Child Gender and its Effects on Parental Labor Market Participation: A Robust Tale of Danish Parents

Sander Wagner

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Abstract

Many recent studies have stressed that even in industrialized countries the gender of a child can have a significant impact on such parental behaviors as the division of paid work and housework arrangements in the couple as well as of marriage behavior and couple stability. A possible weakness of these studies is that the potential endogeneity of child gender, while acknowledged, is normally not directly accounted for. Using 27 years of registry data including the entire Danish population we first assess which factors influence sex ratios at birth. We then go on to look at whether these factors mediate the effects of child gender on parental labor market outcomes in any meaningful way. We find that the results are remarkably robust and that there is no evidence of mediation. Surprisingly having a son negatively affects the long-term income trajectory of fathers.

1 Introduction

Throughout history numerous societies did not only assign very different roles to men and women but also exhibited different preferences towards having sons or daughters. This often implied that the allocation of resources as well as the economic decision-making within households tended to differ strongly, dependent on whether a newborn child turned out to be a son or a daughter. Nowadays such strong child preferences are primarily associated with some societies in South and East Asia. In industrialized countries there is much less evidence of parental discrimination in favor of sons, what we do instead observe seems to be a preference for "balanced" families, with families not having a child of each gender yet, showing a greater propensity to continue having children [2] [29] . Apart from that, discrimination between boys and girls is mostly viewed as being either relatively small or irrelevant in industrialized countries. For example Meadows shows that child well-being for girls and boys in the United States is indeed very similar [28]. However a series of relatively recent studies done by psychologists, sociologists and economists that were made possible either through the availability of big datasets or time-use data have documented that, even though direct gender discrimination is not so much of an issue, child gender still has important effects on family decisions in industrialized nations. Differences dependent on child gender are shown to exist for parenting decisions such as time use, family structure and marital stability. Lundberg [24] provides an extensive survey of this literature. The majority of these studies have been done on US data, so as Lundberg [24] points out relatively little is known on how strongly results vary across populations or time. Since we have a large longitudinal dataset measuring all births in the Danish population our aim is to partially close that knowledge gap. Another area of concern with the currently existing literature on gender effects is that child gender might not be as exogenous as is often assumed. This is particularly worrisome, since many of the results we have on gendered effects tend to come from studies identifying the existence of small effects using large datasets, thus a small change to the estimate due to omitted variable bias could easily mean that previously significant results were actually insignificant. If some parental characteristic has a small effect on the sex-ratio at birth, but at the same time potentially influences the parental outcomes, which we look at when assessing the effects of child gender our results could easily be driven by ommited variable bias or selection effects. While most studies acknowledge that the sex ratio at birth is not entirely exogenous and might slightly vary due to a great many factors, we are not aware of any that consciously checks the for factors influencing birth probabilities in the sample before going on to estimate effects of child gender. The only factor that the recent economics and sociology literature on child gender consistently controls for, since it is widely acknowledged to affect the probability of child gender is age, and often only maternal age.

However the recent biology and demography literature tends to identify a much larger series of factors with the potential to affect birth probabilities. The demographic literature for example includes many examples that across population and ethnic groups the birth probabilities of boys/girls can differ quite significantly [6]. Further the biological literature has found some evidence for such factors as stress during pregnancy potentially influencing child gender [19]. Finally some evolutionary biologists tend to highlight that natural selection might favor species as well as individuals which can adjust the ratio of their offspring [35], which has led to speculation on factors such as intelligence, height and environmental conditions affecting the sex ratio. These theories remain highly controversial however and have often not stood the test of replication. Further, since child gender at first birth and much more explicitly child sex-composition after second birth influences parental behavior and fertility decisions there is also a line of arguments saying that any births after second birth or potentially even after firstbirth suffer from contamination and selection issues due to the effects of the previous child [24]. We will go on to discuss these factors and their implications in section 2 and will then continue with discussing the effects of child gender on parental behavior in section 3. In the empirical sections 4 and 5 we first present models exploring factors that influence birth probabilities by looking at the entire Danish population between 1980-92 and then go on to look at the effects of child gender on parental incomes and employment. Section 6 concludes.

