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# Does child welfare depend on parents' employment?

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**Abstract:** It is hypothesised that children's welfare – among other things - depends on their parents' employment. The purpose of this paper is to analyse this relationship for a sample of Danish children born in 1995. The data are several waves of the Danish Longitudinal Child Panel as well as data from administrative records. We use the SDQ-index as a measure of child welfare and analyse the relationship between the SDQ-scores and a number of background variables with a specific focus on the effect of parental employment. Preliminary results show that parental employment does not play a large role for child welfare, and especially not for girls. Other factors with more importance are household income, having a stepfather, and birth complications.

*Keywords:* child welfare, parental employment

*JEL-codes:* I31, J13, J22

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## **1. Introduction**

The issue of child welfare is a concern for every society. Of course as a concern in itself – opposite adults, children cannot control their own life circumstances and are thus dependent on caring and responsible parents. But also because the children of today are the adults of tomorrow and their life circumstances as children are related to their outcomes as adults – in terms of educational attainment, labour market attachment and income opportunities (Fronstin, Greenberg and Robins, 2005).

International studies have often found that mothers' employment have a negative effect on their children's welfare outcomes (see Gagné, 2005, for a thorough review, where several American and Canadian analyses show negative impacts on child outcomes from maternal employment). However, many of these studies are from countries where women's labour force participation rates are considerably lower than men's (although increasing) and thus from countries where a non-working mother is relatively common. To put it extreme, it could be argued that working mothers of young children are breaking the norms. The question, however, is whether this conclusion holds in a country where non-working women are almost as rare as non-working men, and where being active in the labour market is the norm also for mothers with very young children. In Denmark, the labour force participation rate for mothers of 7-year-olds is 91.5% (our sample). Therefore, it is of interest to analyse the relationship between child welfare and parents employment in the Danish context.

The data used for the analyses is a unique datasets consisting of two waves of the Danish Longitudinal Child Panel involving children born in 1995 (the first wave from 1995 and the third wave from 2003) merged with data from administrative records covering the period 1994-2002. The analyses take the children's wellbeing in 2003 as the starting point. As this time, the children are aged 7 years and have recently started school. Wellbeing is measured using the psychometric SDQ-index (Strength and Difficulties Questionnaire), developed in 1996.

The following sections include previous findings in section 2, SDQ as outcome measure for child wellbeing in section 3, data in section 4, results in section 5, and finally concluding remarks in section 6.

## **2. Previous findings**

What is child outcome? How do scholars classify effects on children? The major part of the field is research on educational attainment (e.g. Anguiano, 2004, and Ermisch and Francesconi, 2002, 2005), fewer on teenage pregnancy or work-related outcomes (see Haveman and Wolfe, 1995, for a thorough review), while others use cognitive development through standardized test scores (e.g. Blau and Grossberg, 1992, and Lefebvre and Merrigan, 1998b, using PPVT (Peabody Picture Vocabulary Test score), Gagné, 2005, using several behavioural outcomes from NLSCY (the Canadian National Longitudinal Survey of Children and Youth), Videon, 2005, using CES-D (Center for Epidemiologic Studies Depression Scale) to measure psychological well-being, and Fuller, Caspary, Kagan, Gauthier, Huang, Carroll, and McCarthy, 2002, using CBCL (Child Behaviour Checklist)).

Many economics analyses of child outcomes are founded on Becker's theories. In Becker's world, children serve as one of the commodities that parents base their utility on, and hence child quality depends on the amount of resources put in the children. Using a sociological framework, input can be economic capital, human capital, social capital and cultural capital. Economic capital is captured by the family's income and the parent's attachment to the labour market. Human capital is approximated by the parent's educational level. Social capital is resources based on group memberships and networks. The parents influence the children through their attitudes and knowledge about the society, i.e. through cultural capital. The well-being of children strongly depends on their parents' resources through the parent's amount of capital, and on the parents' investment in the children.

