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Parental Investments in Children: How Educational Homogamy and Bargaining Affect Time Allocation

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Distinguishing between developmental and non-developmental care, we examine how educational attainment, marital homogamy and spouses' relative bargaining power influence parents' time investment in their children. We exploit a unique couple-based time diary study for Denmark (n=489) that should yield more reliable estimation than in standard time use studies. We find that developmental care time is correlated with parents' education. We also find gendered parenting behaviour, but the presence of boys influences fathers' time dedication only among the less educated. We break new ground by emphasizing the importance of marital homogamy which reduces couple specialization, but only among the highly educated. To the extent that parental stimulation is decisive for child outcomes, our findings suggest the persistence of important inequalities. These emerge through our special attention to behavioural differences across the educational distribution among households.

Key Words: Intra-household Allocation, Child Care, Gender

The link between childhood conditions and later life chances has received intense scholarly attention in recent years with the majority of studies concluding that family attributes matter far more than neighbourhoods or schools and, moreover, that early childhood intervention can be a very effective corrective for children from under-privileged backgrounds (Brooks-Gunn et al., 1997; Carneiro & Heckman, 2003; Currie, 2001; Karoly et al., 2005; Mayer, 1997).

Our study centers on parental time investment in their children since this is unquestionably key to the promotion of childrens' learning and welfare more generally (Bianchi et al., 2004; Stafford & Yeung, 2005). We distinguish developmental from non-developmental parenting time so as to highlight that type of caring that is most explicitly related to the stimulation of children's abilities. In line with most studies, we stress the importance of parents', and especially mothers', education (Bianchi et al., 2006, 2004; Sayer et al., 2004). As, most recently Carneiro et al. (2007) emphasize, the mother's education is particularly decisive for child outcomes. Both theory and research suggest that the relative bargaining power of partners influences household decision-making (Lundberg et al., 1997; Lundberg, 2005; Manser & Brown, 1980). Specifically related to parenting, Lundberg (2005) and Lundberg et al. (1997) find that strengthening mothers' bargaining position is beneficial for child-related expenditure.

In our analyses, we examine how mothers' relative bargaining power affects both the distribution and intensity of parental caring. The 'boy-effect', emphasized by Lundberg et al. (2007a, 2007b), is expected to be minor but we argue that gendered preferences diverge across educational distributions, being more accentuated among less educated fathers. Unlike earlier studies we attach special importance to the role of marital homogamy. The reasoning stems from three considerations. One, it is well-documented that marital selection implies a concentration of human capital, or the lack thereof, across families (Blossfeld & Timm, 2003; McLanahan, 2004; Rose, 2004; Schwartz & Mare, 2005). Two, we expect homogamous couples to embrace less

specialization since their marginal productivities in either home or market production should be more similar. And, three, homogamy may also be associated with greater convergence of the spouses' time-use preferences.

BACKGROUND

Our analyses pertain to Denmark, where the employment rate of mothers with small children, including also that of single mothers, approaches 80 percent. This will influence the relative bargaining position of women within the couple, and it also means that time constraints are prevalent across all families. The latter, however, are importantly softened by welfare state support to families providing paid parental leaves over almost the entire first year of the child's life, and universal, high-quality early child care provision. As a result, conflicts between market and household work are softened considerably (Esping-Andersen, 2008; Gornick & Meyers, 2003; Hook, 2006). Empirically, as we describe below, the Danish case offers an additional advantage because, unlike other time-use surveys including the American Time Use Survey (ATUS), the most recent Danish data include individual responses from both partners, thus minimizing biased reporting.

Human Capital

The pervasive finding that child outcomes are positively correlated with parents' education can, in part, be explained by the greater levels of caring among higher educated parents (Bianchi et al., 2004; Hill and Stafford, 1980, 1974; Lausten & Deding, 2006; Leibowitz, 1977, 1974; Sayer et.al., 2004). The latter might appear counterintuitive considering that the highly educated are likely to face steeper time opportunity costs. But education captures also attributes other than marketable

skills such as, for example, a greater concern for the children's life chances (Sayer et al., 2004). If so, child quality will be given particular priority in parenting.

To avoid penalizing market incomes, parents can compensate by diminishing time allocation to other tasks, such as housework and leisure (Kalenkoski et al., 2005). They can also postpone activities to weekends when the opportunity cost is lower. And if their human capital translates into higher income, they can of course substitute with purchased household help. The opportunity cost of child caring for less educated parents should be lower, but this need not translate into more caring time if they also face budget constraints. We hypothesize that *child care and especially developmental care increases with parents' education. Additionally, we expect that the higher is the level of parents' education, the more will they shift care to weekends.*

It is furthermore likely that higher educated parents are (or believe to be) more capable and productive in nurturing children's skills. In this case, one should expect less substitution from alternative inputs such as nannies. This is unlikely to occur with regard to external child care since, in Denmark, it is of uniform high quality.

