Non-standard Work Schedules and Childbearing in the Netherlands:

A mixed-method couple analysis

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Abstract:

This study examined the effect of working at non-standard times on the transition to first and second childbirth. Using quantitative couple data from two waves of The Netherlands Kinship Panel Study (N=742) and semi-structured qualitative interviews (N = 29), we found that there was a lower probability of having a first child when the female partner was engaged in non-standard schedules, whereas a higher likelihood of second childbirth was found for couples where the male partner worked non-standard schedules. In line with expectations about the institutional and normative context of the Netherlands, we concluded that women adjust their work schedules to their fertility plans and that couples had a preference for taking care of their children themselves rather than relying on formal care arrangements and non-standard schedules serve as a means to achieve this.

Introduction

The increased labor market participation of women is a driving force behind the postponement of births and smaller families in many industrialized countries (Brewster & Rindfuss, 2000). When linking employment with childbearing, previous research has generally focused on the high opportunity costs of childbearing for women (Becker 1991), the 'wage penalty' of motherhood (Amuedo-Dorantes & Kimmel, 2005; Budig & England, 2001), impact of working hours (Budig, 2003), type of contract (Kreyenfeld, 2009), expected earnings (Van Bavel, 2010) or perceived work control (Begall & Mills, 2011). The growth in female labor market participation is, however, related to not only a growth in the sheer number of hours that women work, but also in the location of the hours *when* they work. Two-fifths of Americans work in non-standard schedules (Presser, 2003), compared to 27.4% of workers in the Netherlands and 29.4% in the United Kingdom (Presser, Gornick, & Parashar, 2008). Some researchers have argued that the rise in flexible working hours and in particular non-standard working schedules is due to the fact that this flexibility is used as a mode of child care to ensure that one parent is always present in the form of 'tag team' parenting (Han, 2004; Presser, 2003; Täht & Mills, 2011).

The aim of this paper is to extend existing literature on the relation between paid employment and fertility by examining how employment in non-standard schedules is related to the likelihood of couples to have a first or second child. We study the transition to parenthood separately from having a second child as we assume different mechanism of how work at non-standard times influences fertility at these different family cycle stages. Non-standard times refer to paid employment outside of standard hours, which in the current study is defined as paid work carried out before 6 am and after 7 pm or in the weekend. This definition is in line with both international research (Han, 2007) and the definition used by national statistical offices (e.g., CBS, 2011).

This study extends existing research in several ways. First, although there is a substantial body of literature on the impact of women's employment on fertility, there is a surprising lack of research studying the effect of non-standard working times on childbearing. To our knowledge, this is the first study to empirically assess the relationship between employment in non-standard times and fertility outcomes. Second, we include the individual work schedules of both partners as well as the outcome of these schedules at the couple level (i.e., the extent to which schedules overlap). A couple approach is essential due to the increased recognition of going beyond the examination of individual time to embrace the household and family as unit of analysis (Carriero, Ghysels, & van Klaveren, 2009; Lesnard,

2008) and the importance of adopting a couple perspective in fertility decision-making (Bauer & Kneip, 2012; Corijn, Liefbroer, & de Jong Gierveld, 1996).

Third, the majority of research, theorization and findings related to non-standard work times and family related outcomes have been conducted in the United States (e.g., Perry-Jenkins, Goldberg, Pierce, & Sayer, 2007; Presser, 2003; Strazdins, Clements, Korda, Broom, & D'Souza, 2006). Given the institutional differences (e.g., employment protection, legislation of working hours) between the United States with other Western countries, it is important to explicitly consider the national context when formulating expectations and interpreting findings. Furthermore, jobs in non-standard schedules in the U.S. are often worked within low-level service jobs, overrepresented by disadvantaged groups (Presser, 2003). This study uses data from the Netherlands, where compared to other European countries a relatively high proportion of employees are in non-standard times (Carriero et al., 2009). Compared to the United States, the Netherlands also have a highly regulated labor market with strong protection for those working part-time, on a temporary contract and in non-standard times (Fouarge & Baaijens, 2009). Moreover, the Netherlands have a strong tradition of female part-time work and limited use of formal childcare facilities with a strong preference for care of young children by one of the parents (Täht & Mills, 2011; Wielers & Raven, 2011).

Finally, the lack of direct research examining the link between non-standard schedules and childbearing obliges us to enter relatively uncharted theoretical and empirical ground. In order to gain more insight into the underlying mechanisms driving this relationship, we have opted to apply a mixed-method approach, drawing on both quantitative and qualitative data. We make use of two waves from a quantitative panel dataset – The Netherlands Kinship Panel Study (NKPS) (Dykstra et al., 2005, 2007) and complement our findings using data from qualitative interviews taken from a subsample of respondents of the same panel (Mills & Hutter, 2007). This provides us with the opportunity to explore the relationship between non-standard work hours and fertility decisions from different perspectives and in a longitudinal research design where we assess our outcome variable, the birth of a child, roughly three years after the initial data collection.

Theoretical Background and Hypotheses

The decision of a couple to enter parenthood or have and raise an additional child is associated with both material and immaterial costs. Material costs include direct expenditures such as education, food or clothing, but also opportunity costs, related to wage penalties or

slower career advancement after periods of reduced working hours or temporary withdrawal for childrearing (Becker, 1991; Mincer & Ofek, 1982). Immaterial costs include the impact that children can have on the nature and quality of the couple's relationship and the division of labor between them (van der Lippe, 2006). We draw on both types of costs to derive our expectations about the effect of non-standard work on the probability of having a first or second child.

Whether or not both members of a couple are employed and how their schedules are jointly synchronized are further factors that can impact the transition to having a first or additional child. Figure 1 represents a conceptual model of how these factors impact and interact to influence fertility, which will be elaborated upon in this section. Dual-earner couples face 'role overload' by the need to balance the often competing life domains of paid employment and family (Perry-Jenkins, Repetti, & Crouter, 2000). For these couples, the costs of having and caring for particularly a first child are higher due to the need to adjust the number or location of working hours of at least one partner. The impact is also often gendered, with women adapting their schedules earlier (Carriero et al., 2009; Han, 2004) and being more dependent on employment conditions and institutional support that enables work-family reconciliation (Brewster & Rindfuss, 2000; Matysiak & Vignoli, 2007).

We propose that employment in non-standard schedules may have divergent impacts on couples. On the one hand, non-standard working times can operate positively as a means to flexibly combine caring for children with continued labor force participation. On the other hand, it may result in the desynchronization of couples' joint time together, resulting in increased strain and conflict and lower partnership quality. Wight, Raley, & Bianchi (2008), for instance demonstrated that when one partner is engaged in non-standard shifts, a couple's time together does not often overlap.

>> Figure 1 here or later <<

Adopting a family-cycle perspective, we assume that once a life-course transition is made, couples adjust and reevaluate their current situation and future options (Hobcraft & Kiernan, 1995). We therefore acknowledge the fundamentally different nature of the transition to having a first versus a second child and develop our theory and related hypotheses accordingly (Billari, Philipov, & Testa, 2009). Due to the large body of literature on the differential impact of fertility on men versus women, we likewise develop our argumentation with gender differences in mind.

Non-standard schedules and the transition to first birth

The decision to have a first child is distinct and is influenced by multiple factors. The neoclassical economic approach to fertility positions children as an economic good and the outcome of a rational decision-making process (Becker, 1991; Easterlin, 1975). Yet having children is increasingly a choice related to the emotional and psychological benefits of children as opposed to economic need (Schoen, Kim, Nathanson, Jason, & Astone, 1997). Couples also evaluate their current situation and base childbearing decisions on existing circumstances due to their lack of ability to take into account all of the possible consequences that parenthood might bring. During the decision-making process, they engage in a bounded or restricted form of rationality (Lindenberg, 1990), which implies that priorities and preferences may be unknown but also adaptive in response to changes. The actual consequences and costs of having a child only become salient once a first child is born.

While engaging in decision-making about having a first child, couples are assumed to evaluate both the direct and indirect costs, which may weigh differently depending on the sex of the partner and employment constellations of the couple. We know from previous research that before the birth of the first child, most women are engaged in either a full-time job or one with substantial work hours (van Gils & Kraaykamp, 2008). The economic costs of having a child are particularly poignant for couples, as it often means considerably reduced household resources due to a reduction in working times or exit from the labor market, generally of the female partner. Immaterial and indirect costs are likewise relevant as parents face the 'role conflict' of desiring to be both good employees and parents.

