confirmed for men but again, women who take extended parental leave periods (on average more than 77 weeks per child) subsequently adjust their work conditions and avoid working overtime.

A generally higher family orientation of men who took parental leave beyond the 'daddy month' cannot be concluded from these results.

Assuming that working conditions cannot always be adjusted to the parents' preferences, favoring shorter working hours (when controlling for actual working hours) should indicate a stronger family orientation. Men who took parental leave seem to prefer shorter working hours but the effect was not larger for men who took parental leave beyond the 'daddy month' than for men who took only short parental leave (instead, the effect sizes were reversed). It can be concluded that rather having small children than a higher family orientation of men who took longer parental leave triggers this effect. Hence, hypothesis 10 *"The longer the parental leave, the higher is the probability to prefer shorter working hours after returning to work"* cannot be confirmed, even though an effect of taking parental leave on preferring shorter working hours was found.

For women, longer parental leave take, especially of more than 77 weeks on average per child, seems to indicate a stronger family orientation. Women who take extensive parental leave have higher odds of preferring shorter working hours.

The results from Model 5, Model 6 and Model 7 do not support the assumptions of the Self-selection Theory for men. Men who took parental leave beyond the 'daddy month' neither adjust their working conditions when returning back to the job in form of working part-time or not working overtime, nor do they prefer shorter working hours to a larger extent than fathers who took only short parental leave. The attempt towards finding indications of family orientation and self-selection for men did not lead to any result. Nevertheless, self-selection effects may still occur in relation to wages. Fatherhood bonuses or (possible) parental leave penalties could still be influenced by self-selection processes.

For women, taking extended parental leave seems to be a good indicator for family orientation. Women who took on average more than 77 weeks per child have high odds of working part-time, their chances of working overtime are substantially reduced, and independent from actual weekly working hours, they have a higher preference for working shorter working hours.

7 Summary and Conclusion

In this study, the question of economic and workplace related determinants and consequences of fathers' parental leave use in Sweden is addressed. Previous research focused mainly on determinants for fathers' parental leave but its consequences were only marginally discussed for fathers (whereas a broad literature of career penalties for mothers' parental leave exists). The aim and scope of this study is to present a broad picture of workplace related determinants and consequences of fathers' parental leave use. Whereas determinants for fathers' parental leave use have been addressed by other studies (cf. Bekkengen 1996; Brandth and Kvande 2001; Bygren and Duvander 2004; Bygren and Duvander 2006; Duvander 2008a; Ekberg et al. 2004; Haas et al. 2002; Haas and Hwang 2009; Nyman and Petterson 2002; Rostgaard 2002), economic consequences of fathers' parental leave use are discussed only in few studies (cf. Albrecht et al. 1999; Stafford and Sundström 1996) which focus on wage penalties to taking parental leave. To my knowledge, no study exists that focuses on work-related consequences for being a father and taking parental leave. Here, it is tested if wage bonuses or penalties exist to being a father or taking parental leave in Sweden. Additionally, the matter of self-selection of family-oriented fathers into family friendly employments is discussed. Therefore, an approach of indirectly testing self-selection in form of adjusting one's work subsequent to parental leave is suggested.

Regarding determinants of parental leave, Human Capital Theory predicts a negative relation between wages and parental leave length since for higher wages, absolute (life-time) earnings will be diminished to a larger extent by taking time off. Similarly, education and parental leave length should be negatively related because returns to education are not only higher in absolute terms (leading to higher losses for periods of absence) but even the slope of life-time earnings is steeper for people with higher education. Nevertheless, since for very low incomes even small (relative) wage reductions may not be affordable, an inversely u-shaped relation of wages and the probability to take longer parental leave is expected.

The results confirm this assumption. The probability of taking parental leave beyond the 'daddy month' rises with hourly wages up to approx. 100 SEK, and decreases with wages beyond that. This can be interpreted as having very low wages makes it unaffordable to take longer parental leave, whereas the net losses people with higher income experience make it undesirable to take longer parental leave. For education, the assumptions of Human Capital Theory could not be confirmed. Instead of a negative effect, the results point rather in the direction of a positive impact of education on the probability to take parental leave of more than four weeks. Especially education beyond high

school levels seems to increase this effect, which could rather be explained by norms and attitudes in differing social milieus than by Human Capital Theory.

According to the assumptions of Organizational Culture Theory, working in the public sector should increase the odds of taking parental leave beyond one or two weeks. This is due to better structures of how to handle longer parental leave, higher compensation rates, and norms to take longer parental leave even for fathers.