Homogamy

The surge in higher education among women is associated with declining hypergamy and more marital homogamy at the top, accompanied by a concentration of low education at the bottom (Fernandez et al., 2005; Rose, 2004; Schwartz & Mare, 2005). Homogamy should produce greater similarity in terms of partners' tastes and preferences for time-allocation (Oppenheimer, 1997), and also in terms of their abilities in household production and child care. Nielsen and Svarer (2006) find that half of the sorting on education is caused by low frictions in marriage markets, and the other half by complementarities in household production. Moreover, homogamous couples will have comparatively fewer gains from gendered specialization in home production or child care, and

are more likely to pool their resources (Bonke & Uldall-Poulsen, 2007). Child care dedication should, accordingly, be more gender symmetric. This implies that fathers are likely to increase, and mothers to decrease, time dedicated to home production, most likely at the expense of, or to the benefit of, market work, respectively (Lundberg & Rose, 2002).

The hypothesis is therefore that educationally *homogamous parents specialize less in childcare*, including both developmental and non-developmental care. Bauer and Jacob (2006) hypothesize that heterogamous couples and especially highly educated ones, also have fewer children than homogamous couples, which implies some selection on parental background.

Bargaining Power

The bargaining power between partners is usually identified by their relative earnings or contribution to household income (Browning et al. 1994; Sorensen & McLanahan, 1987). It has been applied extensively to the division of housework, in particular with the aim of elucidating the perseverance of traditional gender norms (Bianchi et al., 2000; Bittman et al., 2003; Brines, 1994; Cooke, 2006; Evertsson & Neramo, 2004; Shelton & John, 1996). The ‘doing gender’ literature addresses primarily undesirable household tasks and has shied away from child care activities (Ferree, 1990). Caring for one’s children combines, of course, less desirable routine tasks with more gratifying activities such as playing, nurturing and togetherness. The latter also captures more closely parental investments, i.e. developmental care. Parents are therefore likely to bargain over the twain. This leads us to predict that *the mother’s bargaining power will allow her to dedicate relatively more time to developmental as compared to non-developmental care, while the father’s distribution of child care* remains undetermined. In line with Connelly and Kimmel (2007, p. 24), we should expect that mothers will bargain for more paternal non-fungible care-giving during week

days but that, during the weekend their bargaining power will buy them more time with her children.

If gender preferences enter into the bargaining nexus, the presence of a boy should reinforce the mother's bargaining power and diminish parental specialization in child care. The outcome, however, is ambiguous because gendered specialization may also reflect differences in boys' and girls' developmental requirements which imply that fathers and mothers are more efficient in nurturing, respectively, sons and daughters (Raley & Bianchi, 2006). If this is the case, a gendered specialization in child rearing should be more accentuated in developmental than in non-developmental care (Morgan et al., 1988).

It is well-documented that fathers dedicate more time and attention to sons than daughters (Lundberg et al., 2007b; Lundberg, 2005; Mammen, 2005; Raley & Bianchi, 2006; Yeung et al. 2001), but little attention has been paid to variations across types of men. Since the importance attached to equality of opportunities increases by level of education, higher educated fathers should have a more positive assessment of the value of girls' human capital (Bonke, 1994). We therefore hypothesize that *the gap in fathers' time dedication to sons and daughters will be appreciably smaller and possibly disappear for highly educated fathers, especially regarding developmental care.*

MEASUREMENT, DATA AND EMPIRICAL MODEL

Measurement

As noted, we distinguish between developmental and non-developmental care. Stafford and Yeung (2005) define developmental care as parental involvement in children's intellectual, physical and social development, while other kinds of care are categorized as non-developmental. This categorization is consistent with Bianchi et al. (2006: chapter 4) who distinguish between routine

(custodial) activities (such as feeding and dressing), and interactive or enriching activities (such as teaching, reading and playing). For Zick et al. (2001) interactive activities "... signal parental time investments of greater quality" while Blair et al. (1994) claim that "activities that involve intensive parent-child interaction (reading a book to a young child), activities that signal a parent's accessibility (e.g. parental supervision of siblings' play), and activities that reflect a heightened sense of responsibility for the child (e.g. arranging for work-related child care) should all be included as potentially human capital enhancing for the child." In this article, developmental care is to be understood in the same way, although the data applied determine how the two types of care can be empirically operationalized.