Couples also contemplate how their current employment schedules could fit with parenthood. Employees working in non-standard schedules face the extra challenge of considering how the irregular and physically demanding aspects of their jobs could be combined with such a considerable commitment as parenthood. Non-standard schedules influence the decision to enter parenthood in two ways, which we anticipate will vary by gender. First, due to the irregularity of schedules such as shift work or night shifts, prospective parents are acutely aware that they are 'off sync' with standard institutions, such as childcare and schools (Fenwick & Tausig, 2001; Täht & Mills, 2011). Second, particularly night shifts and shift work has been shown to disrupt the biorhythms of individuals, leading to negative health consequences and higher levels of irritability and fatigue (Davis, Goodman, Pirretti, & Almeida, 2008; Fenwick & Tausig, 2001). Previous studies have shown that particularly women who engage in non-standard schedules suffer from higher levels of stress, guilt and depression (Davis et al., 2008; Joshi & Bogen, 2007; Perry-Jenkins et al.,

2007; Strazdins et al., 2006). For women, the negative physical consequences of non-standard schedules likely serve as a stronger inhibitor to avoid the additional physical strain of pregnancy and early child care. Women are also more likely to be the ones to reduce their work hours, which is a further reason why we expect different decision-making processes between women and men. This leads us to our first hypothesis: *Couples where the female partner is engaged in non-standard work schedules will have a lower likelihood to make the transition to having a first child* (Hypothesis 1). Considering the strong norms and labor market patterns in the Netherlands that position men as the central breadwinners (van Gils & Kraaykamp, 2008), we do not anticipate that non-standard work times of the male partner will have any direct influence on the transition to having a first child.

Non-standard schedules and the transition to the second child

The transition to having a second child varies considerably from the decision to enter parenthood for the first time. Previous research has demonstrated that couples often attempt to maximize the amount of time that they care for their own children (Mennino & Brayfield, 2002), with a preference for sharing the care between them (La Valle, 2002; Riley & Glass, 2012). This means that for those who already have one child, non-standard schedules might operate as a means to combine parenthood with labor market participation, particularly for women, thereby lowering the opportunity costs of having an additional child (Han, 2004; Presser, 2003). This is especially relevant in the Dutch context, where there is a strong cultural norm to minimize the usage of formal care facilities in favor of care from biological parents and a shortage of formal day-care facilities (Clerkx & Van Ijzendoorn, 1992; Kremer, 2005; Leitner, 2003) . Women and particularly mothers in the Netherlands strongly reduce their working hours, with less than 15 percent of couples categorized as full-time dual earners (van Gils & Kraaykamp, 2008) and strong norms and regulations supporting female part-time work (Portegijs, Cloïn, Eggink, & Ooms, 2006). Once the transition to parenthood is made and the hours of paid work have been adjusted to this, employment in non-standard times, particularly for women in the Dutch context, likely serves as a means to remain in the labor market while still confirming to strict cultural norms of the care of children. Based on this argumentation, we form a second hypothesis: *Couples where the female partner is employed at non-standard times will have a higher probability of having a second child (Hypothesis 2).*

Fathers employed in non-standard schedules have been shown to have a higher involvement in childcare (Brayfield, 1995; Presser, 2003; Wight et al., 2008; Wood & Repetti, 2004) and household tasks (Presser, 1994) compared to fathers who work standard

hours. When the mother is employed in a non-standard schedule, similarly fathers appear to engage in more childcare and interaction with their children (Brayfield, 1995; La Valle, 2002). Based on previous findings, we can conclude that the higher involvement of fathers who work in non-standard shifts is associated with a similar mechanism that we discussed previously for women. Men also likely adapt their schedules to ensure that at least one biological parent cares for the children, which suggests that these couples may have found a more satisfactory division of childrearing tasks. This leads us to the hypothesis: *Couples where the male partner works more often in non-standard times will have a higher likelihood to have a second child (Hypothesis 3).*

Desynchronization of schedules and relationship quality

Studies on time use and overlap of schedules have shown that non-standard work hours lead to less overlap between the work hours of partners (Lesnard, 2008), an effect that has been termed 'desynchronization'. When both partners work a substantial number of hours in non-overlapping schedules, this desynchronization can lead to couples spending less time together, which has been associated with lower relationship quality (Hertz & Charlton, 1989; Schulz, Cowan, Cowan, & Brennan, 2004). Conversely, couples with children may actively seek this desynchronization to ensure that one parent remains at home with the children at all times and to also reduce the need for formal childcare (Carriero et al., 2009).

The preference for desynchronized work schedules among parents is also influenced by their idea of what constitutes good family life and parenting. These perceptions vary between social groups and are heavily influenced by national welfare state arrangements, which are often decisive in constraining or enabling the ability to combine employment with parenthood (Kremer, 2005; Lewis, Knijn, Martin, & Ostner, 2008). The Netherlands is currently shifting from a dominant model of full-time motherhood, with women expected to stay and home and care for children of pre-school age, to a model of parental sharing with the mother engaged in part-time work and both parents involved in childcare (Haas, 2005; Kremer, 2005; Leitner, 2003). Although there is a shift for mothers to enter the labor market, the normatively acceptable and actual levels of institutionalized care for children remains limited at two to a maximum of three days per week and availability of formal childcare is not always sufficient (Allewijn-Tzipris & Kroneman, 2006; Mills & Täht, 2010; Portegijs et al., 2006). A recent study demonstrated that in the Netherlands, desynchronization of parent's schedules was intentional and desired, compared to those without children (van Klaveren, Maassen van den Brink, & van Praag, 2011). Extending these theoretical arguments to

fertility and assuming that being able to arrange childcare efficiently within the couple dyad will lower the perceived costs of having an additional child, we pose the following hypothesis, which outlines the mechanism of how non-standard schedules relate to desynchronization and fertility (see also Figure 1). *Working more non-standard times increases desynchronization, which is in turn associated with a higher probability to have a second child for parents who already have one child (Hypothesis 4).*

For couples who do not have children yet, we conversely expect that they experience negative consequences from more desynchronized schedules. There is an extensive body of literature examining the effects of non-standard work schedules on outcome variables related to partnership functioning (i.e., satisfaction with family and partnership roles, partnership quality and conflict, time spent with partner or family members, dissolution risk, see Presser, 2003 for a review). These studies generally show a negative impact of non-standard schedules on relationship quality and stability (Barnett & Gareis, 2007; Presser, 2000; Schulz et al., 2004; White & Keith, 1990). Considering these previous findings and the pivotal role that partnership quality plays on the decision to have a child (Rijken & Liefbroer, 2008), we also consider relationship quality within our conceptual and empirical model (see Figure 1). Several mechanisms may be at play. First, a desynchronization of schedules may lead to time restrictions, which cause not only stress but also an inability to keep up with domestic household duties and less positive interactions between couples (Presser, 2000; Schulz et al., 2004). Second, as described previously, the negative physical effects of this work increases levels of stress, tiredness and sleeping disorders which has a negative impact on partnership quality (Fenwick & Tausig, 2001). The number of hours that individuals work in these non-standard schedules therefore is also important, with more desynchronized hours or many work hours of the female partner leading to lower relationship quality and more conflict (Mills & Täht, 2010)

This leads us to two additional hypotheses which take into account the mechanisms of how non-standard schedules and desynchronization of schedules can result in lower relationship quality, which in turn is expected to negatively impact the decision to have a child (Rijken & Liefbroer, 2008). We therefore anticipate that *for couples without children desynchronization of schedules will lead to lower levels of relationship quality which in turn result in a lower likelihood to have a first child (Hypothesis 5).* We focus on first child only since it is rare that Dutch women work full-time after the first child and we expect a negative effect of schedule desynchronization only in couples where both partners work an substantial amount of hours. We are also interested in the possibility that the negative effect of the

individual non-standard schedule of the female partner on fertility proposed in hypothesis 1a is actually mediated by the negative effect that non-standard work has may have on relationship quality. For this reason, we also pose an additional mediation hypothesis where we argue that c*ouples without children where the female partner work at more non-standard times report lower relationship quality which in turn results in a lower likelihood to have a first child (Hypothesis 6).*