Much research on child outcomes has focussed on the impact of parental work, differing in choice of child outcome as well as impact measures, mostly using maternal work as explanatory variables. The data background ranges from small unrepresentative field samples (Ferguson, 2006) to large longitudinal and representative samples of children, e.g. NLSY79 (the American National Longitudinal Survey of Youth) or NLSCY (the Canadian National Longitudinal Survey of Children and Youth). An excellent summary on studies mostly NLSY and NLSCY in addition to new research using four cycles of NLSCY, are found in Gagné (2005). Gagné (2005) uses several child outcomes transformed into deciles taking the child's gender and age into account, among them child hyperactivity, conduct disorder, indirect aggression, and emotional disorder scores, as well as

several parent and family outcomes. The work variables are hours of work, and if the parents work shift work, how this shift work is placed during the days and week. Using fixed effects, the findings suggest that parents and children may suffer from long hours of work and from shift work. Interestingly, shift work can be more of a problem in two-parent families than in single parent families, and the impact from shift work is not negative for all types of shift work.

Analysing the effect of mother's job characteristics on child outcome, Lefebvre and Merrigan (1998a) try to answer four questions: Does maternal employment have positive or negative implications for the child's outcomes; does better child outcome reflect differences between families; are child outcome affected by parental employment conditions; and are there factors through which parental income and characteristics affect children's outcomes? The answers are not unambiguously negative. Maternal work itself is not harmful for children. But as Lefebvre and Merrigan state: Working parents are probably finding the correct substitutes for their absence, making their children's intellectual development adequate.

Haveman and Wolfe (1995) review empirical research on the links between investments in children and children's attainments. More specifically, Ferguson (2005) surveys the literature on effects from social capital on children's wellbeing, and concludes that using a social capital theoretical approach is valuable in exploring various outcomes related to children and young people's wellbeing.

Analyses in the Danish context are rare – only exceptions are Christensen (2000, 2004, and 2005) using the SDQ scale for child outcome. In 2000, Christensen concludes that 9 out of 10 3-year-olds are doing well, but the remaining 10 pct. are worse off, usually because of the parent's scarce resources. Christensen (2005) concludes on the same children, now 7-year-olds that ethnic minority children do not differ from Danish-born children when concluding on the SDQ-outcome. There is a strong relation between Danish children's outcome and their parent's resources, whereas this relation is weaker for children of ethnic minorities. Additionally, ethnic minority children do not have more difficulties at school-start than Danish-born children. The analyses are based on the Danish Longitudinal Child Panel that is also used in this paper.

### **3. SDQ as outcome measure for child well-being**

Naturally, child welfare is not a unique number and it is thus necessary to clarify and quantify the concept before it can be used in an empirical analysis. In this paper, child wellbeing is defined on basis of the SDQ-index (Strength and Difficulties Questionnaire). The SDQ-index is a psychometric index based on 25 questions about the child's conduct in 5 categories: emotional symptoms, misconduct symptoms, hyperactivity, peer problems, and prosocial behaviour. In each category, there are 5 questions where the answers lie in 3 categories: Not true, somewhat true, and certainly true, ranging from 0 to 2, reversing the scale on positive questions (see [www.sdqinfo.com](http://www.sdqinfo.com) for a more thorough description). The answers from the first 4 categories are then added together to a total difficulties score. The total difficulties score is a continuous variable that ranges from 0-40, but is usually classified in the categories normal (a score of 0-13), borderline (a score of 14-16) and abnormal (a score of 17-40).

Interpreting the three groups, the normal group consists of children with a statistically normal score, i.e. children that are doing fine according to their age and do not have fewer or more difficulties than what is considered normal. So these are the ordinary children. The second group consists of children with more problems. Their problems may not be severe, but still beyond what is considered normal. Therefore this group is labelled the borderline group. Finally, the third and last group consists of children who definitely have more problems than what is considered normal, and thus this group is labelled the abnormal group.