We follow Stafford and Yeung's (2005) typology. Our developmental care variable includes helping or teaching children, talking or reading to them, indoor or outdoor playtime and parental leisure (exclusive of time spent on radio, video and TV) where the child was present (the 'with whom' question). Non-developmental care includes feeding and dressing, baby or child care, medical care of children, other child care and travel associated with child care activities, and other activities where the child was present such as listening to radio and/or looking at TV.

Both types are measured as the aggregate number of intervals where it was performed multiplied by 10 minutes, i.e. the length of the intervals. The information refers to one weekday and one weekend day per respondent. To neutralize variation in caring across the week, weekday and weekend day information were then weighted together (weekdays multiplied by 5 and weekend days by 2 and the aggregated value divided by 7 to find an average day of the week), so an overall average of parent's time spent on child care per day becomes the unit for analysis. We will, however, also distinguish between weekdays and weekends. Finally, since we analyze mothers' and fathers' child care separately, we need not distinguish between joint parental and individual parental child care.

Data

We use data from the most recent (2001) Danish Time-Use Survey (DTUS), which includes data for 2739 randomly chosen individuals. Besides collecting information on household characteristics and family composition as well as individual characteristics such as education, employment, earnings and demographic information, the survey included a time-diary component. The respondent (for cohabiting and married people also the partner) completed a weekday and weekend time-diary, identifying the primary and secondary activities for each 10-minute interval over the two days, as well as who they were together with during the activities, i.e. his/her partner, children, other people or alone. The number of diaries obtained was 1956. For analytical purposes, we have 489 cohabiting and married spouses with children living at home. This is a rather small number of observations and our estimations are therefore likely to suffer from large error terms. On the positive side, since we have direct diary information from both partners for the same day, our time use data are likely to be substantially more reliable than in most time use surveys. And as Hook (2006) notes, this is also a precondition for estimating any possible bargaining effects. Major methodological difficulties arise when, as in the recent American Time Use Survey, only one representative of the household filled out the diary (Connelly & Kimmel, 2007).

The empirical model

We estimate Tobit time-use equations for the parents' individual and joint time spent on child care. Tobit was chosen because during the two diary-days there are some parents who report zero caring, even though it is very likely that they did care on non-reported days. If one assumes that there are no true zeroes, i.e. that those we observe are all due to the conditions specific to the day of observation, a censoring of the data is required. However, if the zeros we observe in our data were

also zeros on any other possible (unobserved) day, OLS regression should produce robust estimation. Empirical research adopts both views. Stafford and Yeung (2005) use Tobit while Lundberg et al. (2007a) apply OLS regressions. In our data, the number of zeros is modest and we have experimented with both estimators. It turns out that either estimator produces essentially the same substantive results.

To investigate the simultaneous distribution of time to child care, housework and paid work we also utilized a system of correlated Tobit-models (see e.g. Kalenkoski et al. 2005). But due to the limited number of observations, most coefficients become insignificant.

The dependent variables are either developmental care (DCARE) or non-developmental care (NDCARE) in absolute numbers of minutes. We have experimented with relative measures of the two partners' contributions. These gave similar results concerning the gendering of parental investment in children. But since child quality is primarily related to the total amount of time spent on child care, we prefer the absolute specification. We analyze models for parents' combined time dedication and separate models for fathers and mothers. Throughout we use F and M, respectively, to denote fathers and mothers.

The model takes the following linear form:

$$C_{ji} = \alpha_0 + \beta EDUC_i + \delta HOMOLOGY + \eta MRELINCOME + \sigma BOY + \theta X_i + \varepsilon,$$

where $j=1,2$ refers to the kind of care (developmental and non-developmental) and $i=1,2$ to the sex of the parent implying that we are estimating 4 different equations one for each care category and gender. X denotes the control variables included in the model.

The educational level of the parents, $EDUC$, is measured by the number of years of education associated with their ISCED level of educational attainment. The degree of homogeneity

(HOMOGAMY) is the numerical value of the differences in parents' years of education (father's minus mother's).

Ideally we would measure spousal bargaining power by their relative wage-rates because they capture productivity while income is also influenced by actual labor supply (Pollak, 2005). Unfortunately, the data include only gross income information that we therefore use to calculate our bargaining strength variable, MRELINCOME (the mother's individual gross income as a percentage of the couple's combined gross incomes). This is in fact the most commonly adopted procedure (Bonke & Browning, 2003). In order to identify the possible impact of gendered child preferences, we include a dummy variable for the presence of at least one boy living at home (BOY).