2 Determinants of Child Gender

While there have been many attempts at and superstitions about how to influence the gender of a new child, ranging from dietary advice to the Chinese Birth Calendar, the generally prevailing view has remained that the gender of a newborn child is practically random. From this perspective, whether a baby turns out to be a boy or a girl represents a "natural experiment" and it has been exploited as such in a significant number of studies in the economics, political science and sociology literature. However the evolutionary biology, medicine and demographic literature are increasingly questioning the extreme version of this point of view, arguing that the probability of the child's gender can indeed be susceptible to a variety of factors.In the following when we refer to the sex-ratio, what we mean is the ratio of males to females in a sample population.

The most commonly acknowledged factors affecting the sex-ratio of children are parental decisions to stop having children depending on sex or to engage in sex-selective abortion in some areas of the world, beyond that there is a more controversial literature exploring so-called "natural factors". For example in the US, the sex ratio, measured as the proportion of males born relative to females, differs quite substantially by ethnicity, also for the US there is a recorded drop in the sex ratio over time in recent years [6]. A variety of mechanisms might be at play here such as changing preferences and fertility stopping behavior, changing ethnic composition of the United States and changes of the age at which birth is given. Another influential study analyzed the effect of natural factors in a dataset that is remarkably similar to ours, covering the Danish population from 1980-93. It looked at parental age, birthorder and sex of the preceding child, to find that only fathers age had a significant effect on the sex-ratio [20]

Trivers and Willard made the point that the ability to adapt the sex-ratio, so that fitter and healthier parents, who are able to invest more in their children have a slightly higher probability of conceiving boys would be evolutionarily beneficial [35]. It has to be noted that this oft-cited theory remains empirically controversial [8]. However there is some evidence that not only "natural factors" affect the sex-ratio, but that stressful socioeconomic circumstances can also lower it. Dama [13] provides evidence that cross-national variation in sex-ratios is positively influenced by factors directly related to fitness or well-being (and potentially to lower stress) such as a country's GDP and longevity. It has also been shown that the 1959-61 Great Leap Forward Famine in China led to a drop in the sex-ratio followed by a rebound as soon as the famine ended [33]. That economic stressors continue to affect the sex ratio in industrialized nations was shown in a study comparing Eastern and Western Germany after reunification. As the east experienced uncertain economic conditions its sex-ratio fell significantly relative to that in Western Germany [10]. On the micro-level these insights are supported by research showing that women who experience stressful life events have lower sex-ratios [19] as well as by research showing that fathers might also be affected by stress, with consequences such as reduced sperm motility [17]. Theories of stressors affecting sex-ratio also open the possibility of socioeconomic status affecting birth-ratios and Teitelbaum and Mantel provide evidence supporting the view that this is the case in the US [34]. Further, and much less controversial there is a substantial literature on how the gender composition of children might be influenced by "preference" rather than "natural" factors. For

example Mills finds that in Europe poverty tends to strengthen a son preference and thus lead to more third births if the first two children were girls [29]. In general studies treating child gender as a random variable tend to only look at first and second births, since it is known that parental preferences matter substantially for selection into third birth..

While in the absence of "natural factors" first birth can be regarded as random, parental preference might however already start playing a role by selecting parents into or out of continuing to have children dependent on the gender of the first child. Andersson et al [1] show that in the Nordic countries, including Denmark, which we study, no evidence for sex preferences mattering at second birth could be found. However in Denmark a girl preference at third birth was documented. Brockmann showed for the case of Germany how sex preferences can change over time [7]. It is thus important to note that studies using sex gender at a birth parity higher than 1 to look at parental behavior might already run into self-selection problems of the parents. If the more controversial "natural factor" such as stress affecting the sex ratio, do also play a role selection problems omitted variable problems might already arise at first birth.