The Measurement and Definition of Non-Standard Work Times

Following the influential work of Harriet Presser in this area (Presser, 1988; Presser, 1994, 1999, 2000, 2003; Presser, Gornick, & Parashar, 2008), non-standard work schedules are often measured as schedules where more than half of the hours worked on most days falls outside 8 am and 4 pm. Other definitions include asking respondents whether they perform their work on a regular day schedule, night, weekend or split / varying shift (Joshi & Bogen, 2007) or counting all hours worked outside certain weekdays and times of the day (Breedveld, 1998). It is important to note that the choice of the definition has important implications for the composition of the group of workers with non-standard hours. Adopting a majority rule (i.e., the majority of work hours are worked during non-standard times) implicitly limits the definition of non-standard workers to contain mainly shift workers and part-time workers, while excluding overwork and high work hours which are non-standard work forms typically found in white collar jobs. In this study, non-standard work times are measured on a continuous scale, which implies that there is no clear cut-off point that differentiates shift workers from office workers who work overtime in the evening hours or professionals or managers who take work home in the weekend. We opted for this approach, as opposed to the stricter categorization of the majority rule, because we want to take into account the consequences for family life and child care arrangements that arise when, for example, one partner works overtime and is unable to be home for dinner or pick up the children.

Control variables

The argumentation and hypotheses on a positive effect of non-standard schedules on the likelihood of having a child until now have been based on the assumption that parents may actively opt for non-standard schedules and the desynchronization of schedules as a flexible means to combine work and family. Previous research has demonstrated that an important determinant of the effect of non-standard hours on family life is related to the autonomy to

choose these schedules and their predictability (Fenwick & Tausig, 2001; Golden, 2001; Liu, Wang, Keesler, & Schneider, 2011; Perry-Jenkins et al., 2007; Presser, 2003). Fenwick & Tausig (2001) found that once the sense of control was included in the model, working non-day shifts had no significant effect on outcomes such as distress, burnout, or work-home conflict. This is also reflected in the qualitative work of Le Bihan & Martin (2004) on the consequences of atypical work for childcare arrangements in three different institutional settings. We therefore control for the autonomy both partners have about their hours of work.

We also include the age of the female partner and key relationship characteristics such as marital status and relationship status, which have been shown to influence fertility (Liefbroer & Corijn, 1999). We also control for key individual characteristics that impact fertility, including the educational attainment of both partners, working hours of the male partner and work status female partner (not working,   30 hours, > 30 hours) (Kravdal & Rindfuss, 2008; Mills, Rindfuss, McDonald, & Te Velde, 2011).

Method

We first describe the quantitative and qualitative data used in the study, followed by a description of the measurement of variables and the structural equation modeling (SEM) approach and qualitative analysis techniques used to analyze our data.

Quantitative Data

The quantitative data used in this study is taken from two waves of the Netherlands Kinship Panel Study (NKPS) collected in 2002–2003 (wave 1) and 2007 (wave 2) respectively. The NKPS is a large-scale survey of the Dutch population aged 18–79 (Dykstra et al., 2005, 2007). Respondents were selected from a random sample of addresses of private households in the Netherlands. The data were collected using a combination of computer-assisted personal interviews (CAPI) and self-completed questionnaires. In the first wave, 8,161 primary respondents participated, resulting in a response rate of 45%, comparable to that of other large-scale surveys in the Netherlands (Dykstra et al., 2005), which are generally lower than in other countries (De Leeuw & De Heer, 2002). In the second wave, 6,091 original respondents participated, with a response rate of 74% .

Since we require information about whether a child was born between the two waves of data collection, our sample only contains main respondents that were interviewed at both time points (n = 6,091, 100%). We exclude cases with suspect quality (n=40 , 0.66%), single respondents and non-residential couples (n=1,988, 32.64%) and couples who split up

between waves (n=365, 5.99%). We also omit homosexual couples (n=82, 1.35%) and couples of which the female partner was between younger than 18 or older than 46 years of age at wave 2 (n=3,055, 50.16%). This age restriction was necessary because questions about children born between the two waves of data collection were only asked if the female partner of the couple was below age 46 at wave 2. Furthermore, we restricted the sample to couples where the male partner was in paid employment at the time of the first interview (excluding n=84, 1.38%) since couples where the male partner is unemployed or in education are unlikely to intend or have a child and are therefore not comparable to couples where the male partner earns an income (Blossfeld and Huinink 1991). Finally, we focus on couples who had either no or one child living in the household at wav 1 (excluding n=1,618 couples with 2 or more children, 26.56%). Because around 18% of partners had not filled in the self-completion questionnaire, we also tested whether non-response influenced our results and found no evidence of selective attrition. These restrictions resulted in a final sample of 742 (9.09%) couples, of which 432 were childless and 310 had one child at wave 1 (see Table 1 for descriptive statistics).

Qualitative Data

The qualitative data come from a NKPS Minipanel (Mills & Hutter 2007), where a two-stage interview process was followed, resulting in a total of 41 interviews (34 individual-level and 7 couple-level). In the first phase, 34 semi-structured individual-level interviews were conducted with individuals where least one of the respondents was engaged in non-standard schedules at the time of the first NKPS data collection. From this individual sample of 34 individuals, we excluded nine respondents: four respondents who already had older children (older than 50 years of age at the interview), four respondents where no partner interview was conducted and one homosexual couple, due to the gender-specific hypotheses (see Table A1 in the Appendix for characteristics of all couples in the final sample). In the second phase of interviews, we re-interviewed seven couples (in total 14 people/7 couples were willing to participate) in a series of couple-interaction interviews. These interviews were conducted after an analysis of the individual interviews to bring out inconsistencies, tensions, and additional questions that arose from the analysis of the individual interviews. The final qualitative sample therefore includes 22 individual-level interviews from 11 couples and 7 couple-level interviews among the same couples. This results in a total analysis of 29 interviews.

Interviews took place from February to June 2006 in respondents' homes, and each individual was interviewed separately. Each interview lasted typically 1.5 hours and was digitally recorded and transcribed verbatim, complete with observations of the household. Respondents were asked detailed questions about employment, disadvantages and advantages of nonstandard schedules, strategies, their vision of a good relationship, their own relationship, relationship history and process, and conflicts or tensions and family and child interactions.

Measures

Fertility. The dependent variable is a binary indicator that represents whether a couple had a child between the two waves of data collection (or pregnant at wave 2). This information is taken from the second wave of data collection, which was administered roughly three years after the first wave (see Table 1 for descriptive statistics of all variables used).

Non-Standard Work Schedules. Non-standard work schedules are measured by a latent construct with three indicators and separately for the male and female partner. The three indicators are derived from two independent measurements of non-standard work times, one based on the general occurrence of non-standard work from the CAPI interview and the other based on the actual working hours of respondents in the week prior to the interview was assessed by means of a self-completion questionnaire.

The first measurement consists of questions about the frequency of work at non-standard times. Respondents were asked about employment in three different types of non-standard schedules: 'Do you ever work during evening (between 6:00 and 12:00 pm) / night hours (after 0:00h) / weekends, and if yes, how often does this happen?'. Answers were coded on a scale ranging from 1 = never to 4 = almost every week. Female partners who were not in paid work were coded as 1 = never on all three questions. In this first measurement we also included a second question which asked: 'Does your job require that you work outside regular office hours (7 am–6pm)?', with the response option of no = 0 or yes = 1. Since the three questions about the frequency of non-standard work cannot be regarded as reflective indicators, a sum score of these three questions is formed where higher values indicate more non-standard work.

The second measurement of non-standard work times consists of information about respondents' work schedule in the week prior to the interview. For each day of the week, respondents indicated the start and end times of work. We then used this information to calculate the proportion of non-standard working hours (Monday to Friday between 7 pm and

6 am and any hours in the weekend) of the total weekly working hours, ranging from 0 to 1 with a value of 1 indicating that all hours were worked at non-standard times. Female partners who were not employed were coded as 0 and a dummy variable controlling for the work status of the female partner was included in the analysis for all job characteristics. The factor loadings and residual variances from the measurement model are presented in Table A2 in the Appendix).

