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Does the Gap in Family-friendly Policies Drive the Family Gap?*

by

Helena Skyt Nielsen[a], Marianne Simonsen[b] and Mette Verner[c]

Abstract:

A segregation of the labour market into a family-friendly and a non-family friendly sector has the effect that women self-select into the sectors depending on institutional constraints, preferences for family-friendly working conditions and expected wage differences. We find that neglecting the sector dimension tends to understate the effect of birth-related interruptions in both sectors. The combined effect of a large depreciation effect and no recovery means that females in the non-family friendly sector (e.g. private sector) are punished severely after childbirth. In the family friendly sector (e.g. public sector), we find complete catching up.

JEL codes: J13, J22, J33, J45

Keywords: Fertility, family gap, career interruptions, wages, public vs. private sector.

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1. Introduction

In the family gap literature, analyses of the potential self-selection into jobs with 'family-friendly' working conditions are scarce. However, substantial differences in family-friendly working conditions are observed to exist for different segments of the labour market. And, if the tastes for these family-friendly working conditions vary among different groups of the labour market, the selection into these occupations may not be random. The workers who assign the highest value to good working conditions occupy the jobs characterised by these job features.

Occupational segregation induced by different family-friendly working conditions may affect the gender wage gap of which the family gap is a main component. Various attempts have been made to explain the family gap in general and the child-penalties in particular (Waldfogel (1998), Budig & England (2001), Phipps *et al.* (2001), Datta Gupta & Smith (2002)). Among these explanations are: Foregone work experience during birth-related interruptions, depreciation of human capital and signalling effects. Though these factors explain part of the gap, a significant part is still left unexplained.

Generally, the existing studies on birth-related interruption effects and child penalty show significantly negative interruption effects that may die out over time and wage penalties in the private sector (Datta Gupta & Smith (2000), Verner (2001)). However, estimates of the child penalty for the public sector show mixed and dubious results. If significant at all, 'penalties' in the public sector are most often found to be positive (e.g. Datta Gupta & Smith (2000)). Therefore, one may hypothesize that rational females who expect to have children choose the public sector deliberately to collect the benefits of family-friendly policies and to avoid the penalty of the private sector.

This is exactly the main hypothesis of the present paper, where we investigate whether the family gap is driven by self-selection into the public and private sectors. We analyse child penalties and interruption effects in a model that allows for endogenous sector choice. The idea is that individuals cluster in the public and private sectors depending on their preferences for wage versus working conditions. We test this hypothesis empirically through an analysis of self-selection into the public and private sectors using the endogenous switching model suggested by Lee (1978). Preston (1990) also applies this framework to estimate selection into the white-collar non-profit sector. The estimation procedure takes into account the potential endogeneity of the sector choice; it may be that unobserved characteristics affecting the choice of sector also have an effect on wages, which could bias parameter estimates. The selection effects of main interest are those due to expected wage gain, higher compensation during maternity leave and child/family variables. In the career interruption and "family gap" literature, the endogeneity issue may be important, though it is usually neglected. Also, fertility is likely to be endogenous, and therefore we use an instrumental variable approach.

In the empirical analysis we apply a Danish register based data set that includes very detailed, high quality information on e.g. income, demographics, and education on a yearly basis along with information on the sector choice of parents, which is used as exclusion restrictions in the econometric model. Furthermore, the individual event history in terms of periods of employment, unemployment, maternal leave, and publicly subsidised leave (child rearing, sabbatical, or educational) is known on a weekly basis.

The outline of the paper is as follows: Section two reviews the existing studies within the literature. Section three describes a Danish case of a sector with family-friendly

working conditions, namely the public sector. Section four presents the theoretical framework. Section five describes the data used in the empirical part of the paper, whereas section six describes the empirical methods. In section seven, the estimation results are presented and section eight concludes.

2. Literature

In the earnings literature, the interruption effects on the earnings of women have been studied extensively with a particular focus on the interruptions related to childbirth. The branches of this literature range from the traditional literature on gender wage gap and family gap, i.e. estimation of 'child penalties' (e.g. Joshi (1990), Waldfogel (1998), and Phipps (2001)) to studies focusing on interruption effects as such (e.g. Mincer & Polachek (1974), Mincer & Ofek (1982), and Albrecht *et al.* (1999)).

"The family gap" is defined as the earnings differential between mothers and childless women *ceteris paribus*. It has been investigated for various countries using various specifications of the estimated models. The early studies (e.g. Joshi (1990) and Joshi *et al.* (1999)) have included dummies for having children and eventually for being married in the earnings equations. These analyses show that having children and the subsequent increased use of part-time work decrease the hourly pay of women. This decrease is mainly attributed to the return to part-time employment and loss of seniority (i.e. firm-specific human capital) with the current employer. When the family gap is investigated over time and decomposed, it is found that the gap is of the same magnitude in 1991 as it was in 1978. The decomposition, however, shows that explanations for the family gap have changed over time.

These simple measures of the family gap may suffer from some problems. One is that *potential* rather than *actual* work experience is often included in the earnings equations. This problem is essential when women are studied, simply because mothers are more likely to interrupt their working careers than non-mothers. Thus, using potential work experience may be severely misleading.

Waldfogel (1998) finds for UK and the US that the negative effect of children is reduced when actual work experience is included rather than potential work experience. It is also found that access to job-protected maternal leave has substantial positive wage effects in both countries investigated, offsetting some of the negative wage effect from children. This is explained by the higher propensity of returning to the former employer after childbirth, hence diminishing depreciation of firm-specific human capital and retaining good job matches. In the Danish case with mandatory job-protected maternal leave Datta Gupta & Smith (2002) find that, when they control for foregone human capital accumulation during periods out of the labour market, the birth of a child does lead to a temporary wage loss compared to childless women. However, this earnings effect vanishes around the age of 45 years.

Hence, controlling for actual rather than potential work experience reduces the estimated child penalty. Another effect that may (mistakenly) be reflected in the measure of the child penalty if not controlled for is human capital depreciation during child-related interruptions. For Canada, Phipps *et al.* (2001) find that not only failure to acquire human capital but also depreciation of human capital significantly reduce the penalty associated with ever having a child.

Budig & England (2001) also investigate the wage penalty for motherhood. When interruptions, lost experience and part-time work are taken into account, the child

penalty is reduced by nearly 50%. The authors explain the remaining child penalty by decreased productivity of the women following motherhood and/or employer discrimination against mothers.

For Denmark, Verner (2001) examines the earnings effect of career interruptions during the 1980s. The results of the analysis show evidence of linear depreciation during unemployment, both in the public and private sectors. Also here, a significant part of the loss can be attributed to loss of firm-specific human capital. The earnings effects seem to be most persistent in the public sector both for interruptions due to unemployment and non-participation.

Albrecht *et al.* (1999) investigate earnings effects from career interruptions by the use of a Swedish data set, and they also estimate the effects separately for private- and public-sector employees. Their results show that women are punished neither in the public nor the private sector for taking parental leave, whereas household time and unemployment are punished in both sectors. As found for Denmark (Datta Gupta & Smith (2002)), women in the public sector get a *premium* from having children when interruptions are controlled for.[1]

The surveyed literature illustrates that significant differences in the wage determination process across sectors exist, also when the focus is on interruption effects and the child premium/penalty. The lower level of earnings in the public sector is a consequence of both a lower initial wage level and a flatter earnings profile of the public employees. Because the rather scarce evidence shows that also the negative consequences of children and career interruptions are smaller in the public sector, females may incorporate this information when they plan their working career and fertility and make their sector choice. Especially, the surprising finding of positive effects of children in

the public sector indicates that the sector selection process may be important and should be examined in more detail. If the selection into sectors depends on the expected number of interruptions and family-friendly working conditions, neglecting the endogeneity of sector choice as done in the previous studies (e.g. Albrecht *et al.* (1999), Datta Gupta & Smith (2000), and Verner (2001)) yields biased estimates of the interruption effects. The endogenous switching model suggested by Lee (1978) may be used to correct for this potential bias. This course of action has for example been used by Preston (1990). She analyses gender wage gaps in white-collar occupations in the private sector and considers both the profit and the non-profit sector.