Table 1: Summary Statistics

Variable Means	Full Sample	1980-86	1986-92
firstbirth			
% boys	.513	.510	.515
maternal age at birth	25.2	24.6	25.8
maternal employment rate in birthyear	.708	.709	.707
maternal monthly gross income in birthyear (DK)	110,832	90,479	131,359
maternal education in years	12.0	11.8	12.2
paternal age	28.3	27.8	28.8
paternal employment rate	.793	.801	.786
paternal monthly gross income in birthyear (DK)	172,845	143,836	202,235
paternal education in years	12.5	12.4	12.7
completed fertility	2.737	2.396	3.081
% married in year of birth	.491	.517	.465
n	340,502	170,977	145,444
second birth			
% boys	.5117	.5101	.5132
maternal age at birth	28.1	27.6	28.5
maternal employment rate in birthyear	.713	.713	.713
maternal monthly gross income in birthyear (DK)	111,880	88,855	135,640
maternal education in years	12.4	12.2	12.5
paternal age	30.9	30.5	31.3
paternal employment rate	.860	.874	.845
paternal monthly gross income in birthyear (DK)	191,358	161,022	223,304
paternal education in years	12.6	12.5	12.8
total number of children	2.695	2.526	2.869
% married in year of birth	.721	.765	.675
n	274,507	139,401	135,106
third birth			
% boys	.5097	.5086	.5108
maternal age at birth	30.8	30.6	31.1
maternal employment rate in birthyear	.713	.713	.713
maternal monthly gross income in birthyear (DK)	101,637	78,287	124,376
maternal education in years	12.4	12.2	12.5
paternal age	33.5	33.2	33.8
paternal employment rate in birthyear	.841	.861	.820
paternal monthly gross income in birthyear (DK)	202,907	173,334	232,341
paternal education in years	12.4	12.2	12.5
total number of children	3.465	3.434	3.582
% married in year of birth	.805	.841	.770
n	92,250	45,514	46,376

It has to be noted that none of the effects influencing the sex-ratio at birth are very big in magnitude. Nevertheless, since many of the effects of child gender on parental decisions are often relatively minor in magnitude as well, we argue that more emphasis has to be placed looking at which factors might possibly influence child gender, in order to avoid that results are driven by omitted variable bias or selection.

3 Effects of Child Gender on Parental Behavior

There are different approaches to thinking about the reasons for which a children's gender might affect parental decisions. The most common explanation brought forward is referred to as a son "preference". Economists would speak of deriving different utilities from the child dependent on its gender. The mechanisms through which child gender might affect utility are open to a variety of interpretations.
A classical way of thinking about the effects of child gender on parental utility is the one brought forward by Ben-Porath and Welch [5], who discuss children in terms of their potential costs and benefits, dependent on such factors as the ability to provide material support in old-age or the necessity to endow them with bridal gifts etc. Another explanation that is brought forward by economists and sociologists [24] is that men have a preference for spending time with boys and thus derive greater utility from investing time in them. Yet another view stresses the production of children as "household goods" and assigns different productivity to parents. This is related to a view, which emphasizes not so much that parents derive different utility from their children, but rather that they face different constraints when investing in them. This view is taken by a strain of literature that emphasizes the relative importance of the presence of fathers in the development of socially and mentally stable boys (see for example Morgan et al [30]). In general it is mostly empirically impossible to distinguish between preference and constraints explanations of the effects we encounter for child gender and it is often reasonable to assume that both are at work. If for example, as has been shown for the United States, a boy leads to a lower parental divorce rate, this could be due to a higher preference of the father for spending time with the boy or due to a relatively higher marginal productivity as measured in how much the father's presence influences the development of a stable child.

Son "preference" can affect such decisions as time spent on caretaking and labor, transfers of goods and consumption decisions, since the positive or negative utility derived from these activities might vary with child gender. In its most extreme form son "preference" can express itself in a different demand for sons and for daughters. Such is the case in some societies in Southeast Asia, such as India, China and formerly Korea were the sex-ratio tends to be heightened by such measures as sex-selective abortion, sex-selective infanticide and differential survival rates of boys and girls [14]. Sen [32] famously talked of over "100 million missing women". Das Gupta et. al [18] provide a thorough survey of the reasons for the persistence of this extreme form of son "preference" in some societies.
For industrialized nations the dimensions of parental behavior that have been shown to be influenced by child gender include fertility behavior, marital behavior,and time allocation decisions of which the latter two are closely related to our study.