The 25 SDQ questions were asked in the 3<sup>rd</sup> wave of the Danish Longitudinal Child Panel. The questions were typically answered by the mother and thus reflect the parents' assessment of their children. However, because the questions are relatively positively formulated, psychiatrists have found the answers to be quite reliable (Obel, Dalgaard, Stax and Bilenberg, 2003). Furthermore, the scale has been used in all the Nordic countries resulting in similar distributions across the different data sets, also implying that the scale can be used across countries (Obel et al, 2004<sup>2</sup>). In this paper, we focus on the difficulties index, i.e. the first 20 SDQ-questions.

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<sup>2</sup> Obel, Heiervang, Rodriguez, Heyerdahl, Smedje, Sourander, Gudmundsson, Clench-Aas, Christensen, Heian, Mathiesen, Magnusson, Njardvik, Koskelainen, Rønning, Stormark and Olsen, 2004.

### *Strengths and difficulties of the strength and difficulties questionnaire*

In relation to the analyses in this paper, the great advantage of using the SDQ index is that it is a measure of child wellbeing developed by experts within the field. Throughout the world, the application of psychometric instruments within the child- and youth psychiatry has been growing fast the last decade (Obel, Dalgaard, Stax and Bilenberg, 2003), first using CBCL (Child Behaviour Checklist) developed in the US (Achenbach, 1991), and then later in many analyses using SDQ (Strength and Difficulties Questionnaire), which was developed in England in 1996 (Obel et al, 2003). Compared to CBCL, SDQ is a more positive and informant-friendly screening instrument involving fewer questions (25 versus 118). Thus, by using the SDQ-index we avoid using an arbitrarily defined outcome measure.

On the other hand, in a thorough mapping of child welfare a classification like the SDQ index naturally cannot stand alone. The clinical users of the SDQ have a consensus that the SDQ classification is not to be used alone, without other clinical examinations or attempts to diagnose; whereas we in this analysis have to take the SDQ as *the* measure for total score of difficulties.

## **4. Data**

The data used in the paper originates from the first and the third wave of the Danish Longitudinal Child Panel as well as data from administrative records. The Danish Longitudinal Child Panel is a survey carried out by the Danish National Institute of Social Research among 6000 children born in 1995. The first wave of the panel was carried out in 1996, where the children were ½-1 years old. The second wave was conducted in 1999, where the children were about 3 years; and the third wave was carried out in 2003, where the children were about 7 years old and had all started school. The fourth wave of the panel will be carried out in 2006. In all waves the primary parent – in almost all cases this is the mother - has completed a questionnaire, although in the first and third wave there was also a “father-questionnaire”.

The issues in the child panel questionnaire are mainly concerned with the children’s physical and mental development, along with the need for basic knowledge on children’s family background and development. The proposal is to continue the longitudinal aspect every third or fourth year. For the purpose of this paper, especially the SDQ-questions included in the third wave are interesting. The

parents' attachment to the labour market is not very well covered in the questionnaires, however. Therefore, the information from the questionnaires is merged with data from administrative records from Statistics Denmark, providing information about education, labour market status and income.

For the present analysis, we have restricted the data so that we only include children with a valid SDQ-score who are living with two adults in 2003. Thus, we exclude children who live with single mothers or single fathers. By excluding these, we are able to study the impact of both adults on the child's wellbeing. However, it is clear that the well-being of children in single-parent families is equally important and consequently we have also tried to do the analyses for these families. However, the number is too few for analyses (599 of the children live with single mothers and 58 of the children live with single fathers). We do not restrict the analysis to couples consisting of the biological parents, however; although in practice we have to restrict the mothers to be the biological mothers in order to be able to use the information from the first wave. Our sample thus consist of 3,369 children who all live with their mother and either their biological father or a step-father.

### *SDQ*

The main variables of interest are the children's SDQ-scores, described in the previous section. The classification of the children on the aggregate SDQ-scale as well as the classifications on the five sub-scales is presented in table 1. Looking at the numbers, the first and most important finding is that in general most children are doing fine and do not have extraordinary problems. From the aggregate SDQ-score, we thus see that 9 out of 10 children are doing fine. However, a smaller group of children have more problems – divided about evenly in the group with some more problems than the normal group (3.92%) and the group with a more severe amount of problems (4.30%). Although a minority, these children deserve attention, especially because their problems tend to be persistent over time (Obel et al., 2003).