Another source of bias in the attempt to identify the effects of children is the potential endogeneity of fertility measures. If the fertility choice depends on expected earnings, then the estimated effects of children on earnings may be biased and the same goes for the interruptions associated with childbirths.

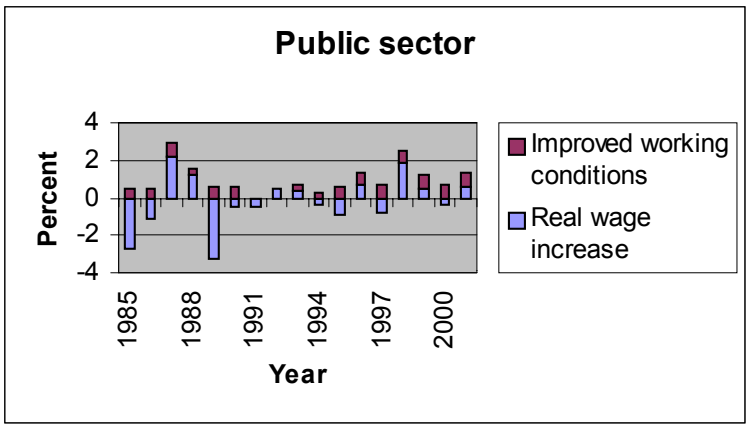
3. The Danish public sector: A case of family-friendly working conditions

In the public sector in Denmark there is a long tradition for focusing on working conditions rather than wages. Recently, wage growth has been extremely low in the public sector compared to the private sector, and at the same time working conditions have improved considerably. To mention a few examples, pension schemes have improved, the number of working hours has declined, rights to vacation have been extended, and entitlements to 'care-days' and parental leave schemes have improved both in terms of wage compensation and duration.

Though a similar trend is seen in the private sector, it is by no means as pronounced as it is in the public sector. This is just a cementation of the trend seen in the 1980s as

described by Rosholm & Smith (1996). They describe the differences in the gender wage gap in the public and private sectors during the 1980s. They find that the wage twist policy resulting in lower earnings growth in the public sector due to female domination in public-sector employment has been a major determinant of an increasing gender wage gap. The Danish labour market is characterised by a high level of occupational gender segregation (Dolado *et. al.* (2001)), and this relates to the high rate of female employment in the public sector. The share of female labour in public-sector employment has increased over a 30-year period to more than 65% in 1997. In the private sector the share is much lower, varying from 10% in the construction sector to a maximum of 46% in the financial sector. Both wage level and wage growth at the aggregate level are generally lower in the public sector. Combining the facts of improved working conditions, declining real wages and increasing proportion of women, we interpret this as a strong indication of different tastes for working conditions across gender and sectors.

Figure 1. Real wage growth and improved working conditions in the public sector, 1985-2001.



Source: Results of central wage negotiations as reported in the Statistical Ten-Year Review. The annually negotiated wage regulation has been added.

For the public sector, figure 1 shows the centrally negotiated wage growth in real terms and improved working conditions as measured by costs to the employer. It is striking that the centrally negotiated wage growth in real terms has been negative in more than half of the years since 1985[2], whereas working conditions have improved continuously. Hence, it seems that public-sector employees are less concerned with wages than working conditions.

Among working conditions, the leave schemes are of special interest in the present context (see Appendix A for a detailed description). During the last two decades, the complete system of parental leaves has changed substantially in Denmark. Significantly prolonged entitlement periods and increases in the coverage of lost earnings during parental leaves have changed the participation behaviour of parents and of mothers, in particular. The parental leave schemes were very limited in the 1970s, but in the 1980s the duration of parental leave was extended and became generous in an international comparison (OECD (2001, 2002)). In the 1990s, it became possible to supplement the usual maternity/paternal leave with a parental/child care leave, resulting in some parents (in most cases mothers) being absent from the labour market for more than a year following childbirth. From 2002, this supplement has been replaced by a one-year maternity leave, of which a part may be postponed. In principle, the coverage of the leave schemes is universal but there seems to be a tendency for women in the public sector to take more parental leaves than their peers in the private sector. This may reflect that this is an accepted behaviour due to the fact that family-friendly policies, including full salary during parental leave, to a higher extent than in the private sector are a part of the legislation for public-sector employees. If women take these sector differences into account when they plan their working career and choose the sector, there is a possibility that women with preferences for children,

(long) parental leave and other family-friendly policies are more likely to work in the public sector.[3]

4. Theoretical framework

An underlying presumption of the selection hypothesis in this paper is that women self-select into the segment of the labour market that satisfies their demand for family-friendly policies relative to wages. Altonji and Blank (1999) present a model on discrimination and occupational exclusion that is easily modified to capture the most important effects expected to explain the choice of a family-friendly vs. a non-family-friendly sector. Altonji and Blank (1999) consider the case of discrimination against women *per se* and selection into two different occupations.

Assume that there is one composite good in the economy. This good is a product of output from two sectors, the family-friendly sector and the non family-friendly sector ($j=FF, NFF$). These two sectors differ in terms of technology and working conditions. Furthermore, there are two types of workers mothers and non-mothers ($g=M,NM$) who differ in terms of preferences, bargaining power, and possibly also in terms of productivity. One could imagine that the technology used in the family-friendly sector to a higher degree than the non family-friendly sector is compatible with individualized flexible working hours, i.e. re-scheduling working hours to facilitate child-rearing activities has only minor effects on productivity (for instance ministries offer flexible working hours). Alternatively, jobs in the family-friendly sector could be less demanding in terms of unplanned overtime hours. This is likely to make mothers more productive in the family-friendly sector relative to the non family-friendly sector.

Furthermore, the balancing of working responsibilities and family activities is likely to increase utility of mothers.

Let λ_j denote the productivity of mothers relative to non-mothers in sector *j*. Then labour services in sector *j* amount to:

(1) $$N_j = L_{NMj} + \lambda_j L_{Mj}$$

The marginal product of an extra unit of labour input, N_j, in sector *j* is $G_j(N_1,N_2)$ where *G* is the production function for the composite good. Wages for non-mothers equal the marginal product:

(2) $$W_{NMj} = G_j \quad ,$$

while wages for mothers equal the (potentially lower) marginal product minus a wage penalty, d_j:

(3) $$W_{Mj} = (1 - d_j)\lambda_j G_j \, .$$

The wage penalty may exist due to discrimination; employers may associate disutility with employing mothers or they may expect the productivity of mothers to be lower than their true productivity; this is termed statistical discrimination. Also, mothers may be less mobile because of their dependence on childcare opportunities, schooling etc. This contributes to lowering the bargaining power of mothers in wage negotiations because their outside opportunities are less valuable and may reduce the resulting wages.