>> Table 1 about here <<

Desynchronization. Desynchronization of work schedules is measured at the couple level by the proportion of hours that one partner is at work while the other is not working. This information was derived from the work schedule of respondents in the week prior to the interview. In order to account for differences in the number of working hours between partners, the lower number of working hours of each couple dyad is used as the denominator. The result is the proportion of hours that couples worked simultaneously, which is then reversed to represent the proportion of hours that only one partner worked (while the other could have worked given the number of working hours), which we term desynchronization. Couples where the female partner is not in paid work are coded as 0, i.e., no desynchronization of schedules and the work status of the female partner was included as a control variable.

Relationship Quality. Relationship quality was measured separately for the male and female partner by agreement with the four items "We have a good relationship", "The relationship with my partner makes me happy", "Our relationship is strong", and "The relationship with my partner is very stable". Answers were coded on a five-point scale ranging from strongly agrees to strongly disagree. We reversed the coding of this item so that a positive effect of the latent construct indicates an effect of higher relationship quality. Table A2 in the Appendix shows the factor loadings and residual variances from the measurement model.

Control Variables. Working time autonomy is measured by the question "How free are you to choose the hours and days that you work?" with answers coded on a scale ranging from 1 = no freedom to 4 = respondent chooses the hours and days of work her/himself. For female partners who were not employed, this value is set to 1 and a dummy variable controlling for work status of the female partner is included. Age of the female partner in years at the time of the first interview is included as a continuous variable. Educational attainment of both partners (bivariate correlation 0.44) is measured on a ten point scale ranging from 1 = incomplete primary education to 10 = Postgraduate education. Furthermore,

we control for relationship duration (measured at wave 1 in years since first started living together) and marital status (0 = cohabiting, 1 = married). We also take into account the number of weekly working hours of the male partner and the employment status of the female partner (not working, 1 to 29 hours per week, 30 or more hours per week).

Data Analysis and Model specification

For the quantitative analysis, we use structural equation modeling (SEM) to test our theoretical propositions due to the fact that two of our main constructs – relationship quality and non-standard work – are measured by multiple indicators. Structural equation modeling allows us to model these concepts as latent constructs while explicitly taking into account measurement error. Moreover, we are especially interested in the indirect influence of non-standard work via relationship quality and desynchronization on the birth of a child (see Figure 1).

All analyses were conducted using the Mplus software (version 5.2) because Mplus handles categorical variables and provides maximum likelihood estimation of missing values (Muthén & Muthén, 1998 - 2007). As a first step, a factor analysis was conducted to confirm that the indicators of the latent constructs loaded on the expected factors. This model showed that, in line with our theoretical expectations, the solution with four latent factors (relationship quality of male and female partner and non-standard work of male and female partner) had the best fit with the data (CFI: 0.98, TLI: 0.96, RMSEA 0.05). Subsequently, the measurement model containing the four latent factors and their correlations was estimated separately for the entire sample and for couples with and without children to confirm whether there was a good fit in the subgroups we are interested in. Model fit, standardized factor loadings and residual variances from the measurement model are presented in Table A2 in the Appendix. We then estimated our proposed model as a structural equation multiple group model for categorical outcome variables using the Weighted Least Square Means and Variance Adjusted (WLSMV) estimator with the DELTA parameterization (Muthén & Asparouhov, 2002).

The quantitative model is supplemented with a narrative analysis of the in-depth qualitative interview data from 29 interviews. The interviews were analyzed and coded using the Atlas.ti computer software. Interviews were first read and reread by multiple coders to gain a general understanding of the data. Subsequently, the interviews were digitally coded by first defining general categories that related to the research questions and allowed us to identify effects of non-standard work related to our causal model and hypotheses. This type

of detailed reading allowed us to isolate narratives that exemplified certain points or associations. We then reduced the data to general themes and hierarchical codes and examined the association between these coded categories with other categories, type of non-standard work and personal characteristics of the respondent or couple (Boyatzis, 1998; Braun & Clarke, 2006).

Results

Descriptive results

The descriptive statistics of the quantitative sample (see Table 1) show that about half of the couples had a child in the period between the two waves of data collection and that the difference between couples becoming a parent (51%) and those having a second child (54%) is small. The disparity between couples with and without children is pronounced when comparing the employment status of the female partner. While only 11% of women without children are not employed, the corresponding number among mothers of one child is 31%. Also, the group of mothers employed in reduced hours is larger, with 15% of mothers with one child working more than 30 hours per week, compared to 71% among women without children. The difference in employment hours of the male partner between the two groups is much smaller, with fathers of one child working approximately 1.5 hours less per week (42 hours on average) than their childless counterparts. In terms of working time autonomy and the proportion of hours worked at non-standard times, there is hardly any difference between fathers and male respondents without children. Mothers of one child, conversely, have significantly more autonomy in choosing their work hours than women without children ($t = -1.98$, $p < 0.04$). This is an indication for self-selection out of inflexible employment arrangements.

This difference between mothers and women without children is even more evident when comparing these groups by non-standard work times. Mothers work on average 13% of their hours during non-standard times, compared to 8% of women without children ($t = -2.6$, $p < 0.001$). This suggests that women either quit their paid job when they become a mother or adapt their work times and hours to family responsibilities. The amount of work hours where both partners are at work simultaneously decreases with the transition to parenthood. In couples without children where both partners have a paid job, the proportion of worked hours that is not worked simultaneously (i.e., the amount of desynchronization) is 19%, while it increases to 31% in working couples with one child ($t = 4.7$, $p < 0.000$, but note that this figure is also influenced by the lower number of hours that mothers work). These differences

are not visible in the combined score on the three questions about the frequency of non-standard work and the indicator of whether non-standard work times are required by the respondents work which hardly differs between respondents with and without children (no significant differences) but show a higher value (and thus more frequent work at non-standard times) for male partners compared female partners (t = 5.34, p< 0.000 / t = –5.76, p< 0.000). When comparing the representative quantitative sample with the qualitative sample, we see that respondents from the qualitative sample are slightly older, have more children and are more often working during non-standard schedules (see Table A1 in the Appendix for characteristics of all couples in the qualitative sample).

Results of analyses

The description of the results is organized according to the hypotheses formulated in the theory section, with the results of the quantitative analysis summarized in Figure 2 (standardized coefficients and significance levels are shown next to paths). The results of the full structural model (including all control variables) are presented in Table A3 in the Appendix. We use the quantitative results as a basis for our findings, relying upon the qualitative analyses for supplementary information.

Non-standard schedules and the transition to first and second birth

The quantitative results provide support for our first expectation (hypothesis 1) as there is a significant negative effect of the female partner working more non-standard hours on having a first child (t = -2.9, p < 0.01). We then hypothesized that working in non-standard schedules for both the female (Hypothesis 2) and male (Hypothesis 3) partner would result in a higher likelihood to have a second child. Hypothesis 2 gains no support, as there is no significant effect of the schedules for the female partner's transition to having a second child (t = 0.5, n.s.). The qualitative data provide some illustrations that help us to understand why we do not find the expected effect, as the interviews illustrated that female respondents are willing to change schedules if they perceive that their jobs are incompatible with family life or even opt out of work, which was also visible in the descriptive results. The quantitative results support this interpretation as there is in general no effect of having a paid job (t = 0.2, n.s.) or any difference between full-time and part-time work (t = 0.5, n.s.) of mothers of one child in the likelihood that a second child is born. We elaborate further upon this below.