As controls we include education and age of the parent as well as the age of the wife when she gave birth to her first child (MAGEBIRTH). It is well-established that women who face steep opportunity costs postpone motherhood (Hotz et al., 1997). This variable should, in other words, help capture the mother's career dedication. Age of the parent is assumed to correlate with time investments in children due to two possible effects: one, older parents may have less energy to devote to their children; two, age may capture cohort effects. One should expect that older men will spend less time with children than younger ones, while the opposite might be the case for older women, who are likely to be more home-orientated than their younger sisters.

To control for time-availability, and the degree to which there are trade-offs between caring and market work, we include the parent's labour supply (PAIDWORK), measured as the number of hours worked during the actual day. This also allows us to remove the labour supply effects associated with education. This means that education will, more unambiguously, capture a parent's preferences, cultural norms, and productivity in household production. We ran estimations without the labour supply variables in order to investigate endogeneity between work and child care, but

their exclusion does not affect any of the other coefficients significantly. However, using parental attitudes as an instrument to investigate the endogeneity problem Howie et al. (2006) find a significant negative relation between mother's aggregated child care time (developmental and non-developmental) and their paid working hours. The relation is inelastic which leads to a net increase in hours spent in the two activities.

We also include the number of children (NCHILD) and their distribution in the age range 0-6 (CHILD06) and 7-15 (CHILD715), whether the mother is on leave (MLEAVE), and purchased help (PAIDHELP). Note that Danish parental leave approximates the first year of the child's life. We finally control for the family's total disposable income (HHINCOME), measured in Euros.

Descriptive statistics of the variables included are shown in Table 1

Table 1 about here

Table 2 reports means and standard deviations for time spent on developmental and non-developmental care, respectively. On average, mothers spend nearly one hour per day on developmental care and fathers about two thirds of an hour. For non-developmental care, mothers contribute 6.3 hours and fathers 4.7 hours per day. As expected, the highly educated parents devote more time to developmental care while the differences are minor with regard to non-developmental care. And, unsurprisingly, there is a clear across-the-board increase in caring on weekends.

Table 2 about here

The correlation between the spouses' non-developmental care is quite strong (0.7), whereas it is modest (0.3) for developmental care, and between developmental and non-developmental care (0.3). This implies that it is more usual for parents to care jointly in non-developmental than in developmental care. Of course, the total time spent on the former is so much greater, but this may also indicate that developmental care is a more specialized activity.

In line with Yeung et al. (2001), Mammen (2005), and Lundberg et al. (2007a), we find that child rearing is “doubly” gendered in the sense that not only does the mother spend more time with children, but also that the child's sex matters for how much care is given. In one-child families, a boy receives 1.36 hours of developmental care on an average weekday and a girl 1.54 hours. Fathers account for half of the care of boys but only for one third in the case of girls. In families with two children the father also dedicates more time when there is at least one boy. Mothers behave orthogonally in the sense that their bias is towards girls. When there is one of each sex her developmental care is reduced. But this difference is minor and statistically not significant. Table 3 provides an overview.

Table 3 about here

RESULTS

Our analyses follow a three-step procedure. We first pool weekday and weekend caring time. Table 4 presents Tobit estimations both for the couples jointly and separately for fathers and mothers. Substitution strategies such as shifting time from busy weekdays to weekends ought to be prevalent among parents with major work-family tensions. In Table 5 we therefore include, as a second step, Tobit analyses separately for weekdays and weekends. In the third and final step, we examine, in Table 6, two sub-samples of, respectively, higher and lower educated parents so as to better elucidate the distinctive behavioral characteristics of the two groups.

When interpreting the results, one must remember that virtually all Danish pre-schoolers, from age one, are enrolled in external child care – usually on a full-time, full-week basis. Put differently, Danish parents face far less dramatic work-family tensions than is the case in most countries. Still, of course, small children require more parental time and this is confirmed in our data. Our estimations also control for whether the mother is on maternity-parental leave.

From Table 4 we see that education is relevant only for developmental care. This is consistent with most previous research, but with some caveats since the education effect is clearly much stronger among fathers; indeed, it is not significant among mothers. This contradicts the findings of Sayer et al. (2004) who, in a four-country comparison, show that the education effect is far stronger among mothers than fathers. Since we control for labour supply and household income, education is, so to speak, partially cleansed of its human capital effect and comes closer to measuring parental preferences for child quality and their potential productivity in child stimulus. The Sayer et al. (2004) study controls for labour supply but not for income. As we saw in Table 1, higher educated parents (especially fathers) commit significantly more time to children than do the low educated.