A series of US studies has shown positive effects of child gender on couple happiness [3] [12]. A study of Danish twins [21] has also found quite substantial happiness increases from having a first-born boy, with those increases being particularly strong among fathers. Further studies done by sociologists in the 1980s found quite strong significant effects of child gender on divorce. For example Morgan et al [30] found a 9% reduction in the risk of marital disruption in the case of boys being born. Diekmann and Schmidtheiny who looked at 16 European countries did also not find any significant effects [15]. Morgan and Pollard argue that the effects of gender on divorce tend to decrease over time [31] which is in line with newer studies, using large US census samples, such as Bedard and Deschnes [4], who find significant, but much smaller effects. Lundberg and Rose [27] also show that the transition rates into marriage of couples who gave birth out-of-wedlock are higher when a boy was born.

In terms of time allocation, several studies have shown that fathers generally spend more time with sons than with daughters [9] [36]. Also fathers have been shown to spend more time on children in general, if one of the them is a boy [30]. Lundberg shows that higher father involvement can also be found in couples in which parents are not married [25]. A study on Western German couples [11] showed that men increase their work hours in case of having a son or a daughter, but that they do so substantially more in the case

of a son. In a separate study done on US data [23] it is shown that the reaction of couples to child gender is strongly dependent on education. It finds that boys under 3 increase specializing among lower educated couples, meaning that men work more and women less, while it decreased specialization among higher educated couples. Esping-Andersen and Bonke [16] have looked at parental time use in the Danish case and found increased time investments of fathers if they had boys, with gendered differences being particularly strong among the lower educated.

A fair number of studies in economics and political science acknowledge the fact that child gender might not be entirely endogenous [23]. To our knowledge none of them does however directly analyze the factors influencing child gender in their sample and then goes on to see whether those factors in particular are driving their results. Lundberg Obviously since we have no perfect model of all the factors driving sex ratio this does not lead to perfect estimates, but rather it would serve as a warning-system of sorts. We could see whether what we know about the endogeneity surrounding child-gender already affects our estimates in a profound way. If estimates change significantly, much more caution would become necessary in interpreting our results, acknowledging that their might be endogenous factors influencing child gender that we are still unaware of and that might have equally profound effects. If however the results are very stable to the factors we are aware off, the probability of other unknown factors profoundly influencing our estimates can also be seen as significantly lower.

Table 2: Factors influencing the probabilty of having a boy

	(1) 1st and 2nd births	(2) 1st birth	(3) 2nd birth
maternal age	0.000973	0.00159	0.000389
	(1.06)	(1.26)	(0.29)
paternal age	0.00116^{+}	0.000513	0.00204^{+}
	(1.66)	(0.55)	(1.92)
year	0.00221**	0.00226*	0.00207^{+}
	(3.01)	(2.26)	(1.91)
paternal employment	-0.00241	0.00126	-0.00830
	(-0.26)	(0.10)	(-0.55)
years of education of father	-0.000193	-0.000360	0.000223
	(-0.17)	(-0.23)	(0.14)
maternal employment	-0.00615	0.0000641	-0.0113
	(-0.93)	(0.01)	(-1.17)
maternal education	0.00332*	0.00465*	0.00229
	(2.54)	(2.52)	(1.24)
married at birth	-0.00660	-0.00479	-0.00908
	(-1.11)	(-0.63)	(-0.95)
second birth	0.00520		
	(0.87)		
first child boy			-0.00399
			(-0.49)
_cons	-4.320**	-4.438*	-4.005^{+}
	(-2.96)	(-2.24)	(-1.86)
N	533855	291748	244083

t statistics in parentheses

$^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

4 Results on Birth Probabilities

We use the Danish registry data from 1992 to 2007. This Dataset records the entire Danish population. In the version of the registry data that was made available to us people are registered starting at age 15. We can thus retrospectively match children to parents up to 1992. We can also go on to observe the trajectory of parents that gave birth between 1980 and 1992 for another 15 years. One of the big advantages of working with a registry dataset is that worries of sample selection or selective attrition of survey participants do not affect the data. It has to be noted that up to the early 1990s Denmark still remained a remarkably ethnically homogeneous society. The immigrant share of the Danish population was under 3% (under 4% including second-generation immigrants) in 1980, which is the time at which we start looking at our first cohort and under 4 % (under 5% including second-generation immigrants) in 1992 the year in which we start following our last cohort of mothers [22]. Unfortunately our data does not include information on whether individuals are immigrants, however the effects should not be too pronounced given their small share of the population for the time of our estimates. Table 1 provides a summary of our data. It can be seen that slightly more men than women are born, it can also be seen that the sex-ratio is increasing over time. Interestingly, this is contrary to the trend in the United States where the sex ratio has been decreasing in time [6].