Looking at boys and girls, a significant gender difference is found. More 7-year old boys thus have non-normal problems than girls. Of course, the questions are gender-neutral and, thus, the finding could reflect that boys are slower in their development than girls. But on the other hand, the result could also reflect the simple fact that more boys than girls have severe problems and should be helped accordingly.

Looking at each of the 5 sub-scales also presented in table 1, some interesting gender differences are found. Thus, boys and girls do not differ on the emotional problems scale and the conduct problems scale; whereas more boys than girls have hyperactivity problems and problems with pro-social behaviour, while more girls than boys have peer problems. The children's problems are thus gender-specific to a certain extent, as boys and girls tend to have more problems in different areas.

**Table 1. SDQ scores for children 7 years old in 2003**

	<b>Normal</b>	<b>Borderline</b>	<b>Abnormal</b>
<i>SDQ</i>			
All children	91.78	3.92	4.30
Boys	90.22	4.64	5.14
Girls	93.50	3.13	3.38
<i>Emotional problems</i>			
All children	82.49	7.66	9.85
Boys	83.10	7.12	9.78
Girls	81.81	8.25	9.94
<i>Conduct problems</i>			
All children	82.93	9.29	7.78
Boys	82.70	8.59	8.71
Girls	83.19	10.06	6.75
<i>Hyperactivity problems</i>			
All children	87.33	4.30	8.37
Boys	84.57	4.86	10.57
Girls	90.38	3.69	5.94
<i>Peer problems</i>			
All children	92.28	3.62	4.10
Boys	90.56	4.35	5.09
Girls	94.19	2.81	3.00
<i>Pro-social behaviour</i>			
All children	96.39	2.04	1.58
Boys	94.83	2.85	2.32
Girls	98.09	1.15	0.76

**Table 2. Means of explanatory variables**

	<b>All children</b>		<b>Boys</b>		<b>Girls</b>	
	Mean	Std dev	Mean	Std dev	Mean	Std dev
<i>Parents' age</i>						
Mother	36.574	4.446	36.636	4.422	36.505	4.472
Father	38.897	5.467	38.842	5.495	38.959	5.441
<i>Parents' qualifying education</i>						
Mother	0.781	0.413	0.776	0.417	0.787	0.409
Father	0.777	0.417	0.781	0.414	0.769	0.421
<i>Labour market attachment</i>						
Mother wage-earner	0.854	0.353	0.854	0.353	0.854	0.353
Mother self-employed	0.034	0.182	0.036	0.187	0.032	0.176
Mother unemployed	0.027	0.162	0.025	0.156	0.029	0.169
Mother on pensions	0.076	0.265	0.077	0.266	0.076	0.264
Mother under education	0.009	0.092	0.008	0.089	0.009	0.096
Father wage-earner	0.859	0.348	0.852	0.355	0.868	0.339
Father self-employed	0.097	0.296	0.102	0.302	0.093	0.290
Father unemployed	0.012	0.107	0.011	0.106	0.012	0.108
Father on pensions	0.030	0.170	0.032	0.177	0.027	0.162
Father under education	0.002	0.046	0.003	0.053	0.001	0.035
Mother's unemployment since 1980	1.647	1.878	1.648	1.870	1.644	1.887
Father's unemployment since 1980	0.930	1.508	0.919	1.537	0.942	1.477
Mother's working hours per week	33.745	9.410	33.782	9.360	33.704	9.461
Father's workings hours per week	42.757	10.670	42.475	10.304	43.068	11.055
Mother public employed	0.522	0.500	0.526	0.499	0.518	0.500
Father public employed	0.202	0.401	0.209	0.407	0.194	0.395
<i>Economic situation</i>						
Household gross income (100.000 Dkr.)	6.791	2.926	6.782	3.014	6.801	2.826
Income above 500.000 Dkr.	0.800	0.400	0.793	0.406	0.808	0.394
Mother's share of income (%)	41.255	12.938	41.648	13.034	40.819	12.821
<i>Family background</i>						
Living in Copenhagen	0.273	0.446	0.280	0.449	0.266	0.442
Living in urban area	0.325	0.468	0.330	0.470	0.319	0.466
Living in rural area	0.402	0.490	0.390	0.489	0.415	0.493
Mother born in Denmark	0.983	0.130	0.983	0.129	0.983	0.131
Step-father	0.067	0.248	0.067	0.251	0.064	0.245
Mother been hospitalised	0.151	0.358	0.151	0.359	0.150	0.357
Father been hospitalised	0.133	0.339	0.134	0.341	0.131	0.338
Number of children	2.322	0.760	2.278	0.745	2.371	0.773
<i>Child-specific variables</i>						
First child	0.446	0.497	0.460	0.499	0.432	0.495
Second child	0.352	0.478	0.346	0.476	0.359	0.480
Third+ child	0.201	0.401	0.194	0.396	0.209	0.406