It is assumed that aggregate labour supply of the two groups is inelastic and that markets clear. Actual relative supply of type g is given by

(4) $$\frac{L_{gNFF}}{L_{gFF}} = F\left(X_g, \theta_g, \frac{W_{gNFF}}{W_{gFF}}\right) \quad , \quad F_1 < 0, \quad F_2 < 0, \quad F_3 > 0$$

where X_g captures the effects of social pressure into the family-friendly sector and/or institutional constraints on the costs and benefits that the individual derives from working in the non family-friendly sector relative to working in the family-friendly sector. For example social pressure captures the pattern of sex roles and social inheritance, while institutional constraints may be a low degree of compensation during maternity leave impeding motherhood. θ_g is a taste parameter capturing preferences for hours flexibility, maternity leave schemes, job security and working conditions in general. It is seen that a higher degree of wage discrimination of mothers in the non family-friendly sector relative to the family-friendly sector induces mothers to choose the family-friendly sector. Also, lower productivity of mothers in the non family-friendly sector relative to the family-friendly sector adds to the self-selection of mothers into the family-friendly sector.

The theory presented above leads to a selection equation where, among other things, the selection into sectors depends on motherhood status, wage-differences in the two sectors and institutional differences represented by the relative degree of compensation while on maternity leave. We test these hypotheses empirically in section 7.

5. Data

In the following section, the data used for the econometric analysis are presented and some initial indications of the expected results are shown.

5.1 Data source

The original data set holds information on a representative sample of 5% of all Danish individuals in the 15-74-age bracket. Information stems from several registers all maintained by Statistics Denmark. The registers include variables describing income,

demographics, and education on a yearly basis. Furthermore, the individual event history in terms of periods of employment, unemployment, maternal leave, publicly subsidised leave (child rearing, sabbatical, or educational), and the residual category non-participation is known on a weekly basis.

In the empirical analysis below, we use a 1997 cross sectional subsample of women aged 20-40 years who are employed more than 200 hours per year, who are not self-employed, and not undertaking education. The lower age bound is chosen to exclude individuals who are in the state between two types of education, for instance high school and university. The upper age bound is chosen because of an age restriction on the availability information on the parents, used to construct the exclusion restriction applied in the econometric analysis. The analysis is performed using retrospective information on the labour market history.

5.2 Descriptive statistics

The endogenous variables in the models to be estimated are choice of sector and hourly wages. The outcome variable of interest in the analysis is log hourly wage. It is calculated from annual earnings and number of working hours. We use a very precise measure of working hours in this calculation using information on contributions to supplementary pension payments. We classify women as mothers if they have given birth to a child. Thus it is assumed that the presence of biological children is more important than the presence of stepchildren. It may be a problem if children in the household other than biological children of the woman affect her choices and actions.[4]

Table 1. Number of children and hourly wages by sector (1997).

	Share of women in each sector		Hourly wages (DKK)	
Number of children	Public sector	Private sector	Public sector	Private sector
No children	38.50	52.01	125.48	127.16
1 child	18.86	18.23	125.30	131.34
2 children	30.86	23.77	123.93	131.94
3 children	9.89	5.06	123.99	128.59
4 children	1.61	0.80	122.39	126.22
5 or more children	0.27	0.14	114.53	116.69
Full sample	100.00	100.00	124.74	129.11

Table 1 shows the number of children of the women in the sample and their average wages by number of children. Women without children amount to more than half of the women employed in the private sector, whereas only 38.8% of the women employed in the public sector are childless. The share of women with one child is almost the same in the two sectors, whereas more women in the public sector have more than one child. Mean hourly wages vary with sector, and the difference to some extent stems from the fact that women in the public sector are more likely to be mothers. The average wage for women with no children is slightly higher in the private sector than in the public sector. This difference increases with the number of children since wages in the public sector seem to decrease with the number of children whereas there is no distinct trend in the private sector. It therefore seems that in terms of raw wage averages, women with children are better off in the private sector. Despite that, a larger share of women in the public sector has more than one child. This may indicate that women employed in the public sector attach importance to other factors than

hourly wages and that they are rewarded differently from women in the private sector. The empirical analysis will shed more light on this issue.

The information on interruptions consists of a subset of the spells created from the accurate event histories computed on a weekly basis. Incidences of unemployment and non-participation are registered from 1981 and onwards while maternity leave and parental leave in connection with childbirth can be traced back to 1984. Before 1984, maternity leave is included in the non-participation category.

In 1994, three new types of publicly subsidized leave schemes were added: Child rearing leave, sabbatical leave and leave due to education. The length of these types of leaves is registered from 1995 and onwards.

Table 2. Duration of spells (1981-96) by sector in 1997

Duration of spells	Public sector			Private sector			All	
(weeks)	Mean	N	Share	Mean	N	Share	Mean	N
Employment	51.43	103392	0.56	66.11	82153	0.44	57.93	185545
Unemployment	11.01	93009	0.56	11.90	72931	0.44	11.40	165940
Educational leave	24.55	1211	0.64	19.83	695	0.36	22.83	1906
Birth-related leave	28.28	14779	0.55	27.53	12180	0.45	27.94	26959
Child rearing leave	27.11	1100	0.61	26.46	702	0.39	26.86	1802
Sabbatical leave	27.25	88	0.69	28.00	40	0.31	27.48	128

Note: In this table birth-related leave is defined as maternal leave possible followed immediately by child-rearing or sabbatical leave

In Table 2, the mean durations of the observed spells are seen. Especially employment spells are on average longer in the private sector than in the public sector. Concerning the leave schemes associated with parenthood, not much difference is seen in terms of length of the spells. However, it is evident that more birth-related and childrearing leave spells takes place in the public sector and also the spells are slightly longer at the

mean. This may indicate differences in preferences for child-related leave schemes across sectors.

6. Methodology

The wage effects of having children and choosing child-related career interruptions are found to differ across sectors (Albrecth *et al.* (1999), Datta Gupta & Smith (2000)). However, as section 2 shows it remains an open question whether part of this effect stems from the fact that women who actually plan to interrupt their career are more likely to aim at employment in the family-friendly public sector in the first place. To address this question, we model public- and private-sector wages for females in an endogenous switching framework.

6.1 Endogenous switching model

Let w_{1i} and w_{2i} be the hourly wages in the public and private sectors, respectively, let x_i and z_i be sets of explanatory variables and let β_1, β_2 and γ, be parameters to be estimated. Then the endogenous switching model may be written as follows.

$$
\begin{aligned}
&\ln w_{1i} = x_i\beta_1 + \varepsilon_{1i} \qquad \text{(public sector)} \\
&\ln w_{2i} = x_i\beta_2 + \varepsilon_{2i} \qquad \text{(private sector)} \\
&I_i^* = z_i\gamma + u_i \qquad (5) \\
&I_i = \begin{cases} 1, \text{ if } I_i^* \geq 0 & \text{(public sector)} \\ 0, \text{ if } I_i^* < 0 & \text{(private sector)} \end{cases}
\end{aligned}
$$

where I_i^* is a latent variable corresponding to the observable indicator variable I_i that equals one if the individual is employed in the public sector and zero if the individual is employed in the private sector.