Another advantage of our dataset is that it closely resembles that of a prominent study on birth probabilities. Jacobsen et al [20] looked at all Danish births happening in the time between 1980 and 1992. That study only looked at demographic factors, namely age of the parents and sex of the previous child to obtain their estimates. The one factor they found to have a significant influence on the gender of children is parental age. Given that several studies on factors influencing sex-ratios have been known to suffer from reproducibility problems, we run models in the same setup as they do. This means we used the age of both parents, as well as the gender of the previous birth (in the second birth sample) as explanatory variables. We did however deviate from the Jakobsen et al. study in two important ways. First, we focused only on first and second births. We did this since our final aim is to evaluate whether studies which use the gender of children as being random might suffer from omitted variable bias due to the effects "natural factors" have on birth probabilites. However at third birth, as was shown for Denmark the sex-composition of previous children affects fertility decisions, leading to the natural effects to be potentially contaminated by "preference" effects. Therefore evaluating children at parities higher than 2 was of no interest to us. Second we added a series of socio-economic variables, namely maternal and paternal employment at birth, the years of education the parents had achieved and whether the couple was married at the time of the birth, to see if those variables also had an influence.

Table 3 shows the coefficients from a logit model with child gender at birth as the dependent variable. A child born as a boy is coded as 1 and a girl as 0. The first column shows the results of the sample in which first and second births happening between 1980 and 1992 were pooled together. The second column presents effects on sex-ratio at firstbirth and those in the third column present results for the second birth sample. Reassuringly the results are conform with the findings of the Jacobsen et al study [20]. They confirm that paternal age tends to be a significant influence in the overall sample as well as the sample on second births, while the other "natural" or demographic factors do not seem to have a significant influence. Among the newly introduced socioeconomic factors, maternal education is found to influence child gender, particularly at first birth. Further, we see a confirmation of the previously noted trend in births, with the birth year of a child having an influence beyond the factors we controlled for.

4.1 Effects of Gender on Parental Outcomes

We ran several different models in order to estimate the effects of child gender on parental outcomes. The four parental outcome variables Y, which we assessed were maternal and paternal income as well as employment. The basic setup of all our models was the same. We pooled together all the years included in our panel and constructed a new time variable for each pair of parent. This time variable measured the number of years that had passed since birth. If Y_{yi} denotes the value Y takes in a given year y for individual i and by_i denotes the birthyear of the relevant child for individual i then we define a new time variable, time since birth $t = y - by_i$. We then ran a set of seperate regressions pooling together the observations for all individuals with the same t for each regression, to get the average effect of child gender on labout market

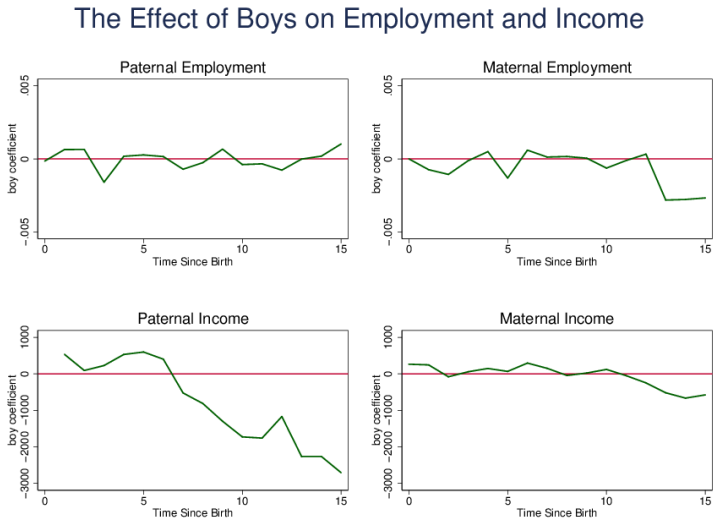

Figure 1: Effects of Boys on Parental Labour Market Outcomes

outcomes t years after birth. The setup of the basic regression which only includes time controls is thus:

$$Y_{t,i} = \beta_{1,t} boy_{by,i} + \beta_{2,t} I_{y,i} + \varepsilon_{t,i} \tag{1}$$