Reading/singing to the child	0.801	0.399	0.800	0.400	0.803	0.398
Child's height/weight in 2003	5.068	0.663	5.005	0.651	5.137	0.670
Smoking around the child in 1996	0.212	0.409	0.204	0.403	0.221	0.415
Child born premature	0.038	0.192	0.040	0.195	0.037	0.189
Complications at birth	0.319	0.466	0.327	0.469	0.310	0.463
Boy						
Number of obs.	3369		1769		1600	

### *Explanatory variables*

The explanatory variables are mainly found in the 2003 questionnaire of the child panel and in the administrative records from 2002, which is the latest available year.<sup>3</sup> A few variables from the first wave of the child panel are also included though. The variables are described in the following and means are presented in table 2.

First of all, we have the mother's and the father's age in 2002, which on average is about 36 years for mothers and 39 years for fathers. Note that this age is equivalent to parents' age at birth plus 7 years as all children are from the same birth cohort. Also note that although we in general use the term "father", in some families this is actually a step-father. In general, a positive effect of age is expected as very young parents may be less able to provide good life circumstances for their children (e.g. teenage mothers). On the other hand, very old parents could also be expected to be problematic for various reasons. Parents' level of education is only included as a dummy for whether the parent has a qualifying degree or not. Although more detailed education information is available in the registers, this variable did not work very well in the analyses and is thus only included at this aggregate level. Nevertheless, the expectation is that children of better educated parents do better than children of lower educated parents. About 78% of both mothers and fathers have completed a qualifying education in 2002.

Concerning labour market attachment, a number of variables are included. First of all, the labour market status is defined in five categories – wage earner, self-employed, unemployed, pensioner and under education.<sup>4</sup> For both mothers and fathers, the rate of employment is very high – about 89% of the mothers and 95% of the fathers. Besides reflecting the good business-cycle in 2002,

<sup>3</sup> As the survey was carried out in the spring 2003, and most of the register data are from ultimo 2002, the two types of data are actually very close to each other in calendar time.

<sup>4</sup> These five categories are exclusive. Thus, none of the mothers or fathers in our sample are "home-working".

these high numbers reflect that couples with younger children belong to the core group of the Danish labour market. Besides this, we have a variable from the administrative records summing total unemployment since 1980 – measured in years. Typically, the parents in our sample are not old enough to have been working since 1980 and, thus, the variable measured unemployment since entering the labour market. On average, the mothers have been more unemployed than the fathers – 1.6 years compared to 0.9 years. A weakness with this variable, however, is that we do not know whether the unemployment spells happened before or after the children were born.

In addition to overall labour market status and unemployment, we know weekly working hours for the employed parents from the 2003 survey. Fathers work more than mothers – 43 hours a week compared to 34 hours a week, which should be balanced against the Danish full-time week norm of 37 hours. Thus, the typical father works more than full-time, whereas the typical mother works less. The last labour market variable is whether the parents are publicly employed or not in 2003. Unfortunately, quite a few responses are missing for this variable. However, among the parents that answered the questions a little more than half of the mothers were employed in the public sector compared to only 20% of the fathers. This reflects the very strong horizontal gender segregation of the Danish labour market.