Turning to Hypothesis 3 and the male partner, we find the expected higher probability of having a second child when the father works more at non-standard times (t = 1.9, p < 0.05), which is in line with a large body of literature showing higher father involvement in

families with non-standard work times. This positive effect is likely attributed both to the strong norms regarding care of children by their parents and the higher involvement of fathers in childcare when they work non-standard schedules, which in turn positively impacts the decision to have another child. In the qualitative interviews, fathers who worked non-standard times (and their partners) stated that they were around more often during day time, which enabled them to not only spend more time with their children, but also do things 'normal (Dutch) fathers' do not often do, such as picking the children up from school. In this sense, non-standard schedules afford not only more time, but actually enable fathers to adopt a different role within the family and as a father. A shared perception among fathers who work non-standard hours in the qualitative sample is that they know more about the daily life (school, friends) of their children. This is echoed in the words of a father who works alternating shifts and is therefore often at home during the day when asked about differences between the relationship he has with his two small children compared to a 'normal' father:

> "In fact you only spend the weekend with the children [if you have a '9 to 5' job]. Maybe you see them briefly in the evening, but that's actually not enough time to know what has really happened that day."
>
> *(Couple 1: Male partner works alternating shifts, female partner does not work, 2 small children)*

The partners of fathers who work at non-standard times also reported that these men 'are more a part of the family' (female partner couple 1) because they are around more. That this extended role of the father is also perceived as positive by the outside world is illustrated by the words of a male police officer who worked in non-standard schedules his entire career and recalled from the time his children were smaller that:

> "Other mothers used to be jealous that I would bring the children to school all the time, going: 'How is that possible?' Well, this is one of the advantages of the irregularity."
>
> *(Couple 4: Male partner works full-time irregular hours, female partner does not work, 3 children)*

>> Figure 2 roughly here <<

Desynchronization of schedules

We also argued that working more non-standard schedules would increase desynchronization, which would in turn be associated with a higher probability to have a second child (Hypothesis 4). The first part of this hypothesis receives only partial support, since it is only when the female partner works more non-standard times that desynchronization increases (female partner: t = 9, p , 0.00; male partner: t = 0.8, n.s.). With regard to the proposed effect on fertility, we do not find support as desynchronization does not appear to affect the

likelihood of having a first or second child ($t = -0.2$, n.s.). We find that for couples without children, the degree of desynchronization is higher when either partner has a higher score on the latent variable measuring the extent of non-standard work times (female partner: $t = 10.7$, p , 0.00; male partner: $t = 6.4$, $p < 0.00$), but the desynchronization of schedules does not affect the probability of having a child ($t = 1.2$, n.s.). We thus do not find evidence that the outcome of the couple level, measured by the proportion of hours that partners do not work at the same time given that they could have work simultaneously, has an effect on the likelihood of having a child. The qualitative interviews illustrate that one reason for this absence of an effect might be that very high degrees of desynchronization (e.g., one partner working a night shift while the other has a regular full-time day job) are viewed as transient and subject to change after the birth of a child. One full-time working couple without children where the female partner was engaged in very irregular non-standard hours described that they often rarely physically saw each other at home and since their 'off time' work did not overlap, they often resorted to writing notes or leaving messages on the answering machine for communication. The female partner repeatedly stressed that her job would not be suitable with having children. Nevertheless, since both partners did not desire children and valued a high degree of autonomy in their relationship, they both independently evaluated their working hours and relationship positively.

Other couples discussed comparable accounts of desynchronization in the past, usually before they had children, indicating that they changed the situation once it did not fit their lives. In this sense, the interviews provide additional evidence that respondents adjust working hours and times to their own life course situation. Children provide a valid reason to reduce the number of working hours (especially for women) or to look for a different job. When we relate this to the negative effect of non-standard work found for women without children, it might be that this can be interpreted as a result of self-selection. In other words, women who do not want to have children (at that point in their lives) are more likely to work non-standard schedules, while those who see an incongruity with their childbearing plans actively change their job situation. We tested this by including an assessment of the intention to have a child within the next three years (measured at wave 1) in the equation predicting work in non-standard schedules (results not shown, but available on request). The results show a strong negative effect of intending to have a child on working non-standard times only for women without children. The effect of non-standard work on the probability to have a first child after three years is reduced to marginal significance in this model ($t = -1.7$, $p < 0.09$).

This additional quantitative analysis supports our interpretation of the qualitative data that women attempt to select themselves into employment that matches their family needs and if necessary, reduce their hours or even withdraw from paid employment. Some form of schedule change as a response to the family and life course situation is present for almost all couples, indicating that there is considerably more interaction between family and work life than we are able to model with our quantitative approach. Another solution to the challenges that a high degree of desynchronization can pose to family life is coordination among couples and adjustment of routines to fit the schedules of both partners. In couples where one partner has an evening shift, for example, they might resort to a strategy of eating a warm lunch instead of a warm dinner.

Interviewer:	"[…] is it deliberately planned in a way that you can have the warm meal with the whole family?"
Both partners:	"Yes."
Male partner:	"And then you [the family] eat a sandwich at night and I do the same thing. I have a sandwich at work. And then you have the warm meal at lunch."
Interviewer:	"And in the weeks that you are on a daytime schedule? "
Male partner:	"Then it is the other way around."
Female partner:	"Then we have the warm meal at night."

(Couple 1: Male partner works alternating shifts, female partner does not work, 2 small children)

This adjustment of routines is especially strong in couples where one partner (usually the woman) does not work while the other is engaged in non-standard work. As the wife of a police office (couple 5) puts it: "The whole family is on a shift schedule".

Besides the individual level coordination and adjustment of schedules, we anticipated that an important determinant of the evaluation of schedule overlap would be the cultural norm in the Netherlands that prescribes care by the parents as preferable to formal care. We did not find the positive effect of being able to adhere to this norm on good parenthood by desynchronizing work schedules, that we expected in our hypothesis for couples with children, in our quantitative analysis. But the motive to increase desynchronization in order to always have a parent at home is ubiquitous in the qualitative data:

Female partner: "[If you both work at the same time] You need formal care, you name it, the whole organization. Well, this is not how we want it. We wanted to raise the children together, with as little outside care as possible."

(Couple 11: Male partner used to work irregular hours but works now regular full-time (32 h / week), female partner work irregular hours (20 h / week), 3 children)

> *Female partner:* I thought to myself, yes okay, we really wanted kids, then you are responsible for taking care for them yourself.
>
> *(Couple 7: Male partner works full-time regular hours, female partners switched recently from irregular to regular, 2 children)*

> *Male partner:* Yes, I find it a bit strange to want to have children and then not take care of them yourself. And these are our children and we – <u>we</u> – take care of them, as much as possible ourselves.
>
> *(Couple 1: Male partner works alternating shifts, female partner does not work, 2 small children)*

Relationship quality

In our fifth hypothesis, we anticipated that the effect of non-standard schedules on fertility might be explained by a negative effect of non-standard work and schedule desynchronization on relationship quality. Or in other words, couples that have a lower relationship quality due to their non-standard work schedules would be less likely to have a first child. The quantitative results, however, do not provide any support for this mediation hypothesis. In fact, neither partners' non-standard schedules nor desynchronization affect relationship quality and there is no effect of either partners' relationship quality on the probability to have a first child (female partner: t = 1.1, n.s.; male partner: t = -0.8, n.s.). We also see no evidence for the proposed mediation of the expected negative effect of the individual schedule of the female partner on the likelihood of having a first birth (Hypothesis 6). This is in line with our interpretation that there is a self-selection effect of women without immediate child-bearing plans into non-standard schedules rather than a negative effect due to more stress and conflict in the home.

When examining the likelihood of having a second child, we find a positive effect of higher relationship quality of the female partner (t = 3.5, p < 0.00), but the perception of relationship quality is not influenced by non-standard work times or couple desynchronization. The qualitative interviews concur that there is no overwhelming negative effect of non-standard schedules on relationship quality. While couples are strongly aware of the consequences of these work times on their social life, stating for example that working non-standard times often means to miss out on family events, birthday parties or clubs and other forms of organized leisure activities, they generally do not perceive those schedules as affecting their relationship quality. One reason for this could of course be a 'survivor bias', in the sense that couples who experienced a negative impact of non-standard work times on their relationship might choose to opt out of these schedules. There is evidence for self-

selection out of non-standard work especially among women, where several state that they would consider to stop working altogether if it affected their children or relationship negatively. Couples also state that they work desynchronized hours "as long as they can stand it" and would consider changing when necessary. On the other hand, some female respondents describe non-standard work as an active strategy to remain active in paid work, but also be present at home.

> *Female partner:* "... I could not do it without work. No, you couldn't put me here for 7 days a week, here in the house with only the kids. I'd go insane. People sometimes say to me that, 'Gee, you have children and still you work 27 hours!' Then I think: yes, but I am a nice mom when I am there. I'd just be really grumpy if I didn't work."
>
> *(Couple 8: Male partner studies and works for police, female partners switched recently from irregular to regular, 2 children)*

> *Female partner:* "Four walls and one or two kids [laughs] that's not always enough to make you happy."
>
> *(Couple 9: Male partner works full-time regular hours, female partner works irregular hours, 24 h / week, 4 children)*

It appears that the underlying factor driving the lack of any effect of desynchronization and no impact of non-standard work on relationship quality in the quantitative results is likely driven by the will to change work schedules once it is necessary.