Preston (1990), Hartog & Oosterbeek (1993), and Glewwe (1996) use the fully parametric approach suggested by Lee (1978) to study profit vs. non-profit sector wages in the US and the public-private wages in the Netherlands and Cote d'Ivoire,

respectively. The error terms are assumed to follow a trivariate normal distribution $N(\underline{0},\Sigma)$, where the covariance matrix is:

$$\Sigma = \begin{bmatrix} \sigma_1^2 & \sigma_{21} & \sigma_{u1} \\ \sigma_{21} & \sigma_2^2 & \sigma_{u2} \\ \sigma_{u1} & \sigma_{u2} & 1 \end{bmatrix} \tag{6}$$

All parameters in equation (2) can be estimated except σ_{21}, because we never observe an individual in both sectors. The likelihood contribution for individual *i* is:

$$L_i = \Pr(u_i \geq -z_i\gamma, \varepsilon_{1i} = \ln w_{1i} - x_i\beta_1)^{I_i} \Pr(u_i < -z_i\gamma, \varepsilon_{2i} = \ln w_{2i} - x_i\beta_2)^{1-I_i} \tag{7}$$

Or, rewritten

$$\begin{aligned} L_i = & \left[\Phi\left(\frac{Z_i\gamma - \frac{r_{u1}\varepsilon_{1i}}{\sigma_1}}{\sqrt{1-r_{u1}^2}} \right) \frac{1}{\sigma_1}\phi\left(\frac{\varepsilon_{1i}}{\sigma_1}\right) \right]^{I_i} \\ & \cdot \left[\Phi\left(\frac{-Z_i\gamma + \frac{r_{u2}\varepsilon_{2i}}{\sigma_2}}{\sqrt{1-r_{u2}^2}} \right) \frac{1}{\sigma_2}\phi\left(\frac{\varepsilon_{2i}}{\sigma_2}\right) \right]^{1-I_i} \end{aligned} \tag{8}$$

where $r_{uj} = corr(\varepsilon_j, u)$, for $j = 1, 2$.

6.2 Identification issues

As discussed by Dustmann & van Soest (1997), appropriate instruments and exclusion restrictions are crucial to obtain reliable estimates on sectoral wage differentials. However, if more specific inference is based on exact coefficient estimates, an additional issue to be considered concerns endogeneity of right-hand side variables. Hence, they conclude that a standard endogenous switching model is sufficient, if only wage differentials are of interest, though loosening up the exogeneity restrictions is needed if more detailed inference is wanted.

Based on these results, we study the following model specifications and estimate the following by MLE: 1) A set of separate equations with no correlation between errors, 2) a standard endogenous switching model and 3) an endogenous switching model with endogenous fertility.

As instruments we use information about the parents of the woman measured when she was 15-17 years. To identify the parameters of the sector choice equation, the main instrument is the sector of employment for the parents. In the model specifications that allow for endogenous fertility, the number of younger siblings is an instrument for fertility. To correct for the potential endogeneity of fertility, we use a two-step approach and subsequently correct the standard errors.

7. Results

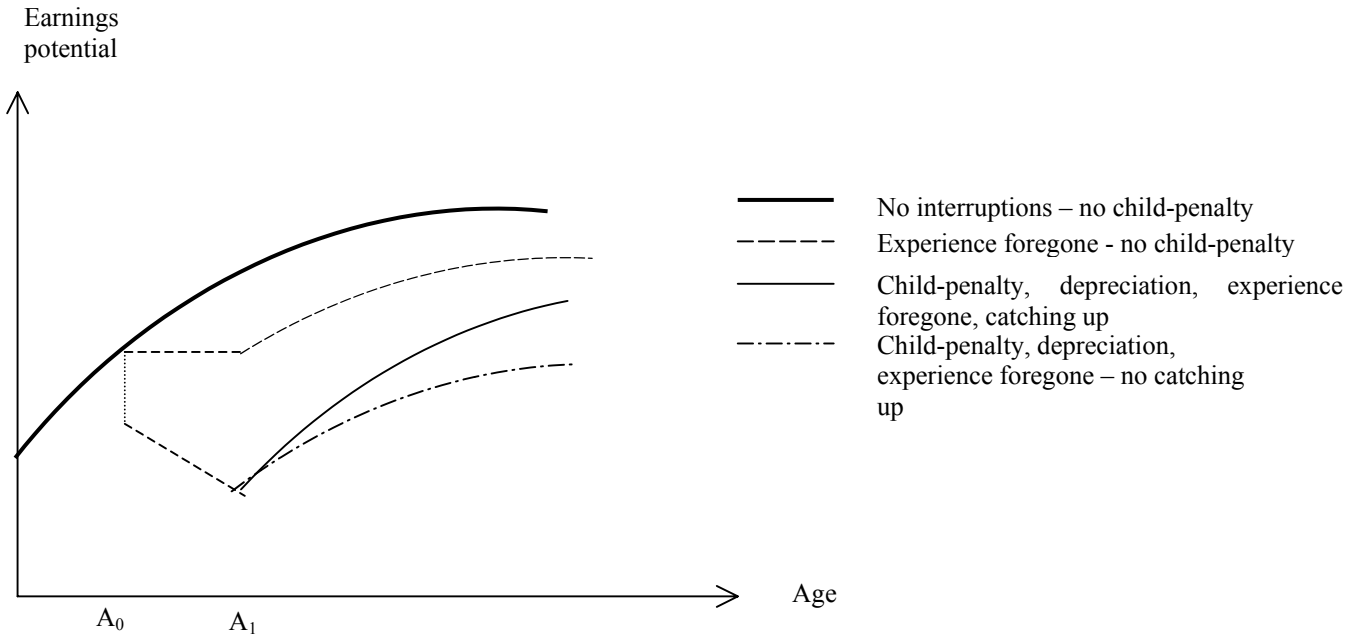
In this section, we present the empirical analysis. We estimate a model under the assumption of exogeneity represented by a probit model for sector selection and OLS for the wage equations. Furthermore, we estimate different specifications of the endogenous switching model presented above and the endogenous switching model correcting for the potential endogeneity of fertility.

7.1 Specification of interruption variables

In modelling wage functions, we follow traditional human capital theory. Our dependent variable is log hourly wages in 1997. Apart from the variables included in standard wage equations such as actual work experience, actual work experience squared and indicators for the level of education, we include a series of other variables to allow for various effects of interruptions.

Figure 3 illustrates the potential effects of interruptions on the earnings potential and emphasizes the link between the theoretical effects and our explanatory variables. We consider a woman who interrupts her career to have a child and to engage in child-

Figure 3. Potential birth-related earnings effects.



rearing activities between age A_0 and age A_1. During the interruption, the woman fails to accumulate experience. This simply corresponds to a horizontal shift in the earnings profile. This effect is caught in our model by using actual experience as the explanatory variable. In addition, earnings profiles may shift downwards for two reasons: Firstly, the existence of a significant child penalty causes a vertical shift in the earnings profile, and secondly human capital may depreciate while interrupting shifting the earnings potential further downwards depending on the duration of the interruption. To account for these effects, we include an indicator for being a mother and the duration of the latest interruption spell, thus allowing for linear depreciation as

illustrated in the figure.[5] Finally, there may be a catching up effect: Women may regain part of (or all) the lost experience, loss due to child penalty and depreciation of human capital when they return to work. In the literature, the period of catching up has been labelled "the recovery phase". We include yearly indicators for the timing of the end of the last interruption spell thus allowing for the effect of the interruption to decrease in time.

7.2 Estimation results from a model with no correlation between unobservables

Table 3 shows the results from the simple OLS wage equations. Separate wage equations are estimated for each sector not taking the selection into account. Contrary to the findings of Datta Gupta & Smith (2000), we estimate a significant child penalty in the public sector and no significant effect of being a mother in the private sector when controlling for actual experience and career interruptions.[6] Also note that the effect of being married is insignificant in both wage equations indicating that the wage gap for mothers is a child gap, not a family gap.