In line with our hypothesis, educational homogamy is associated with less spousal specialization, mainly because it increases fathers' time dedication across both kinds of care. We also note that homogamy does not diminish maternal caring time in any significant way which,

again, suggests that it captures preferences rather than bargaining power. Educational homogamy is most pronounced at the top and bottom of society, but it is likely to express itself very differently at the two extremes. In general it should produce greater preference similarities at the top than at the bottom. If higher education implies greater concern for child quality, the doubling of strong parental human capital that occurs at the ‘top’ should matter. Similarly, if low education is associated with more traditional gender norms, homogamy at the ‘bottom’ might not influence spousal specialization. The analyses that we present in Table 6 below explicitly address this possibility.

We notice in Table 4 that mothers’ bargaining power has no appreciable effect on either joint or individual time dedication, except that it is associated with a reduction in maternal non-developmental care. Since the bargaining effect may be non-linear, we also estimated with a threshold specification (the mother’s share being less than 25 percent; between 25 and 49 percent; and above 50 percent) as do Stafford and Yeung (2005), but this does not change the results. Additionally, the presence of a boy does not appear to motivate much additional fatherly care, which seems quite consistent with recent U.S. research (Raley & Bianchi, 2006). Later (again in Table 6) we shall see that the boy-effect does emerge when we analyze low and high educated parents separately. Mother’s age at first birth, which can represent her career dedication is, as we expected, positively (but not significantly) related to fathers’ caring time.

The standard controls included in Table 4 all behave as expected. Both fathers’ and mothers’ caring time rises when there are more and, especially, young children and, almost by definition, caring time increases when the mother is on leave. Vice versa, paid work is negatively correlated with caring time. The positive effect of maternity leave on fatherly care is remarkable and might either be explained by a strong desire for equity in early upbringing or that care demands are

especially intense during infancy. Note that Danish parents usually do not place their children in external care before age one.

We also note that both parents' caring time diminishes with their age, although interpretation of this is wrought with ambiguity. One interesting and noteworthy finding is that outside help increases parental child dedication. This suggests that parents buy themselves time for children by externalizing household chores, as has also been found for the US (Sayer, 2005).

Time constraints and the opportunity costs of care are lessened during weekends. From our data we calculate that fathers' average weekday working hours are 7.7, and mothers' 5.4. In other words, also mothers approach full-time employment as the norm. During weekdays a parent may respond by reducing market work (and/or leisure) or, alternatively, by shifting care to weekends. See Table 5.

For developmental care we identify a clear shifting strategy among the highly educated. The education coefficient for fathers' weekend developmental care is strong and significant. This suggests that parents with substantial opportunity costs seek to concentrate their child investments on days when the shadow price is minimal.

Table 4 about here

Table 5 about here

This effect is, however, partially offset among homogamous couples. We note that homogamy produces a positive effect on *weekday* paternal time for both types of care. Via OLS regressions (not shown) we estimate that homogamy produces a 43% increase in fathers' weekday developmental care. We also note that homogamy produces a reduction in mothers' weekday developmental care. As we anticipated, homogamy seems to cultivate less spousal specialization also on days when the trade-offs are arguably most intense.

There also seems to be less shifting when the family has outside help, but in this case it mainly produces more non-developmental caring. The logic here is, almost certainly, that the couple can substitute household chores for more time with the children even on non-developmental care. The outside-help effect on weekdays is quite substantial: for fathers it produces a 13% increase in non-developmental caring time, and for mothers an 11% increase. Help with housework also influences, but more modestly so, weekend behaviour by permitting the mother additional time for developmental care.

From our data we have calculated that mothers' and fathers' paid work during weekends amounts to, respectively, 0.7 and 1.4 hours on average. These are of course averages and we must assume that some parents have longer weekend work commitments. Nonetheless, where such time constraints exist we see that parents clearly give priority to developmental care (which is not affected by paid work) and thus sacrifice on non-developmental time (where the effect is negative and statistically significant).

We noted above that there are potentially important interaction effects related to parents' education. Rather than test for this by introducing an interaction term in our models, we prefer to identify the distinctive behavioural patterns by estimating separate models for families with high and low educated fathers and mothers, respectively. High education, to recall, is any kind of completed tertiary level education. See Table 6.

As discussed earlier, gendered preferences may strengthen mothers' bargaining position and thus spur greater fatherly involvement. Our analyses have, so far, found no significant boy or, for that matter, any bargaining effects on time dedication. This may in part be attributed to our inclusion of marital homogamy. If parents share similar preferences regarding child quality this should also extend to the sex of the children. And, as we argued, one should expect that the gender bias is far less pronounced among highly educated fathers, regardless of homogamy.