Discussion

The aim of the present study was to explore whether and how work at non-standard times has an effect on the probability to have a child within three years after the initial data collection. We stratified our sample by parity to identify differences between those becoming parents for the first time and couples who already had one child and therefore already went through the major adjustments in lifestyle that are associated with the transition to parenthood. We based our expectations on theoretical notions of the effect of direct and indirect costs of having a child related to compatibility between work and family and arrived at opposing expectations for couples with and without children: for women without children we expected and found a lower likelihood of having a first child when working more at non-standard. We interpret this result as a selection effect of women who do not plan to have children at this time of their life. We are able to confirm this interpretation by conducting an additional analysis where we indeed find that the negative effect of these schedules on having a fist child can be virtually fully explained by controlling for the intention to have a child when predicting the involvement in non-standard work. This shows that women who intended to have a child

within the next three years at the first wave of data collection had significantly lower intensities of non-standard work and implying that women who want to have a child might adjust their working conditions.

For parents of one child we expected a higher probability of having a second child when either partner was engaged in more work at non-standard times, but our empirical results only supported this for the male partner. We find a positive effect of non-standard work on the birth of a second child for fathers in our empirical analysis. Moreover, this finding is illustrated by the clear accounts of a more extensive role of father with non-standard working times in the qualitative interviews and the strong wish of Dutch parents to take care of their children themselves rather than making use of formal childcare (Portegijs et al., 2006). This preference is the result of a tradition of low female labor force participation and strong emphasis on the superiority of maternal care in the second half of the 20th century in the Netherlands (Clerkx & Van Ijzendoorn, 1992) as well as the shortage of formal child care facilities and lack of parental leave policies that make the Netherlands with regard to childcare an example of a 'familialistic' welfare state (Haas, 2005; Leitner, 2003). This refers to a system in which 'households must carry the principal responsibility for their members' welfare' (Esping-Andersen, 1999:51).

The reason that we did not find any effect of the work schedule or wok hours of mother on the probability to have a second child might be that in the Netherlands, where 75% of working women works part-time, mothers are generally able to adjust their paid work to increase work-family compatibility by decreasing their working hours. This is also apparent in the qualitative accounts where we identified two responses of women in this respect: some women either withdrew from paid work completely after the birth of their child or at least see this as a possibility if "things do not work out anymore" while another group saw work as a non-negotiable part of their lives but had managed by decreasing their working hours to arrive at a situation where work and family did not conflict too much.

We also tested the expectation of a higher likelihood of a second birth through more work at non-standard times with regard to schedule desynchronization at the couple level, because we were interested to see whether the individual work schedules of both partners would produce an additional effect when combined, as previous research has argued. We found no support for this 'indirect' or combination effect of non-standard work on the probability of having a first or second child. We find this finding especially intriguing as the expectation of an effect of the combination of schedules was based on previous research (Lesnard, 2008; van Klaveren et al., 2011) and also was abundantly present in our qualitative

data where respondents gave many examples of desynchronization of schedules to optimize childcare coordination. The reason that we were not able to find this relation in our empirical model might also be related to the operationalization we chose. By using the lower number of working hours in each couple dyad as the denominator when calculating the share of work hours that does not overlap within each couple, this measure is heavily influenced by part-time work of mothers. A more direct measure of couple coordination that relies less on the number of hours worked would therefore be desirable. Unfortunately our data did not provide such information.

In our remaining two hypothesis we explicitly connected our theoretical model to the large body of literature that has examined non-standard work times with respect to relationship functioning and relationship quality. We tested whether more work at non-standard times would lead to worse perceived relationship quality of either partner in couples without children and in how far this would also result in a lower probability of having a first child, that is whether the effect of non-standard work on the likelihood of having a first child is mediated by relationship quality. Our empirical results showed no evidence for a relation between non-standard work times and relationship quality, which is surprising given the evidence from previous research that these schedules often affect relationship quality negatively. We attribute the absence of an effect to the Dutch institutional context where workers are generally better protected and often have the opportunity to opt out of non-standard work schedules if these do not fit in with for instance the organization of family life (Mills & Täht, 2010). Besides this the qualitative interviews illustrated that couples did not perceive an effect of their schedules on their relationship quality and those who saw the danger that their schedules might affect their home life negatively had actively looked for different jobs or found a way to avoid the most straining part of it by for example not working the night shift anymore. In this way, the qualitative interviews complemented our empirical findings.

More generally, the in-depth approach we have taken, where we combined our quantitative longitudinal analysis with qualitative information collected among a sub-sample of the representative sample, enabled us to gain insight into the subtle and dynamic ways non-standard work times influences family life and further deepen and extend our conclusions from the quantitative analysis. Especially with regard to the fluidity of schedules and the ways couples and families adapt their family life to their work did the qualitative data help to make sense of our quantitative findings and gave us a more multifaceted picture of families who work at non-standard times. Because all the qualitative interviews involved at

least one partner with non-standard work hours, we are do not have any qualitative accounts of couples with regular work hours. This is a limitation to the qualitative part of the study and examining this further with a more extensive sample of respondents would be desirable.

By using structural equation models, we were able to test the direct and indirect effects of non-standard work and to choose an innovative operationalization of non-standard work times as a latent construct. This latent construct was formed by two independent measurements of non-standard work hours, one factual, relating to the times of work in the week prior to the interview and a more stylized set of four questions that asked respondents to rate the general occurrence and the necessity of non-standard work in their job. While both measures come with inherent problems in terms of their reliability and scope, we believe that by combining them in a model that allows us to also include measurement error associated with both concepts, we can adequately measure the intensity of non-standard work. This of course comes at the cost of not being able to define a clear cut-off point of when a work schedule is defined as non-standard. It also makes our study less comparable to previous research which mostly used a categorized definition of schedules with a majority rule (i.e., most hours of most days worked outside 8 am and 4 pm, see Presser, 2003), which is a limitation that we acknowledge.

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Figure 1: Conceptual model with direct and indirect relationships of non-standard work, relationship quality, desynchronization, and birth of child
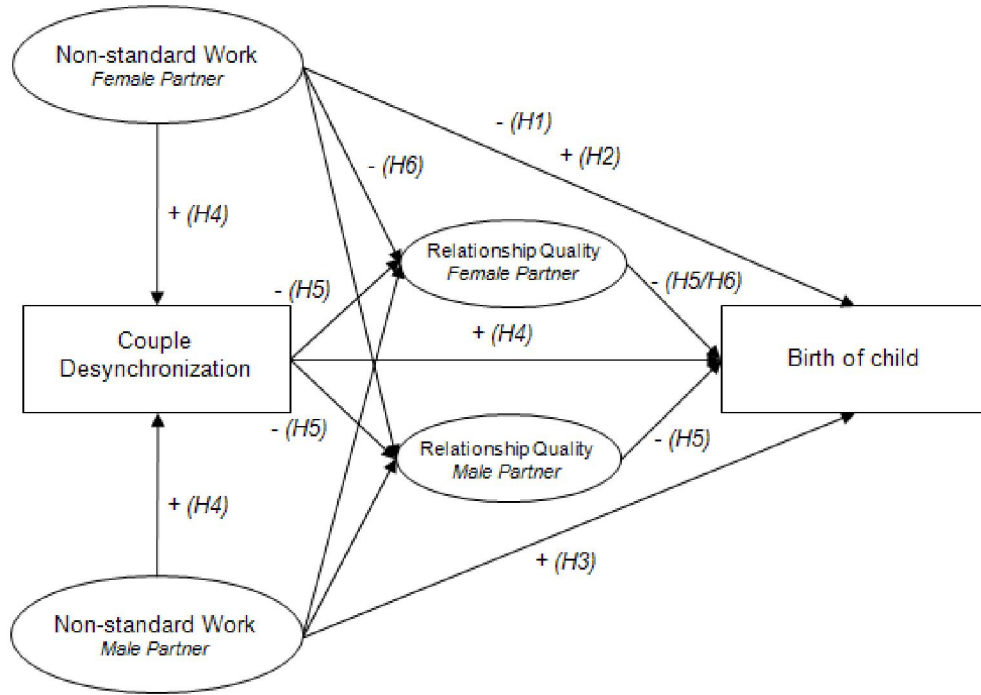
Table 1: Descriptive statistics of all variables used