To capture the families' economic situation, we include the household gross income (from 2002) as well as a dummy for the gross income being above 500.000 Dkr. We include both variables in order to study the impact of income as a continuous variable compared to a threshold being more important. It could thus be argued that higher income parents have more resources to put into their children who will thus have fewer problems. But it could also be argued that as long as the family does not belong to the low-income group, the level is not that important. We find that 80% of the families have gross incomes above 500.000 Dkr in 2002. In addition, we look at the mother's share of the household income. On average this share is 41%. The hypothesis is that a higher share reflects a more equal relationship between the mother and the father which will have a positive effect on the child.

A number of family background variables are included in the analysis. Geographical location is defined as living in Copenhagen (i.e. the metropolitan area), living in an urban area, or living in a rural area. A third of the families live in urban areas, a little less in the metropolitan area, and a little

more in rural areas. Almost all mothers (98%) are born in Denmark, whereas the rest are immigrants. Almost 7% of the children live with step-fathers. These children have typically been through a divorce earlier in life and are thus expected to have more problems – also because a step-father may not be as empathetic as the biological father. Two dummies for parents being hospitalised are included. These dummies are based on survey-questions about any periods of hospitalisation within the last four years. Parents' sickness is expected to be a burden on the family with possible negative consequences for the children's wellbeing. Finally, number of children in the families is included. The average is 2.3, which may seem a relatively large number, but of course all the families have at least one child.

The last group of explanatory variables is termed child-specific variables. We include whether the child is first, second, or third or more in the birth order of the family. One could expect this to matter as parents might invest more time in the first-born. From the survey, we also have information about whether the parents sing or read aloud for the child daily or almost daily. We expect this to reflect the level of cognitive stimulation of the child. About 80% of the parents sing or read aloud daily or almost daily. Also from the survey, we have information about the child's weight in 2003. We expect that deviating from the norm in this respect – either positively or negatively – can be problematic for a child. Finally, three interesting variables from the first wave of the child panel survey in 1996 are included in the analysis. The first of these is a dummy reflecting whether someone smoked in the same room as the child in 1996, i.e. at a time when the child was too young to move away from the smoke. This was the case for about 20% of the infants. We also have information about whether the child was born premature, defined as a month or more before the due date, and whether there were any complications in connection to the birth. These variables are included in the analysis to study whether such very early influences may have a lasting effect on the child's wellbeing.

Also presented in table 2 are the gender specific means of the explanatory variables. However, as expected the differences between boys and girls are few and insignificant.

## 5. Results – effect of individual characteristics

The model used in this analysis is given by:

$$(1) \quad \text{SDQ} = \alpha + \beta' X + \varepsilon$$

Where SDQ-index is defined as:

$$\text{SDQ} = \begin{cases} 0 & \text{if normal} \\ 1 & \text{if borderline} \\ 2 & \text{if abnormal} \end{cases}$$

Because SDQ is a discrete variable taking 3 values, (1) is estimated by ordered probit. We thus assume that the SDQ-index is a latent but continuous descriptor of the response variable, here the underlying SDQ-score. Additionally, the random error term associated with the continuous descriptor is assumed to follow a normal distribution.

Table 3 presents the ordered probit estimates of (1) for the pooled sample of all children and for boys and girls separately. Positive coefficients indicate a higher probability of a higher order SDQ – i.e. a child that is worse off - whereas a negative coefficient indicates a higher probability of a lower order SDQ - i.e. a child that is better off.

As we have three levels in the discrete SDQ-variable, we have two intercepts in the ordered probit estimation. The second intercept, intercept2, is the intercept from level 1 (borderline) to level 2 (abnormal). The significant and positive coefficient to intercept2 in Table 3 shows that there is a significant difference between children at the borderline and abnormal children, measured by SDQ. At the same time, the intercept from level 0 (normal) to level 1 (borderline) is only significant when looking at all children or only boys, indicating that when taking account of all the other factors, there is no difference in the levels for normal and borderline girls. This suggests that it is important to distinguish between children in the borderline group and children in the abnormal group, but also distinguish between normal boys and boys at the borderline.