Table 6 brings this out quite clearly. Indeed, the education-specific models suggest the presence of orthogonalities. We firstly see that the positive effect of marital homogamy on child investments is pronounced among highly educated men. Homogamy has no bearing on highly educated women's developmental time, but it is associated with more non-developmental care. Among the low educated, homogamy has no important effect whatsoever. This finding has interesting ramifications for our understanding of couples' preferences and household specialization. It may be that highly educated parents are more likely to converge around similar preferences because their educational experience *per se* is more similar. Alternatively, the fact that homogamous low educated couples do not diminish specialization may be attributable to the presence of more traditional gender norms – a plausible interpretation considering the gender-biased behaviour among low educated fathers. The latter interpretation is very much in line with similar research on the division of housework (Shelton & John, 1996) and paid work (Lundberg 2005, p. 352).

We failed to find any clear 'boy-effect' in our previous analyses but when, as in Table 6, we estimate separately for the high and low educated, the effect does appear. What is noteworthy is that the gender bias is significant only among low educated fathers. Moreover, it is limited to their developmental time. We also notice that bargaining, for the first time, begins to matter, but only for low educated women's non-developmental time. The pattern that emerges is that low educated

women utilize their bargaining power to reduce their non-developmental time, and that low educated men are more likely to augment their caring time when there are boys. Using, as before, our OLS regression estimations, the mother's bargaining power is noteworthy since it is associated with a 24 percent reduction in her non-developmental caring time; similarly, the presence of a boy is associated with a 30 percent boost in low educated fathers' developmental care.

Table 6 about here

CONCLUSION

Research on parental time investment has, with few exceptions such as Sayer et al. (2004) and Bianchi et al. (2006), been largely confined to US data. This study uses the recent (2001) Danish Time Use Survey and serves thereby the double purpose of testing basic theoretical propositions regarding parenting and of extending research to a country where gender equalization has been unusually prominent in public policy. In some respects we follow the theoretical framework represented in earlier research, in particular regarding the importance of education and the role of household bargaining. But we break new ground on two important counts. We highlight, first of all, how marital homogamy can reduce gender specialization in parenting. Secondly, and perhaps of greatest significance, we stress how parental education, homogamy and bargaining are interactive. This emerges most clearly when we compare parental behaviour at the two ends of the education distribution.

The focus on Denmark offers a fertile contrast to US-based findings. Both countries boast high levels of maternal employment which, of course, implies that reconciling work and family life is fraught with trade-offs. Yet, in Denmark virtually all families have access to affordable, high quality child-care, parental leaves are generous as is also income support in favour of children. This means that the typical family's time and money constraints are eased considerably. Under such comparably more favourable conditions core dilemmas regarding parenting should be less accentuated.

A major drawback of the Danish data is the small number of observations and the associated large standard errors. This makes econometric identification more difficult. In spite of these shortcomings our study yields, we believe, rather substantial and strong results. One great advantage is that the Danish study collected time use information from both partners which should ensure greater reliability.

Our findings are consistent with previous studies to the extent that education is positively associated with parental investment in child quality. The key lies in time dedicated to developmental care. But in contrast to other studies, such as Sayer et al. (2004), we find that the effect of education is stronger among fathers than mothers. Like other studies, we cannot say whether this is attributable to preferences or to productivities. We also find, as one would predict, an evident shifting strategy to the extent that parents with larger opportunity costs, i.e. the highly educated, concentrate their child caring efforts during weekends.

A novelty in our study emerges from our attention to homogamy. Homogamous parents, if highly educated, embrace less gender specialization and this appears to be distinct from any possible bargaining effect. Homogamy is associated with a stronger paternal dedication to developmental care but does *not* produce any reduction in maternal care. Again, it is clearly impossible to identify whether this stems from similarities in preferences or in productivities.

Homogamy among the highly educated is almost certainly associated with less traditional gender norms. Of particular interest is our finding that homogamy counteracts the choice of highly educated parents to shift care to weekends. We interpret this to mean that homogamy provides an additional impulse towards prioritizing child quality, even when the trade-offs are more severe.

Our study also brings additional light to the issue of whether fathers' child dedication is a function of gendered preferences. When we analyze across the entire sample, the 'boy-effect' fails to emerge. But when we analyze high and low educated parents separately, we find clear evidence that parenting behaviour is quite orthogonal. Lower educated parents devote less time in general to developmental caring. In addition, this interacts crucially with homogamy and bargaining. Firstly, the gendered 'boy-effect' exists only among low educated men, which suggests that the presence of a boy is a bargaining chip only in low educated families. Secondly, the homogamy effect appears limited to highly educated couples – where it clearly spurs additional parental caring. Considering the importance of gendered preferences among the less educated, we interpret the lack of any homogamy effect among the latter as an expression of more traditional gender norms regarding partner specialization and family life more generally.