Considering the interruption variables, we find that long birth-related leaves are punished in both the public and the private sectors. However, the negative effect is significantly larger in the private sector. The net effect of child penalty and depreciation after one year of leave is larger in the private sector than the public sector. Note that almost all the timing indicators for birth-related leave are insignificant indicating that no catching up is taking place. Finally, the returns to experience vary substantially between the two sectors indicating differences in wage structures.

Table 3. Results from estimation of wage equations.

	Public sector		Private sector	
	Coefficient	Std. dev.	Coefficient	Std. dev.
Intercept	**4.8027**	**0.0088**	**4.7883**	**0.0100**
Experience (years)	**0.0049**	**0.0017**	**0.0161**	**0.0020**
Experience squared	0.0002	0.0001	-0.0002	0.0001
Education (11-12 years)	**0.0306**	**0.0047**	**0.0257**	**0.0046**
Education (13-14 years)	**0.1062**	**0.0085**	**0.0786**	**0.0096**
Education (15-16 years)	**0.1365**	**0.0073**	**0.1846**	**0.0093**
Education (17 years or more)	**0.2606**	**0.0084**	**0.2651**	**0.0107**
Married (0/1)	0.0006	0.0047	-0.0008	0.0053
Province (0/1)	**-0.0624**	**0.0039**	**-0.0840**	**0.0042**
Mother (0/1)	**-0.0242**	**0.0064**	-0.0071	0.0073
Occupation high level (0/1)	**0.1312**	**0.0075**	**0.1654**	**0.0092**
Occupation medium level (0/1)	**-0.0341**	**0.0066**	**0.0495**	**0.0069**
Occupation low level (0/1)	**-0.0581**	**0.0053**	**-0.0572**	**0.0049**
Last birth-related leave t-6 (0/1)	-0.0058	0.0105	**0.0340**	**0.0134**
Last birth-related leave t-5 (0/1)	-0.0069	0.0112	0.0173	0.0131
Last birth-related leave t-4 (0/1)	-0.0063	0.0100	0.0240	0.0123
Last birth-related leave t-3 (0/1)	-0.0001	0.0097	0.0140	0.0121
Last birth-related leave t-2 (0/1)	-0.0138	0.0099	0.0153	0.0108
Last birth-related leave t-1 (0/1)	-0.0091	0.0076	0.0023	0.0091
Duration, last birth-related leave (years)	**-0.0318**	**0.0068**	**-0.0649**	**0.0097**
R^2	0.3142		0.2939	
# observations	13988		15442	

Note: Bold coefficients are significant at a 5% level. In addition to child-related leave, we also include information on unemployment, educational leave and non-participation.

Table 4 presents the results from a binomial probit on the sector selection equation. The estimated coefficients indicate the effect of a given variable on the probability of working in the public sector. Considering the family variables, it is seen that both being married and having a child increase the probability of working in the public sector. We expect these variables to be positively correlated with preferences for family-friendly policies. Thus, the results from this simple model indicate that women with preferences for family-friendly policies self-select into the public sector, i.e. the sector with the more family-friendly working conditions. Another indicator for this is the variable 'degree of compensation'. This is the average degree of compensation while on maternity leave in the private sector relative to the degree of compensation in

the public sector (which is always 100%). This variable contributes to explaining the effect of structural differences between the two sectors. It is seen that a potentially higher degree of compensation in the private sector decreases the probability of being employed in the public sector. Turning to education, we see that women with a short or medium length education (13-16 years) have the highest probability of working in the public sector. This is for example teachers and nurses. Furthermore, we include the individual difference in predicted log wages between the public sector and the private sector as an explanatory variable. We use predictions from the wage equations described above. It is seen that an increase in wages in the public sector relative to wages in the private sector increases the probability of working in the public sector. This result together with the positive coefficient to the indicator for being a mother lead us to conclude that women self-select into the sector matching their preferences for working conditions better and that high penalties for child-related leaves in one sector relative to the other sector induce women with preferences for taking these types of leave to chose the sector where this is less costly.

Finally, the coefficients to the variables indicating whether the parents of the woman were employed in the public sector when the woman was young (15-17 years) are both positive and significant. Note that these variables are used as exclusion restrictions for the choice of sector in the ESM-models.

Table 4. Results from estimation of probit selection equation.

	Selection equation	
	Coefficient	Std. dev.
Intercept	**1.1505**	**0.1354**
Experience (years)	0.0037	0.0066
Experience squared	-0.0001	0.0003
Education (11-12 years)	**0.1765**	**0.0181**
Education (13-14 years)	**0.6485**	**0.0336**
Education (15-16 years)	**0.9913**	**0.0339**
Education (17 years or more)	**0.2902**	**0.0412**
Owner of real estate (0/1)	**-0.1580**	**0.0168**
Married (0/1)	**0.0416**	**0.0184**
Province (0/1)	0.0122	0.0167
Mother (0/1)	**0.4219**	**0.0199**
Mother employed in public sector (0/1)	**0.1073**	**0.0165**
Father employed in public sector (0/1)	**0.0788**	**0.0243**
$\ln \hat{w}_1 - \ln \hat{w}_2$	**1.4236**	**0.2646**
Degree of compensation	**-0.0273**	**0.0021**
Share of correct predictions	0.6628	
# observations	29430	

Note: Bold coefficients are significant at a 5% level.

7.3 Estimation results from the endogenous switching model

The results from the standard endogenous switching model are shown in table 5. Here, the selection and wage equations are modelled simultaneously allowing for correlation of the effects of the unobserved characteristics and this has changed the results considerably. The most striking difference between the model without correlation between the effects of unobservables and the endogenous switching model is seen in the child indicators: For the public sector, allowing for endogenous sector selection turns the child penalty into a child premium and the depreciation rate is no longer significantly negative. Furthermore, the coefficients to the timing indicators show signs of catching up: Recent leaves are punished in terms of wages but the effect declines in time. In the private sector, the insignificant effect of being a mother is turned into a significant child penalty. Also, the results indicate that long birth-related leaves are punished wage-wise (depreciation effect) and the magnitude of the coefficient has

increased. However, the timing indicators for birth-related leave counteract the negative effect of taking long leaves. Note that the differences between the coefficients to the timing indicators are not significant. In fact, the positive timing indicators will exactly outweigh the wage penalty for the typical birth-related leave of 26 weeks! That is, only birth-related leaves exceeding the norm seem to be punished. Albrecht *et al.* (1999) interpret this as signaling.

Considering the coefficients in the selection equation, most of them seem to be sensitive to simultaneous modelling as well. The effect of being a mother is still significant but much smaller, and the effect of being married is now insignificant.

Furthermore, the coefficient to predicted log wage differences has increased considerably while the magnitude of the coefficient to degree of compensation decreases. The effect of education changes completely; only the coefficients to high level education (15-16 years, 17 years or more) are significant and the coefficient to 17 years of education or more has turned negative.

We find evidence of positive selection on unobservables both into the private and the public sectors. In general, this means that individuals working in the public sector have unobserved characteristics that increase wages in the public sector and likewise for the private sector. In particular, the change in the coefficient to the motherhood indicator in the private sector wage equation seems to be caused by the fact that privately employed mothers are well off in terms of unobserved characteristics! This would cause the coefficient to the mother indicator to be less negative were this correlation not taken into account. In the public sector, the sign of the child indicator moves in the opposite direction meaning that women with children are on average endowed with unfavourable unobserved characteristics.

Table 5. Results from estimation of the endogenous switching model (ESM).