Remember that we estimate different betas for different times t that passed since birth, but that we pool individuals having given birth at different years, which have the same amount of years t since birth passed. To control for the time effects this induces $I_{y,i}$ is a set of time dummies that takes the value one if individual i was observed for year y in the sample for time since birth t. These are our basic controls for time effects on income and employment.
The second model we run also includes the two controls which we have shown to have a significant influence on birth probabilities, namely maternal education and paternal age as measured at birth. It has to be noted that these controls are in no way novel or uncommon when looking at effects on parental decisions. What is novel is to do a stepwise analysis of whether factors that influence the sex ratio, significantly alter the boy or girl effects we find. If they do, this might be an indication that the effects we find for gender might be due to selection effects having to do with the not entirely random nature of child gender.

$$Y_{t,i} = \beta_1 boy_{by,i} + \beta_2 maternaleducation_{by,i} + \beta_3 paternalage_{by,i} + \beta_4 I_{y,i} + \varepsilon t, i \tag{2}$$

We finally estimate a third model in which we add all the remaining controls that were also included in the logit estimation on sex ratios. Our time variable t, measuring time since birth could take the value 1 for one individual in 1982 if his child was born in 1981 and also take the value 1 for another individual in 1993 if his child was born in 1992, at which point wages and employment were obviously different which is why the year controls are crucial to the model. We then separately ran those 3 models for our four dependent variables for each of the 15 years after birth which we record $t1 = (1, 15)$. Figure 1 shows the boy coefficient for each of the 15 values of t for our four dependent variables in the case of first birth children. What we see is that only one of the four outcome variables we considered, namely paternal income was significantly influenced by the gender of the child. This was also only the case for firstborn children. At second birth the line of regression coefficients remains more or less flat.
Effects on employment of both parents are persistently small and insignificant, as are the effects we observe for maternal income. We can however see that paternal income decreases quite significantly in response to having a boy. Interestingly, this decrease does not happen within the time frame at which studies normally look in order to assess the effects of children on parents. Instead in the first five years, having a boy seems to even have a non-significant but positive effect on parental income. However, when the child is about 8 years old a continuous decline can be observed, which is strongly significant (at $\alpha = 5\%$) for most later years.