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Table 1

Descriptive statistics for the analysis

		M	SE B	Min	Max
Aggeduc	# of years of mother's and father's education	27.722	3.940	24	36
Meduc	# years of mother's education	13.787	2.344	12	18
Feduc	# years of father's education	13.935	2.191	12	18
Homogamy	# years of father's education minus years of mother's education	1.342	1.811	0	6
Mrelincome	Mother's income as a proportion of mother's and father's income	.435	.148	0	.937
Boy	Boys present in the family	.697	.460	0	1
Magebirth	Mother's age when giving birth first time	27.731	4.342	17	44
Mage	Age of mother	40.804	8.384	22	65
Fage	Age of father	38.460	7.552	20	57
Nchild	# of children	1.620	.936	0	6
Mleave	Mother on maternal leave	.065	.248	0	1
Child06	Child aged 0-6	.395	.489	0	1
Child715	Child aged 7-15	.526	.500	0	1
Paidwork	# of hours of paid work	4.948	2.878	0	13.512
Mpaidwork	# of hours of mother's paid work	4.031	2.754	0	13.789
Fpaidwork	# of hours of father's paid work	5.885	2.687	0	13.541
Paidhelp	Paid help	0.462	0.499	0	1
Hhincome (100 euro)	Household income	3676.643	1202.072	800	11066.67

Table 2

Parent's time spent on developmental and non-developmental childcare, hours per day

	Developmental care		Non-developmental care		
	M	SE B	M	SE B	N
<i>All Days</i>					
All parents					
Mother	1	.95	6.31	5.13	489
Father	.67	.82	4.67	4.14	489
<i>Education:</i>					
Highly educated ¹					
Mothers	1.05	.89	6.42	5.06	189
Fathers	.75	.85	4.57	4.46	166
Low educated ²					
Mothers	.96	.98	6.23	5.19	300
Fathers	.62	.80	4.72	3.97	323
<i>Weekdays</i>					
All parents					
Mother	.97	1.09	5.79	5.37	489
Father	.61	.93	3.90	4.25	489
<i>Weekend</i>					
All parents					
Mother	1.07	1.31	7.60	5.96	489
Father	.80	1.19	6.60	5.69	489

¹Tertiary level education, ²Below tertiary level education

Table 3

The Distribution of Developmental Child Care for Boys and Girls.

Hours per day

	N	Father	Mother
1 Child family			
1 Boy	103	.60	.77
	93	.54	1.01
2 Children family			
- 2 Girls	45	.57	1.11
- 2 Boys	59	.69	1.10
- 1 Girl and 1 boy	96	.71	.87

Table 4.

Fathers', Mothers' and Joint Developmental and Non-Developmental Child Care. Tobit Estimates

	DCARE				NDCARE			
	Father		Mother		Father		Mother	
	B	SE B	B	SE B	B	SE B	B	SE B
Meduc/feduc	.05*	.02	.03	.02	.09	.08	.06	.01
Homogamy	.07*	.03	-.03	.03	.19*	.10	.16	.11
Mrelincome	.07	.33	-.15	.30	-.93	1.16	-2.31 ⁺	1.26
Boy	.21 ⁺	.11	-.05	.10	.17	.38	-.24	.43
Mother agebirth	.02	.01	.00	.01	.05	.05	.15**	.06
Fage/mage	-.01	.01	-.04**	.01	-.11***	.03	-.24***	.05
Nchild	.20**	.08	.22***	.07	.35	.26	.29	.29
Mleave	.81***	.25	.68*	.27	6.30***	.91	8.44***	1.15
Child06	.34*	.14	-.02	.15	1.30**	.50	1.67**	.61
Child715	.06	.14	.07	.13	.33	.48	1.40**	.52
Mpaidwork/ fpaidwork	-.09***	.02	-.05**	.02	-.33***	.07	-.34***	.08
Paidhelp	.12	.10	.13	.09	.65 ⁺	.36	.65**	.39
Hhincome	-.00 ⁺	.00	-.00	.00	-.00	.00	-.00	.00
Cons	-.62	.57	1.87***	.53	6.25**	1.99	9.93***	2.21
Log likelihood	-473.95		-503.41		-1033.33		-1072.43	
LR chi2(..)	113.10		115.87		175.73		272.93	
Prob>chi2	0.00		0.00		0.00		0.00	
Pseudo R2	0.11		0.10		0.08		0.11	
Censored n	112		43		21		18	
Non-censored n	294		363		385		388	

+ p < .1. *p < .05. **p < .01. ***p < .001.