	Selection equation		Wage equation Public sector		Wage equation Private sector	
	Coefficient	Std. dev.	Coefficient	Std. dev.	Coefficient	Std. dev.
Intercept	**1.2128**	**0.1029**	**4.4528**	**0.0109**	**4.7060**	**0.0103**
Experience (years)	**0.0149**	**0.0057**	**0.0106**	**0.0019**	**0.0123**	**0.0020**
Experience squared	-0.0002	0.0003	-0.0001	0.0001	0.0000	0.0001
Education (11-12 years)	-0.0060	0.0190	**0.0598**	**0.0052**	-0.0006	0.0054
Education (13-14 years)	-0.0647	0.0415	**0.1995**	**0.0098**	-0.0165	0.0107
Education (15-16 years)	**0.0855**	**0.0414**	**0.2766**	**0.0089**	**0.0323**	**0.0101**
Education (17 years or more)	**-0.1069**	**0.0384**	**0.3385**	**0.0099**	**0.1777**	**0.0118**
Owner of real estate (0/1)	0.0080	0.0186	0.0025	0.0050	**0.0464**	**0.0054**
Married (0/1)	-0.0042	0.0194	0.0081	0.0053	-0.0076	0.0059
Province (0/1)	**-0.0461**	**0.0157**	**-0.0604**	**0.0044**	**-0.0800**	**0.0048**
Mother (0/1)	**0.0920**	**0.0229**	**0.0304**	**0.0069**	**-0.0597**	**0.0075**
Mother empl. in public sector (0/1)	**0.0493**	**0.0119**				
Father empl. in public sector (0/1)	**0.0356**	**0.0173**				
Degree of compensation	**-0.0209**	**0.0016**				
$\ln \hat{w}_1 - \ln \hat{w}_2$	**2.8212**	**0.1197**				
Occupation high level (0/1)			**0.1712**	**0.0083**	**0.1438**	**0.0103**
Occupation medium level (0/1)			**0.0238**	**0.0071**	-0.0095	0.0069
Occupation low level (0/1)			**-0.0136**	**0.0052**	**-0.0722**	**0.0051**
Last birth-related leave t-6 (0/1)			-0.0205	0.0112	**0.0364**	**0.0117**
Last birth-related leave t-5 (0/1)			-0.0198	0.0106	**0.0281**	**0.0115**
Last birth-related leave t-4 (0/1)			-0.0193	0.0100	**0.0336**	**0.0107**
Last birth-related leave t-3 (0/1)			**-0.0373**	**0.0098**	**0.0546**	**0.0107**
Last birth-related leave t-2 (0/1)			**-0.0506**	**0.0096**	**0.0547**	**0.0101**
Last birth-related leave t-1 (0/1)			**-0.0515**	**0.0077**	**0.0435**	**0.0086**
Duration, last birth-related leave (years)			-0.0047	0.0071	**-0.0883**	**0.0086**
ρ_{1u}	**0.8302**	**0.0020**				
ρ_{2u}	**-0.8511**	**0.0062**				
σ_1			**0.2826**	**0.0016**		
σ_2					**0.3217**	**0.0019**
Log likelihood			-16807			
# observations	29430		13988		15442	

Note: Bold coefficients are significant at a 5% level. In addition to child-related leave, we also include information on unemployment, educational leave and non-participation.

To investigate the effect of being a mother further, we allow the child penalty to vary with levels of education. That is, we include cross terms between the mother indicator and indicators for high school (11-12 years), short further education (13-14), medium-level education (15-16 years) and high-level education (more than 16 years). The

effect of having children if the individual has a medium level education is thus the coefficient to the mother indicator plus the coefficient to the cross term. The results are shown in table 6. Except for the coefficient to the degree of compensation, the coefficients to the variables other than the dummy for being a mother are only slightly affected by the inclusion of cross terms. However, there seems to be large variations in the effect of having a child for women with different levels of education: In the public sector, women with a high level education and children have 9% higher wage growth than women without children. How could this be? For males, it is consistently found that individuals with children earn more than their peers without children (cf. Jacobsen & Rayak (1996), Korenman & Neumark (1991), Loh (1996), and Rosholm & Smith (1996)). The usual argument, which may carry over to the case of women in the public sector, is that individuals with children are less mobile and value stable income more. Therefore, it is less risky for the employer to invest in the accumulation of human capital for individuals with children. Also, since pay rises in the public sector are closely linked to tenure, stability is rewarded.

In the private sector, all women are punished for having children no matter the level of education but women with high-level educations are punished less. The extra child premium in the public sector and the smaller child penalty in the private sector for highly educated women could be explained by advantageous unobserved characteristics (e.g. motivation or responsibility) being correlated with level of education. Furthermore, jobs held by highly educated may consist of more complex tasks making it more difficult to replace the individual holding the position, thus increasing the bargaining power of the employee. In conclusion, allowing for heterogeneity in levels of education really does make a difference in identification of the effect of having children.

Table 6. Results from estimation of the ESM allowing for heterogeneity by education.

	Selection equation		Wage equation Public sector		Wage equation Private sector	
	Coefficient	Std. dev.	Coefficient	Std. dev.	Coefficient	Std. dev.
Intercept	**1.2312**	**0.1010**	**4.4256**	**0.0114**	**4.6961**	**0.0107**
Experience (years)	**0.0154**	**0.0056**	**0.0111**	**0.0019**	**0.0107**	**0.0020**
Experience squared	-0.0002	0.0003	-0.0001	0.0001	0.0001	0.0001
Education (11-12 years)	-0.0138	0.0187	**0.1010**	**0.0068**	0.0149	0.0069
Education (13-14 years)	-0.0762	0.0396	**0.2069**	**0.0137**	**0.0516**	**0.0135**
Education (15-16 years)	**0.0782**	**0.0398**	**0.3002**	**0.0114**	**0.0783**	**0.0125**
Education (17 years or more)	**-0.0994**	**0.0370**	**0.3309**	**0.0121**	**0.1912**	**0.0133**
Owner of real estate (0/1)	0.0050	0.0180	0.0025	0.0050	**0.0471**	**0.0054**
Married (0/1)	-0.0028	0.0189	0.0082	0.0053	-0.0073	0.0059
Province (0/1)	**-0.0414**	**0.0153**	**-0.0605**	**0.0044**	**-0.0793**	**0.0048**
Mother (0/1)	**0.0837**	**0.0222**	**0.0642**	**0.0087**	**-0.0292**	**0.0092**
Mother*education (11-12 years)			**-0.0686**	**0.0087**	**-0.0314**	**0.0089**
Mother*education (13-14 years)			-0.0089	0.0158	**-0.1288**	**0.0173**
Mother*education (15-16 years)			**-0.0321**	**0.0131**	**-0.1013**	**0.0159**
Mother*education (17 years or more)			**0.0346**	**0.0152**	-0.0227	0.0185
Mother empl. in public sector (0/1)	**0.0486**	**0.0119**				
Father empl. in public sector (0/1)	0.0344	0.0173				
Degree of compensation	-0.0212	0.0016				
$\ln \hat{w}_1 - \ln \hat{w}_2$	**2.7548**	**0.1077**				
Occupation high level (0/1)			**0.1684**	**0.0083**	**0.1453**	**0.0103**
Occupation medium level (0/1)			**0.0225**	**0.0071**	-0.0065	0.0070
Occupation low level (0/1)			**-0.0122**	**0.0053**	**-0.0730**	**0.0051**
Last birth-related leave t-6 (0/1)			-0.0192	0.0113	**0.0421**	**0.0118**
Last birth-related leave t-5 (0/1)			-0.0183	0.0108	**0.0328**	**0.0116**
Last birth-related leave t-4 (0/1)			-0.0176	0.0102	**0.0390**	**0.0108**
Last birth-related leave t-3 (0/1)			**-0.0357**	**0.0099**	**0.0616**	**0.0108**
Last birth-related leave t-2 (0/1)			**-0.0493**	**0.0097**	**0.0619**	**0.0102**
Last birth-related leave t-1 (0/1)			**-0.0490**	**0.0078**	**0.0506**	**0.0087**
Duration, last birth-related leave (years)			-0.0032	0.0072	**-0.0913**	**0.0087**
ρ_{1u}	**0.8295**	**0.0020**				
ρ_{2u}	**-0.8537**	**0.0062**				
σ_1			**0.2818**	**0.0016**		
σ_2					**0.3219**	**0.0019**
Log likelihood			-16720			
# observations	29430		13988		15442	

Note: Bold coefficients are significant at a 5% level. In addition to child-related leave, we also include information on unemployment, educational leave and non-participation.