The results show that working in the public sector has a positive effect on taking parental leave of more than four weeks for fathers, whereas more generally, parental leave lengths does not seem to be determined by the sector of employment. It is likely that a norm of taking only short parental leave exists in the private sector whereas a (weak) norm of taking longer parental leave has established in the public sector. The higher odds to take longer parental leave in the public sector can rather be related to organizational cultures than to the higher replacement levels which make it more rational even for higher incomes to take longer leave. The results show that even though the probabilities of taking parental leave beyond the 'daddy month' are higher in the public sector, the nature of the relation is the same for both sectors: the predicted probabilities rise until approx. 100 SEK per hour and diminish with higher wages.

For women, the length of parental leave seems not to be determined by these workplace related features. Wages and working in the public sector do not show any significant effect for taking parental leave beyond a year. There is evidence that schooling may be negatively related to taking extensive parental leave of more than 77 weeks. This might be explained either by Human Capital Theory or – as for men – by different norms and attitudes related to social milieus.

From a theoretical perspective, the partner's socio-economic status can influence fathers' parental leave use in two different ways. The Economic Theory of the Family and Marital Bargaining Models predict a longer parental leave for fathers whose partners have a higher socio-economic status. This is firstly, because it becomes more rational that the partner with the lower income takes a greater share of the leave, and secondly, because the augmented bargaining power would offer a possibility for the mother to enforce a more equal division of parental leave, even against common social norms. In opposition to this, the Doing Gender approach predicts no or only short use of parental leave for fathers if their partner's socio-economic status is higher since they have a higher necessity to display their gender – not involving in housework and childrearing tasks would serve this need.

The results support neither the predictions of Marital Bargaining and Family Economics nor of the Doing Gender approach. For men, no significant effect of the partner's socio-economic status is

found. For women, the odds of taking parental leave of more than 77 weeks become smaller when the partner's socio-economic status is higher. A possible explanation is that the necessity to display their gender is not large for these women since they already live in conventional households. Consequently, taking extended parental leave may be less desirable as compared to women who have partners with lower socio-economic statuses than themselves.

Reflecting theories for determinants of parental leave length for men, the results imply most support for the assumptions of Organizational Culture Theory. The higher probability to take longer parental leave for men who work in the public sector is most likely to be explained by its different structures and norms. Additional benefits do not seem to have any effect. Generally, Human Capital Theory does not explain determinants for men's parental leave very well. Indeed, low probabilities for taking longer parental leave for high incomes are found which is in line with the assumptions of Human Capital Theory. But similarly, it should become more rational to take longer parental leave for men with higher income when working in the public sector since the replacement level is higher. Such an effect is not found; the relation between wages and the probability to take longer parental leave is the same in both sectors, and the relation between education and parental leave length points in the opposite direction as predicted by the theory.

For men, no effect of the partner's socio-economic status is found and the related assumptions of the Economic Theory of the Family, Marital Bargaining Models, and Doing Gender Theory cannot be confirmed. Women do not seem to use their increased bargaining power when having a higher status than their partners to come to a more equal division of parental leave. The assumptions of the Doing Gender approach could also not directly be confirmed, but the results indicate that women might rather choose a strategy to display their gender and take longer parental leave when having a higher status.

Signaling Theory predicts wage premiums as consequences of fatherhood and wage penalties as consequences of taking parental leave (especially beyond the 'daddy month'). Fatherhood is related to desirable attributes such as responsibility, loyalty and dependability and therefore serves as a positive labor market signal, leading to wage premiums. Taking parental leave serves in opposition to this as a negative labor market signal, especially when it is beyond the commonly accepted 'daddy month'. Those fathers could be regarded more committed to their families than to their work and generally less ambitious, why wage penalties are expected.

Since – according to employers' general knowledge – mothers bear the major load of childrearing tasks, leading to increased tiredness and less flexibility, motherhood serves as a negative labor market

signal and should lead to a wage penalty, independent from parental leave. Since all mothers take parental leave, this does not display a signal and a further penalty is not expected.

The results show that even in Sweden, a wage premium of three to five percent exists for being a father. Whereas fatherhood is likely to serve as a positive labor market signal, taking parental leave – even beyond four weeks – does not negatively affect subsequent wages. Human Capital Theory predicted a stronger wage penalty effect the longer the parental leave, but this could not be confirmed. For mothers, a negative effect of motherhood on wages was found but simultaneously, the results indicate a positive effect of taking parental leave of about a year on subsequent wages. This may either be explained by taking short or normal lengths of parental leave serving as a positive labor market signal or by unobserved characteristics.