	Couples without children				Couples with one child			
	N	Mean	S.D.	Range	N	Mean	S.D.	Range
Birth of child between T1 and T2 (0 = no birth, 1 = birth)	432	0.51	0.50	0 - 1	310	0.54	0.50	0 - 1
Age female partner	432	29.95	5.03	19 - 42	310	32.61	4.77	20 - 42
Education female partner	420	7.02	1.77	1 /10	306	6.51	1.99	1 - 10
Education male partner	432	6.82	1.95	1 - 10	310	6.25	2.27	1 - 10
Female partner not in paid work [a]	430	0.11	0.32	0 - 1	310	0.31	0.46	0 - 1
Female partner works 30 hours /week [b]	430	0.17	0.38	0 - 1	310	0.55	0.50	0 - 1
Female partner works > 30 hours /week [c]	430	0.71	0.45	0 - 1	310	0.15	0.35	0 - 1
Weekly working hours female partner [1]	381	35.58	10.30	3 - 140	214	24.90	8.43	5 - 54
Weekly working hours male partner	432	43.63	10.16	15 - 130	308	42.53	9.56	5 - 80
Relationship duration (years living together)	430	5.19	4.43	0 - 23	309	8.99	5.25	0 - 35
Marital status (0=not married, 1 = married)	432	0.39	0.49	0 - 1	310	0.78	0.41	0 - 1
Autonomy work times female partner [1]	357	1.99	0.94	1 - 4	208	2.16	0.98	1 - 4
Autonomy work times male partner	387	2.25	1.01	1 - 4	257	2.25	0.99	1 - 4
Proportion of non-standard hours female partner [1]	332	0.08	0.17	0 - 1	187	0.13	0.23	0 - 1
Proportion of non-standard hours male partner	367	0.09	0.16	0 - 1	241	0.09	0.15	0 - 1
Sum score of four NS work question female partner [1]	345	5.17	2.33	3 - 12	205	5.26	2.44	3 - 12
Sum score of four NS work question male partner	374	6.20	2.58	3 - 12	248	6.07	2.48	3 - 12
Non-standard work required female partner [1d]	357	0.49	0.50	0 - 1	208	0.50	0.50	0 - 1
Non-standard work required male partner [d]	386	0.63	0.48	0 - 1	257	0.62	0.49	0 - 1
Desynchronization (1 = no overlap) [1]	268	0.19	0.22	0 - 1	143	0.31	0.30	0 - 1

Note: Source: NKPS wave 1 and 2, calculations by authors
Note: [1] refers to women in paid work only
[a] Female partner not in paid work: 0 = paid work, 1 = not in paid work. [b] Female partner works 30 hours /week: 0 = not in paid work or works more than 30 hours per week, 1 = works between 1 and 30 hours per week. [c] Female partner works > 30 hours /week: 0 = works 0 to 30 hours per week, 1 = works at least 31 hours per week. [d] Non-standard work required: 0 = no, 1 = yes.

Figure 2: Standardized parameter estimates from multiple group structural equation model predicting the birth of a first (left part of Figure and second child (right part of Figure)
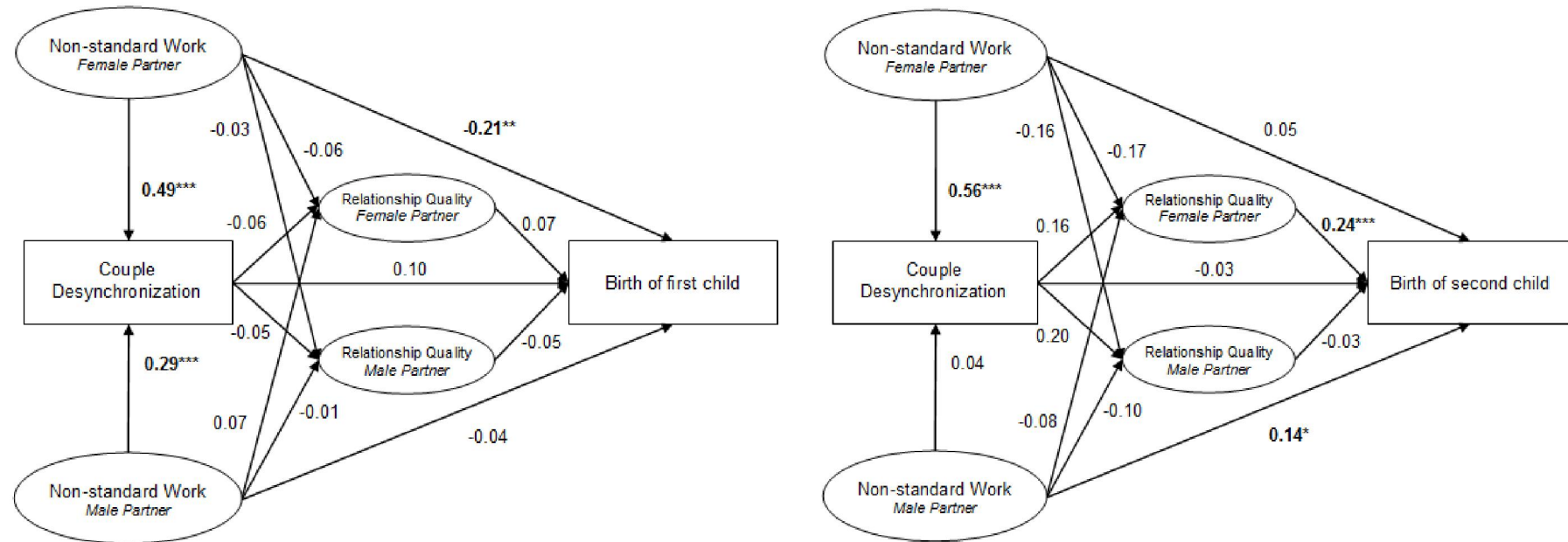
Note: ^{2}(128)=238.41, p < . 001 / CFI: 0.93 / TLI: 0.94 / RMSEA: 0.04

Control variables included in equation predicting birth between waves: age female partner, educational attainment of both partners, marital status, relationship duration, work status of female partner (not working, working 1 to 29 hours per week, working more than 30 hours per week), weekly working hours male partner. Control variables in equation of non-standard work: work status of female partner, weekly working hours male partner, autonomy in work times male and female partner. Control variables included in equation of desynchronization: work status of female partner, autonomy in work times male and female partner (results of the full model are presented in Table A3 in the Appendix)

Correlations of latent variables are omitted in Figure, see Table A3 for estimates. Note: * p < .05, ** p < .01, ***p < .001

Appendix:

Table A1: Characteristics of respondents of qualitative interviews recorded at first wave of data collection (wave 1)

Couple	1	2	3	4	5	6	7	8	9	10	11
Sex main respondent	M	F	F	M	M	M	F	F	F	F	F
Children in household	2	2	0	3	2	2	2	1	4	3	2
Birth of child betweenT1 and T2 (1 = yes)	0	0	0	0	0	0	1	1	0	0	1
Married (1 = yes)	1	1	0	1	1	1	1	0	1	1	1
Age female partner	36	37	31	44	38	45	38	33	40	35	34
Educational attainment female partner (1-10)	8	8	8	3	4	8	7	7	5	8	8
Educational attainment male partner (1-10)	7	8	7	7	4	7	7	4	8	7	7
Weekly working hours female partner	[a]	20	32	[a]	[a]	20	16	38	24	22	[a]
Weekly working hours male partner	38	32	40	38	34	42	65	32	50	40	24
Proportion of NS hours female partner	[a]	0.63	0	[a]	[a]	0	0.83	0.62	0.47	0.42	[a]
Proportion of NS hours male partner	0	0.03	0.09	0.49	0.56	0.52	0.14	[b]	0.07	0	[b]
Desynchronization (1 = no overlap)	1	0.92	0.83	1	1	0.87	0.97	1	0.75	0.86	[b]
Sum score on questions NS work female partner (4 to 14)	[a]	12	13	[a]	[a]	6	11	11	11	12	[a]
Sum score on questions NS work male partner (4 to 14)	11	7	9	14	14	11	11	13	6	4	[b]