Results from Table 3 show that the older the mother is the lower is the probability of being borderline or abnormal, whereas the father's age does not matter. However, the coefficient is only significant for boys, indicating that mother's age is more important for boys than for girls.

Parent's educational level does not matter, other things equal. Usually, we expect that parent's educational level, i.e. parent's human capital, has a significant positive effect on child wellbeing. But taking account of all the other factors, education apparently has no effect on children's wellbeing in the Danish context.

According to labour market attachment, only self-employed fathers seem to have an effect. Split by gender of the child, we see that boys having a self-employed father have a significantly higher probability of being borderline or abnormal, whereas girls having an unemployed father have a significantly higher probability of being borderline or abnormal child.

The longer the parents have been unemployed, measured in years since 1980, the higher is the probability of being a borderline or abnormal child, but this is only true for the boys. Mothers weekly working hours in 2003, given that the mother is working, have a significant and negative impact on the boys SDQ, saying that the longer the mother is working, given that she is working, the better off the boys are.

The higher the household gross annual income in 2002 is the lower is the probability of being abnormal. Having a household income higher than 500.000 Dkr. in 2002 (approximately 67.000 Euro) gives a lower probability of being abnormal; and the larger the mother's share of the total income, the lower is the probability of being a borderline or abnormal child. However, these effects disappear in the gender specific estimations, except for mother's share of income that has a significant effect for boys.

Children living outside the Copenhagen area have a significant lower probability of being abnormal, whereas children living in a family with a step-father as expected have a higher probability of being abnormal. The effect of having a stepfather is significant for both boys and girls.

Reading or singing for the child daily or almost daily significantly decreases the probability of being borderline or abnormal, but again this only affects the boys. In addition, smoking in the same room as the child in 1996 (when the child was less than 1 year old) significantly increases the probability of boys being borderline or abnormal, while smoking did not have any effect on the girls.

Another variable, constructed for the purpose, is the height/weight in 2003. Results indicate that tall low-weight children and short high-weight children have a higher probability of having a SDQ-score outside the normal area, compared to children having a more general proportion between their height and weight.

Girls being born with birth complications have a higher probability of being abnormal.

Finally, we find that boys have a significant higher probability than girls of having borderline or abnormal SDQ scores.