We also modelled the endogenous switching model allowing for differences in the effect of motherhood varying with age at first birth. However, we found no significant

differences between the child penalty/premium for the different categories of age at first birth.

The indicator for being a mother may cause another potential endogeneity problem. It is likely that unobserved characteristics explaining the choice of having children are correlated with unobservables explaining the choice of sector or wages. To account for that, we apply the two-step approach described in section 6. Our instrument is the number of siblings living at home while the woman was between 15 and 17 years of age. The coefficient of the instrument turns out to be significantly negative when modelling the choice of having children using a probit specification. The share of correct predictions in the model is 0.7861. However, as can be seen from Table 7, the qualitative results of being a mother do not change at all. The other coefficients are robust as well.

Table 7. Motherhood indicators from the endogenous switching model with endogenous fertility.

	Selection equation		Wage equation Public sector		Wage equation Private sector	
	Coefficient	Std. dev.	Coefficient	Std. dev.	Coefficient	Std. dev.
Mother (0/1)	**0.0836**	**0.0222**	**0.0642**	**0.0087**	**-0.0292**	**0.0092**
Mother*education (11-12 years)			**-0.0686**	**0.0087**	**-0.0314**	**0.0089**
Mother*education (13-14 years)			-0.0088	0.0158	**-0.1288**	**0.0173**
Mother*education (15-16 years)			**-0.0322**	**0.0131**	**-0.1013**	**0.0159**
Mother*education (17 years or more)			**0.0346**	**0.0152**	-0.0226	0.0185

Note: Bold coefficients are significant at a 5% level.

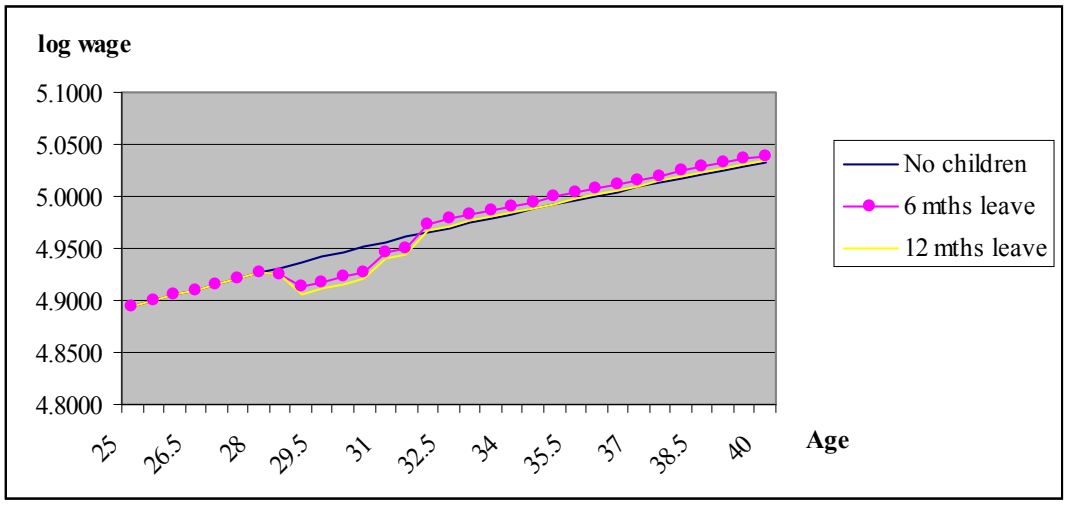
7.4 Wage profiles

To illustrate the effect of child-related career interruptions, we present different wage profiles based on the results from the ESM model with endogenous fertility.[7] We consider a woman with a medium length higher education (15-16 years), who enters

the labour market at the age of 25. At 28 she gives birth to her first child, and we study the cases where she takes 6 and 12 months of birth-related leave, respectively. Changing the level of education would affect only the level of the curve and the vertical shift, not the profile over age.

Figure 4 presents the wage profiles for the public sector. It is seen that both women taking 6 and 12 months of leave are punished temporarily for interrupting due to depreciation of human capital. However, one year after giving birth the recovery phase sets in and after 4 years full catching up is achieved. Since the depreciation effect for publicly employed women is small, there is almost no difference between the predicted wages of women taking 6 or 12 months of leave.

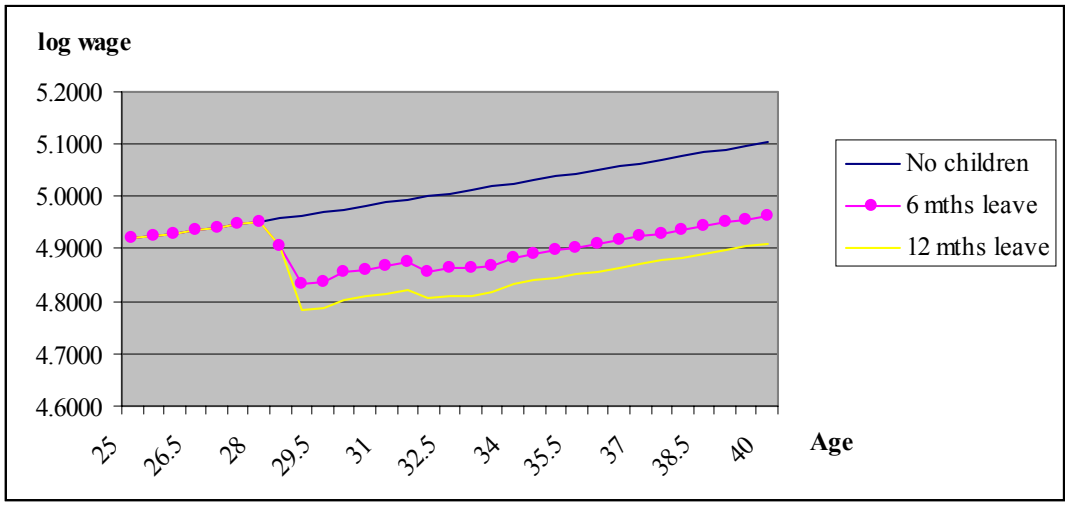
Figure 4. Wage profiles, public sector (15-16 years of education).



The consequence of a birth-related interruption crucially depends on the education of the woman. Mothers with 11-12 years of education never catch up, whereas mothers with long further education (17-18 years) earn higher wages than childless women.[8]

Figure 5 presents the wage profiles for the private sector. In this case, there is a large child penalty and a strong depreciation effect. Not much catching up takes place. No matter the level of education, women who choose birth-related career interruptions are punished severely in terms of wages, and this effect does not seem to vanish over time. The punishment is largest for women with 13-14 or 15-16 years of education, and it is smallest for those with long further education and those with 10 years or below.

Figure 5. Wage profiles, private sector (15-16 years of education).