Table 5

The Distribution of Care Between Weekdays and Weekends. Tobit Estimates.

	Weekday				Weekend			
	Father		Mother		Father		Mother	
	B	SE B	B	SE B	B	SE B	B	SE B
Developmental care								
Meduc/feduc	.05	.03	.05	.03	.11**	.04	.05	.04
Homogamy	.10*	.04	-.04	.04	.04	.05	-.00	.05
Mrelincome	.02	.48	-.25	.42	.32	.61	.10	.54
Boy	.25	.16	.01	.14	.35 ⁺	.20	-.11	.18
Mother	.04 ⁺	.02	.00	.02	.03	.02	.02	.03
agebirth								
Mpaidwork/ fpaidwork	-.11***	.02	-.05**	.02	-.02	.03	-.05	.04
Paidhelp	.21	.15	.06	.13	.18	.19	.36*	.17
Hhincome	-.00	.00	-.00	.00	-.00 ⁺	.00	-.00	.00
Cons	-1.13	.82	1.76*	.73	-1.88 ⁺	1.03	1.41	.95
Log likelihood	-490.50		-569.13		-545.10		-626.24	
Non-developmental care								
Education	.13	.10	.02	.10	.04	.13	.14	.14
Homogamy	.23*	.11	.12	.11	.18	.15	.30*	.15
Mrelincome	-.18	1.32	-1.75	1.35	-3.03 ⁺	1.83	-3.54*	1.76
Boy	.04	.44	-.17	.46	.46	.61	-.51	.60
Mother	.07	.05	.16**	.06	.05	.07	.22**	.08
agebirth								
Paid work	-.33***	.06	-.32***	.06	-.39***	.09	-.37**	.12
Help	.97*	.41	1.14**	.42	-.19	.57	-.59	.55
Hhincome	-.00 ⁺	.00	-.00	.00	-.00	.00	-.00	.00
Cons	5.04*	2.27	9.20***	2.37	8.81**	3.11	10.80***	3.08
Log likelihood	-1015.06		-1079.12		-1151.76		-1166.60	

Note: Other independent variable included in the analyses, see table 4.

+ p < .1. * p < .05. ** p < .01. *** p < .001.

Table 6

*The Distribution of Care Among Highly Educated and Lower Educated Women and Men.**Tobit Estimates*

	Lower educated ²				Higher educated ¹			
	Father		Mother		Father		Mother	
	B	SE B	B	SE B	B	SE B	B	SE B
Developmental care								
Homogami	.01	.04	-.06	.04	.13***	.04	-.01	
Mrelincome	.42	.44	.12	.39	-.32	.49	-.33	.50
Boy	.34*	.16	.08	.13	.11	.15	-.24	.15
Mother	.01	.02	-.00	.02	.05**	.02	.01	.02
agebirth								
Mpaidwork/ fpaidwork	-.07**	.03	-.06**	.02	-.09***	.03	-.02	.03
Paidhelp	.17	.14	.12	.12	.01	.14	-.12	.15
Hhincome	-.00*	.00	-.00	.00	-.00	.00	-.00	.00
Cons	.18	.79	2.39***	.66	-.03	.75	2.19**	.77
Log likelihood	-285.37		-302.70		-178.62		-196.78	
Non-developmental care								
Homogamy	.07	.14	.09	.15	.19	.15	.34*	.17
Mrelincome	.25	1.45	-2.76 ⁺	1.60	-2.69	1.91	-.63	2.12
Boy	.04	.50	-.56	.55	.57	.60	.03	.66
Mother	.02	.06	.16*	.07	.12	.08	.12	.10
agebirth								
Mpaidwork/ fpaidwork	-.31***	.09	-.38***	.10	-.38***	.10	-.29*	.12
Paidhelp	.05	.46	.09	.50	1.35*	.56	1.41*	.63
Hhincome	-.00*	.00	-.00	.00	.00	.00	-.00	.00
Cons	9.45***	2.55	10.04***	2.72	4.58	2.95	11.76***	3.30
Log likelihood	-610.14		-641.70		-415.37		-425.00	

Note: Other independent variable included in the analyses, see table 4.

¹Tertiary level education. ²Below tertiary level education

+ $p < .1$. * $p < .05$. ** $p < .01$. *** $p < .001$.