Men and women who show a high family orientation may possibly choose employers which allow the reconciliation of work and family to a greater extent. Taking longer parental leave could indicate a stronger family orientation which leads to the assumption that men and women who took longer parental leave are more likely to subsequently work part-time, less likely to work overtime, and more likely to prefer shorter working hours. None of the mentioned self-selections into family-friendly employments can be confirmed for men. Fathers who took longer parental leave are not more likely to work part-time or not to work overtime. This may be either explained by the fact that taking long parental leave does not serve as a good indicator for family orientation, or that even family-oriented men do not adjust their work situation subsequent to having children and taking parental leave. Compared to people who did not have any children in the period or fathers who did not take any parental leave, the odds of preferring shorter working hours are higher for fathers who took parental leave. But this seems rather to be an effect of being a father than of having a higher family orientation. The odds for the longest leave category are not higher than for the shortest, in fact, the effect is reverse (but the odds ratios for the shorter parental leave category are only slightly higher than for the longest parental leave category).

In contrast to the findings for fathers, for women, a distinct self-selection effect seems to exist. For all parental leave categories (compared to those who did not take any parental leave and did not have any children) higher odds of working part-time subsequent to parental leave were found. The longer the parental leave taken, the higher were the odds of working part-time, with the odds for women who took more than 77 weeks on average per child being more pronounced. The odds to work overtime were only half the size for women in this category, and the odds of preferring shorter working hours were more than twice as high (as compared to women who did not have any children

in the period). Hence, extending the parental leave to more than 77 weeks seems to be a strong indicator for family orientation and self-selection into family-friendly employments.

For fathers, none of the consequences of taking parental leave predicted by the different theoretical approaches can be found. The predictions of Human Capital Theory, time off from work would lead to wage penalties cannot be confirmed for the rather short period of parental leave fathers take, but even for mothers no such effect was found. Similarly, the negative consequences for taking longer parental leave as predicted by Signaling Theory could not be confirmed, but fatherhood seems to serve as a positive labor market signal. Here, selection effects (more able men becoming fathers) cannot be ruled out, but the analysis indicates that even a causal positive effect of fatherhood on subsequent wages might exist. Nevertheless, self-selection of family-oriented men into family-friendly employments is not found with the proposed measures. Self-selection processes may nevertheless be existent, even for men. For women, the analysis shows stronger self-selection effects, even with the proposed measures.

In contrast to conventional cross-sectional studies, the results presented clearly distinguish causes and effects of parental leave use. Due to the longitudinal design of the dataset it was possible to separate factors which influenced parental leave length from factors which are a result of parental leave itself. Even though economic determinants for fathers' parental leave use such as wages and the sector of employment could be identified, economic consequences of parental leave were not found. Neither seem employers to penalize longer parental leave, nor seem fathers to adjust their work situation themselves. Nevertheless, comparable to findings from other countries (cf. Lundberg and Rose 2000; Simonsen and Skipper 2005; Hodges and Budig 2010; Benard and Correll 2010, 621; Kmec 2011), in Sweden, fatherhood seems to lead to a wage premium of three to five percent.

In extension to this study, further analyses with the latest wave of the Level of Living Survey would be of great importance to confirm these findings. The share of fathers taking parental leave and the amount of parental leave taken by fathers has constantly increased over time, leading to greater possibilities for analysis with the latest wave. Additionally, information on partners which is available from the year 2000 could be used to increase the sample size and to identify characteristics of partners that influence the own parental leave length. Nevertheless, the large gap between the waves makes causal interpretations more difficult and could hide short-term effects of parental leave.

It appears, in Sweden "men can have it all". Most important for this conclusion is that according to the presented results, men do not have to fear wage penalties for taking parental leave. Employers seem to accept the rather short time fathers take off from work to take care of their children. Taking longer parental leave, even beyond the 'daddy month' does not seem to serve as a negative labor

market signal. As longer parental leave becomes more common among fathers, it would be interesting to analyze if even longer parental leave of several months (which is related to higher costs for the employer, e.g. for finding substitutes) are not penalized. The results indicate that fatherhood serves as a positive labor market signal, so that indeed, men in Sweden, especially fathers, seem to "have it all". Nevertheless, it might not be affordable for all men to take longer parental leave. Men with very low incomes have a very low probability to take parental leave beyond the 'daddy month' which possibly depends on their economic circumstances and not on their choice. Here, it would be important to find out if higher replacement rates for low incomes (or a higher fixed amount for low incomes) could lead to a higher usage of (longer) parental leave for men in the low-wage sector.

Even though men could choose to adjust their work situation after parental leave, in contrast to women, they seem not to do it. Fathers seem to have a general desire to work less, but it is unclear why they are not likely to choose to work less overtime or to work part-time. In this sense, men could "have it all" but do not take it.

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