Source: NKPS wave 1 and 2 and NKPS Minipanel, calculations by authors

Note: [a] female partner not in paid work; [b] missing information

Table A2: Unstandardized and standardized factor loadings, residual variances and significance levels of measurement model

	Whole sample			No children			One child		
	Est.	Std.		Est.	Std.		Est.	Std.	
Non-standard (NS) work female partner (F1)									
NS work sum score (Y1)	1.00	0.91	Na	1.00	0.88	Na	1.00	0.98	Na
Proportion NS hours (Y2)	0.07	0.80	***	0.07	0.82	***	0.07	0.73	***
NS work required (Y3)	0.40	0.83	***	0.38	0.76	***	0.38	0.86	***
Non-standard (NS) work male partner (F2)									
NS work sum score (Y4)	1.00	0.82	Na	1.00	0.83	Na	1.00	0.84	Na
Proportion NS hours (Y5)	0.05	0.72	***	0.05	0.73	***	0.05	0.73	***
NS work required (Y6)	0.41	0.85	***	0.39	0.84	***	0.39	0.82	***
Relationship Quality female partner (F3)									
Relationship good (Y7)	1.00	0.93	Na	1.00	0.89	Na	1.00	0.94	Na
Relationship happy (Y8)	0.96	0.88	***	0.96	0.86	***	0.96	0.89	***
Relationship strong (Y9)	0.95	0.87	***	0.96	0.84	***	0.96	0.88	***
Relationship stable (Y10)	1.07	0.85	***	1.12	0.81	***	1.12	0.94	***
Relationship Quality male partner (F4)									
Relationship good (Y11)	1.00	0.90	Na	1.00	0.90	Na	1.00	0.91	Na
Relationship happy (Y12)	1.00	0.90	***	0.95	0.87	***	0.95	0.85	***
Relationship strong (Y13)	0.90	0.81	***	0.92	0.82	***	0.92	0.85	***
Relationship stable (Y14)	1.09	0.90	***	1.10	0.94	***	1.10	0.89	***
Covariance of latent variables									
F1 F2	0.87	0.20	***	0.91	0.21	***	0.90	0.19	**
F1 F3	-0.04	-0.04		-0.02	-0.02		-0.08	-0.06	
F2 F3	0.01	0.00		0.08	0.09		-0.12	-0.10	
F4 F1	-0.05	-0.04		-0.08	-0.08		-0.03	-0.02	
F4 F2	-0.06	-0.05		-0.05	-0.05		-0.09	-0.08	
F4 F3	0.14	0.50	***	0.10	0.42	***	0.18	0.54	***
Residual Variances									
Y1	0.90	0.17	***	1.16	0.22	***	0.17	0.03	
Y2	0.01	0.37	***	0.01	0.33	***	0.02	0.47	***
Y3	Na	0.31	Na	Na	0.43	Na	Na	0.25	Na
Y4	2.09	0.32	***	2.07	0.31	***	1.82	0.30	***
Y5	0.01	0.48	***	0.01	0.47	***	0.01	0.47	***
Y6	Na	0.28	Na	Na	0.29	Na	Na	0.34	Na
Y7	0.05	0.14	***	0.06	0.21	***	0.05	0.13	***
Y8	0.08	0.22	***	0.07	0.26	***	0.09	0.21	***
Y9	0.09	0.25	***	0.08	0.29	***	0.10	0.23	***
Y10	0.12	0.27	***	0.14	0.35	***	0.05	0.11	*
Y11	0.07	0.19	***	0.07	0.19	***	0.06	0.17	***
Y12	0.07	0.19	***	0.08	0.24	***	0.11	0.28	***
Y13	0.12	0.34	***	0.11	0.33	***	0.10	0.27	***
Y14	0.08	0.18	***	0.04	0.12	***	0.10	0.21	***
Model fit									
^{2} (df)	46.23	(19)	***	82.45	(41)	***			
CFI	0.98			0.97					
TLI	0.99			0.98					
RMSEA	0.04			0.05					
N	742			432			310		

Source: NKPS wave 1, calculations by authors

Notes: Na: Non-standardized loadings are set up to be 1 for model identification and no significance tests are conducted.

Note: * p < .05, ** p < .01, ***p < .001

Table A3: Parameter estimates from multiple group structural equation model including all control variables (standard errors in parentheses)

	Couples without children			Couples with one child		
	Estimate (S.E.)	Std. Est.	p	Estimate (S.E.)	Std. Est.	p
Dependent: Birth between waves						
Relationship quality female	0.18 (0.15)	0.07		0.56 (0.16)	0.24	***
Relationship quality male	-0.11 (0.14)	-0.05		-0.07 (0.20)	-0.03	
NS work female	-1.64 (0.57)	-0.21	***	0.46 (0.97)	0.05	
NS work male	0.34 (0.70)	0.04		1.64 (0.86)	0.14	*
Weekly working hours male	0.01 (0.01)	0.12	*	0.01 (0.01)	0.07	
Age female	-0.06 (0.02)	-0.24	***	-0.12 (0.02)	-0.41	***
Duration of relationship	-0.07 (0.02)	-0.28	***	-0.06 (0.02)	-0.22	***
Female partner no paid job	-0.60 (0.38)	-0.17		-0.06 (0.33)	-0.02	
Female partner works 30 hours	0.02 (0.19)	0.01		0.13 (0.25)	0.05	
Female partner works > 30 hours	ref	ref		ref	ref	
Marital status (ref = cohabiting)	0.63 (0.15)	0.27	***	0.22 (0.20)	0.07	
Educational attainment female	0.09 (0.04)	0.14	*	0.09 (0.05)	0.13	+
Educational attainment male	0.00 (0.04)	0.01		0.15 (0.04)	0.26	***
Desynchronization of schedules	0.55 (0.48)	0.10		-0.13 (0.63)	-0.03	
Dependent: Relationship quality male						
NS work female	-0.12 (0.22)	-0.03		-0.58 (0.42)	-0.16	
NS work male	-0.04 (0.23)	-0.01		-0.47 (0.29)	-0.10	
Desynchronization of schedules	-0.11 (0.17)	-0.05		0.41 (0.27)	0.20	
Dependent: Relationship quality female						
NS work female	-0.18 (0.24)	-0.06		-0.65 (0.40)	-0.17	
NS work male	0.27 (0.26)	0.07		-0.40 (0.34)	-0.08	
Desynchronization of schedules	0.13 (0.19)	0.06		0.34 (0.28)	0.16	
Dependent: NS work female						
Autonomy female	0.01 (0.01)	0.04		0.01 (0.01)	0.06	
Female partner no paid job	-0.14 (0.22)	-0.30		-0.12 (0.20)	-0.37	
Female partner works 30 hours	0.06 (0.02)	0.15	***	-0.06 (0.02)	-0.20	**
Female partner works > 30 hours	ref	ref		ref	ref	
Dependent: NS work male						
Autonomy male	0.02 (0.01)	0.15	***	0.00 (0.01)	-0.01	
Weekly working hours male	0.00 (0.00)	0.33	***	0.00 (0.00)	0.25	***
Dependent: Desynchronization of schedules						
NS work female	0.71 (0.07)	0.49	***	1.00 (0.11)	0.56	***
NS work male	0.51 (0.08)	0.29	***	0.09 (0.11)	0.04	
Autonomy female	-0.01 (0.01)	-0.05		0.01 (0.02)	0.02	
Autonomy male	0.01 (0.01)	0.03		-0.05 (0.02)	-0.15	**
Female partner no paid job	-0.11 (0.14)	-0.17		-0.26 (0.16)	-0.45	+
Covariance of latent variables						
NS work female NS work male	0.00 (0.00)	0.21	***	0.00 (0.00)	0.20	***
Relationship quality female relationship quality male	0.10 (0.01)	0.43	***	0.16 (0.02)	0.51	***
N	416			303		

Note: 2(128)=238.41, p < . 001; CFI = .93; TLI = .94; RMSEA = .05

Source: NKPS wave 1 and 2, calculations by authors

Note: $^{+}$ p < .1, * p < .05, ** p < .01, ***p < .001