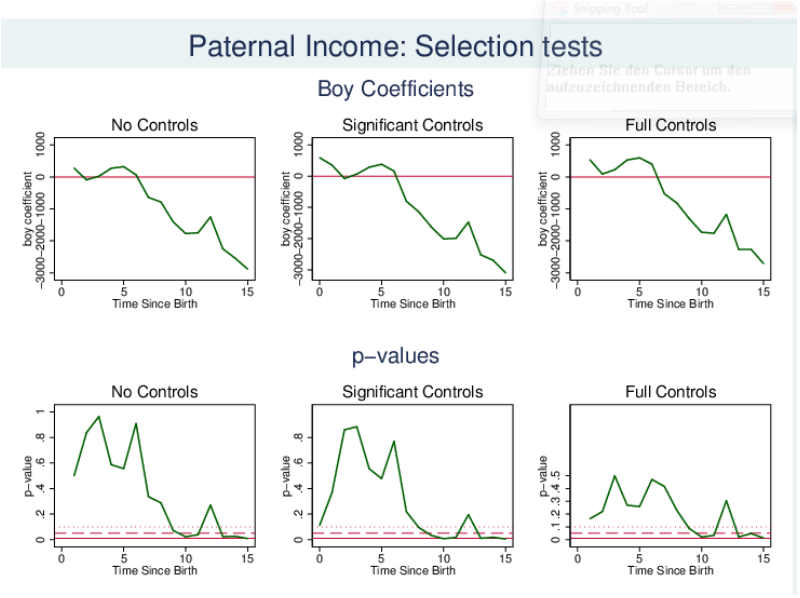

Figure 2: Testing for Selection in Paternal Income Regressions

As discussed we ran three types of models, including different sets of controls. We compared all three models in order to check whether there was any indication that the variables determining birth, which are included in the second model led to a change of the boy coefficients. We also ran Sobel tests, for mediation to test whether, either maternal education or paternal age turned out to be a significant mediator in any of our models. This was not the case. It was remarkable how strongly robust the after all not very large effects (or non-effects) were to the inclusion of variables that do influence the sex-ratio and are bound to also influence the wage development, namely maternal education and paternal age. Fig. 2 serves to illustrate how weak and non-significant the mediation of the control variables included in the second and third model was. The graph shows the boy coefficients for our firstbirth sample, by presenting the most interesting case, our regressions on paternal income. The upper 3 graphs in Fig. 2 show the set of boy-coefficients we obtained for each of the 15 years after birth. The left graph shows the model with no controls (except year dummies). The second graph shows boy-coefficients in a model in which we control for paternal age and maternal income and the third graph shows boy-coefficients for the model including all of our control variables. In order to be able to assess the significance of these estimates we plotted the p-values that go with each boy coefficient in the graphs below them. When the line drops under the dotted red line the boy coefficient plotted just above is significant at $\alpha = 10\%$, when it drops below the dashed red line, the above coefficient is significant at $\alpha = 5\%$ and when it drops below the full red line that implies significance at $\alpha = 1\%$. We can see that after about eight years (with the exception of one outlier year) the effects of child gender on parental income turn out significant. We can also see that controlling for factors that we know to affect the sex ratio at birth makes basically no difference to the basic story that emerges. Table 3 illustrates our three regression models by reporting coefficients for the case $t = 10$.

As to what factors are exactly driving the decline in male wages that we observe we can only speculate. There is however one potential explanation we can rule out, which is that that the effects we observe might be mediated by marital stability. Earlier studies have shown that boys can increase marital stability [30] and that transition rates into marriage can be higher in the case of having a boy[27]. This could of course have a mediating effect on wage development. We checked for whether divorce or marriage probabilities were in any way affected by the gender of a newborn child using, simple logit regression models as well as proportional hazard models. In both cases the result was that child gender led to no change in those rates that could be considered significant.

Table 3: Selection Models for t=10 (year dummies not reported)

	(1) no controls	(2) basic controls	(3) father1_income
boy	-2883.7**	-3095.9**	-2683.6*
	(-2.61)	(-2.82)	(-2.44)
maternal education (at birth)		20646.2***	10796.0***
		(84.77)	(39.83)
paternal age		921.2***	-2813.6***
		(8.21)	(-19.89)
maternal employment (at birth)			17952.1***
			(13.51)
maternal age			-5426.8***
			(-28.62)
paternal education (at birth)			16959.6***
			(74.14)
marital status (at birth)			21425.4***
			(18.98)
_cons	308540.0***	54621.4***	-175035.0***
	(155.38)	(12.99)	(-29.28)
N	243354	239697	234892

t statistics in parentheses

$^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

5 Conclusion

To some extent this paper was devised under what turned out to probably be a false premise, namely that by not looking cautiously at the factors that influence child-gender, we might find that we are seriously misestimating its consequences. Our results indicate that this is in no way the case. Of course this also has to be taken with caution. Our approach was based on the best current knowledge from the biological and demographic literature on what factors drive sex-ratios, but as determining what drives sex-ratios and their development can in no way be regarded as settled our tests might well be incomplete in important ways. Nevertheless, our results, while probably detrimental to how revolutionary the impact of this paper will be perceived, are reassuring in the sense that they increase confidence in the vast amount of knowledge we have already amassed about the multitude of effects of child-gender at birth.
The paper also has some striking empirical results, namely that only one of the factors we tested seems to be influenced by the gender of the child. Neither maternal income or employment, nor marriage and divorce rates were significantly affected by the gender of the child. What is particularly interesting about this finding is that it stands in stark contrast to what Lundberg [26] found, which was that male wages tended to rise faster in response to having a son rather than a daughter. The delay in the son effect that is so apparent in our data is also puzzling. First of the most plausible explanation for our results is that fathers are somewhat more likely to reduce hours in the workplace and thus pay in case they have a son at home. This does however need further analysis, preferably using time-use data.

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