**Table 3 Ordered Probit Estimations Results**

	<b>All children</b>			<b>Boys</b>		<b>Girls</b>		
	Coeff.	Std. Err		Coeff.	Std. Err	Coeff.	Std. Err	
Intercept	3.59	1.13	***	4.73	1.44	***	2.28	1.95
Intercept2	0.37	0.03	***	0.39	0.04	***	0.35	0.05 ***
<b>Parents age:</b>								
Mother	-0.02	0.01	**	-0.03	0.02	**	-0.01	0.02
Father	0.00	0.01		0.00	0.01		-0.01	0.01
<b>Parents Educational Level (dummy for qualifying education):</b>								
Mother	0.07	0.08		0.16	0.11		-0.03	0.13
Father	0.01	0.08		-0.04	0.10		0.14	0.13
<b>Labour Market Attachment:</b>								
Mother self-employed	-0.01	0.24		-0.27	0.35		0.26	0.33
Mother unemployed	-0.04	0.18		-0.05	0.24		-0.09	0.28
Mother on pensions	-0.06	0.13		-0.11	0.18		-0.07	0.21
Mother under education	0.03	0.31		0.22	0.41		-0.17	0.55
Father self-employed	0.39	0.16	**	0.45	0.22	**	0.28	0.25
Father unemployed	0.09	0.25		-0.66	0.47		0.65	0.33 **
Father on pensions	0.14	0.18		0.35	0.23		-0.15	0.31
Father under education	-5.50	3684.54		-5.69	7240.35		-4.65	6936.10
Mothers total degree of unempl.	0.05	0.02	***	0.07	0.03	***	0.03	0.03
Fathers total degree of unempl.	0.06	0.02	***	0.06	0.03	**	0.04	0.03
Mothers working hours per week	-0.01	0.00	**	-0.01	0.01	*	-0.01	0.01
Fathers working hours per week	0.00	0.00		-0.01	0.00		0.00	0.01
Mother publicly employed	-0.10	0.07		-0.07	0.10		-0.18	0.11
Mother sector unknown	-0.09	0.16		-0.10	0.23		-0.10	0.23
Father publicly employed	-0.14	0.10		-0.13	0.13		-0.22	0.17
Father sector unknown	-0.21	0.14		-0.29	0.19		-0.12	0.21
<b>Economic Situation:</b>								
Household Gross Income	-0.28	0.15	*	-0.26	0.21		-0.33	0.21
More than 500.000 Dkr.	-0.19	0.10	*	-0.23	0.14	*	-0.15	0.16
Mothers share of income	-0.01	0.00	*	-0.01	0.00	*	0.00	0.00
<b>Family Background:</b>								
Living in urban area	-0.28	0.09	***	-0.38	0.12	***	-0.16	0.15
Living in rural area	-0.24	0.08	***	-0.34	0.11	***	-0.10	0.14
Mother Danish-born	-0.27	0.22		-0.53	0.29	*	0.15	0.41
Step-father	0.31	0.12	***	0.35	0.16	**	0.32	0.18 *
Mother been hospitalised	0.09	0.09		0.07	0.12		0.12	0.14
Father been hospitalised	0.13	0.09		0.06	0.13		0.17	0.15
Number of children								
<b>Child-specific variables:</b>								
Child nr. 2 in line	-0.05	0.05		-0.06	0.07		-0.03	0.08
Child nr. 3 or more in line	-0.05	0.08		0.02	0.11		-0.12	0.13
Reading/singing to the child	0.05	0.12		0.15	0.16		-0.12	0.19
Reading/singing to the child	-0.24	0.08	***	-0.30	0.10	***	-0.16	0.12
Child's height/weight in 2003	-0.99	0.39	**	-1.02	0.48	**	-0.85	0.69
Child's height/weight squared	0.09	0.04	**	0.09	0.05	*	0.07	0.07
Smoking around the child in '96	0.21	0.08	***	0.24	0.10	**	0.15	0.12
Child born premature	0.18	0.15		0.07	0.22		0.33	0.22
Complications at birth	0.14	0.07	**	0.05	0.10		0.27	0.11 **
The child is a boy	0.21	0.07	***	-	-		-	-
Log Likelihood	-1043.86			-609.84		-417.83		

## **6. Concluding remarks**

The issue of child welfare is a concern for everybody. In our analysis of Danish children's welfare, we use data on 7-year-olds from the first and the third wave of the Danish Longitudinal Child Panel as well as data from administrative records. We base the analysis on the Becker hypothesis: that child quality depends on the amount of resources put in these children (Becker, 1981). Children's welfare is measured by the SDQ, a psychometric index of scores on strength and difficulties, and is to some extent influenced by the parent's economic capital, human capital, social capital and cultural capital. Higher family income has a significant effect on the SDQ-score in the positive direction, i.e. children of higher-income parents have a lower probability of being outside the normal area in the SDQ-index. And the longer the parents have been unemployed in their labour market career, the higher is the probability of abnormality for the child. On top of that, parent's investment in the children's cultural capital through frequently reading or singing for the child lower the probability of being outside the normal area.

However, there are considerable differences between boys and girls. 7-year-old boys are much more affected by their family background and parent's living and doing. In this analysis, being first of a series, girl's welfare, measured by the SDQ-scale, is only affected by mother's current unemployment, step-fathers, and poor birth conditions with birth complications.

The analyses are still at the preliminary level. Future analyses will include analysing the sub-scores, in order to understand the gender differences e.g. between peer problems and hyperactivity problems better. In addition, marginal effects must be calculated for all coefficients to be able to compare sizes of effects. Finally, we plan to explore whether the variation in underlying scores (the SDQ score ranging from 0-40) can be utilised otherwise than by the ordered probit model.

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