8. Conclusion

In this paper, we investigate how the family gap is influenced by self-selection into sectors with family-friendly policies. We analyse the case of the public vs. private sector in Denmark. We find that neglecting self-selection into sectors tends to understate the effect of birth-related interruptions in both sectors. Pooling across sectors would understate the effects even more, since the child penalty would be driven to zero.

We analyse the earnings effects of birth-related interruptions in the public and private sectors, while focusing on self-selection due to motherhood, wage compensation during leave expected wage gains as well as unobservables. We allow for heterogeneous effects of motherhood for individuals with different levels of education, and we correct for the possible endogeneity of fertility by using an instrumental variable approach.

As expected, we find that motherhood as well as lower potential compensation in case of maternity leave in the private sector, increases the probability of being employed in the public sector, regardless of the specification of the model. In the wage functions, we find a child premium in the public sector and a child penalty in the private sector after correction for both sorts of endogeneity and these effects vary substantially with level of education. Regarding birth-related leave, we find no evidence of depreciation in the public sector but most women experience a negative wage effect that dies out over time. Women with the female-dominated medium length educations (nurses, pedagogues and teachers) catch up completely, and women working in the public sector with long further educations are not at all punished wage-wise for interrupting their career to have a child. In the private sector, women loose earnings no matter the level of education and these losses are not reduced subsequently.

We find positive selection on unobserved characteristics in both the public and the private sectors and in general we find that the parameters are sensitive to the endogenous choice of sector, but not to the potential endogeneity of fertility. The results from the endogenous switching model support the hypotheses that women self-select into the sector matching their preferences better and that high penalties for child-related leaves in one sector relative to the other sector induce women with preferences for taking these types of leave to chose the sector where this is less costly.

Returning to the question posed in the title of the paper, we must conclude that the gap in family-friendly policies affects the sector choice of women. And it does indeed affect the estimated family gap in earnings. Allowing for self-selection increases the sector difference in child penalties significantly. It changes the child penalty into a premium in the public sector, whereas it leads to a larger child penalty in the private sector. It seems probable, then, that mothers employed in the private sector are endowed with wage-increasing unobservables, whereas mothers employed in the public sector are endowed with less favourable unobserved characteristics. This tends to suggest that the family-friendly policies in the public sector attract 'bad manpower' in terms of unobserved characteristics, whereas the opposite is the case in the private sector.

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APPENDIX 1. The Danish leave schemes, 1981-1996.

During the period of observation, there have been considerable changes in the Danish leave schemes towards an increasingly generous system in terms of the length of the leaves. In the following, the most substantial changes are described.

In 1981, mothers were eligible for 18 weeks of maternity leave: 4 weeks before giving birth and 14 weeks after (cf. www.kvinfo.dk). The law was changed in 1984 (Statute no. 63 per 21/02/1984, 'Bekendtgørelse af Lov om barselsorlov m.v.') extending the leave with 10 weeks of parental leave that could be shared between the parents, resulting in a maximum of 28 weeks of leave for the mother. In 1990, fathers were allowed 2 weeks of leave during the first 14 weeks after the birth, which could not be transferred to the mother (Statute no. 852 per 20/12/1989, 'Lov om dagpenge ved sygdom eller fødsel'). An important point is that law protects individuals who have set forth demands for or are already in maternity or paternity leave against being fired (cf. Statute no. 63 per 21/02/1984, 'Bekendtgørelse af Lov om barselsorlov m.v.'). During the maternity and parental leave all parents on leave are eligible for benefits corresponding to 90% of their former salary (up to a maximum). However, due to legislation in 1989 all employees in the public sector receive full salary during maternity/parental leave.

In 1994, in addition to the existing parental leave schemes, three new types of publicly subsidized leave schemes were introduced: Child-rearing leave, sabbatical leave and educational leave (Statute no 435 per 30/06/1993, 'Lov om orlov'). Child-rearing leave was aimed at individuals who wanted to withdraw temporarily from the labour force in order to take care of their children. Therefore, the law limited the use of publicly provided childcare facilities for children of individuals in child-rearing leave. The leave scheme was open to both employed and non-employed individuals and amounted

to a maximum of 52 weeks per child aged 0-8 years for women in employment and 26 weeks for non-employed. In 1994, fully insured participants could receive 80% of the maximum unemployment benefit, but in 1995 this was reduced to 70% (Statute no. 1178 per 27/12/1994 'Bekendtgørelse om orlov til uddannelse, sabbat og børnepasning'). Individuals in child-rearing leave also received job protection by law.

Contrary to child-rearing leave, taking up sabbatical leave would not restrict the individual's use of publicly provided services or more generally lay down conditions for the individual's everyday. Therefore, sabbatical leave could, in principle, be a substitute for child-rearing leave. However, only employed individuals could participate in the leave scheme and it was required that the employer hired an unemployed individual to fill in for the individual on leave. Sabbatical leave could be taken for 52 weeks and the benefits scheme corresponded to the scheme for child-rearing leave.

Educational leave could, of course, only be granted if the individual was actually taking up education. Also, only types of education approved by the government were allowed for; this would typically exclude education at university level. Educational leave amounted to a maximum of 52 weeks and participants could receive the maximum earnings replacement.

Clearly, the extended maternity leave and the introduction of child rearing and sabbatical leave made it possible for women to stay at home and take care of their children for a longer period.

APPENDIX 2. Descriptive statistics for central variables.

	Public Sector		Private Sector	
Variable	Mean	Std. dev.	Mean	Std. dev.
Hourly wage (DKK)+A6	124.741	39.705	129.110	45.659
Age (years)	31.742	5.645	29.800	5.785
Education (<11 years)	0.219	0.414	0.342	0.474
Education (11-12 years)	0.418	0.493	0.510	0.500
Education (13-14 years)	0.105	0.306	0.048	0.214
Education (15-16 years)	0.198	0.399	0.057	0.231
Education (> 16 years)	0.060	0.237	0.043	0.203
Province	0.636	0.481	0.624	0.484
Owner of real estate	0.421	0.494	0.414	0.492
Occupation top level	0.006	0.076	0.009	0.094
Occupation high level	0.134	0.340	0.058	0.234
Occupation medium level	0.270	0.444	0.159	0.366
Occupation low level	0.464	0.499	0.564	0.496
Married (0/1)	0.477	0.499	0.390	0.488
Child (0/1)	0.615	0.487	0.480	0.500
Degree of compensation (potential)	0.584	0.057	0.606	0.048
Duration of latest birth-related leave (weeks)	18.688	21.749	13.898	19.617
Latest birth-related leave in 84 (0/1)	0.010	0.098	0.007	0.086
Latest birth-related leave in 85 (0/1)	0.013	0.111	0.010	0.099
Latest birth-related leave in 86 (0/1)	0.018	0.132	0.013	0.112
Latest birth-related leave in 87 (0/1)	0.023	0.149	0.013	0.115
Latest birth-related leave in 88 (0/1)	0.025	0.156	0.017	0.128
Latest birth-related leave in 89 (0/1)	0.032	0.176	0.020	0.140
Latest birth-related leave in 90 (0/1)	0.035	0.184	0.024	0.153
Latest birth-related leave in 91 (0/1)	0.037	0.189	0.029	0.169
Latest birth-related leave in 92 (0/1)	0.047	0.212	0.034	0.182
Latest birth-related leave in 93 (0/1)	0.054	0.227	0.040	0.197
Latest birth-related leave in 94 (0/1)	0.056	0.230	0.048	0.214
Latest birth-related leave in 95 (0/1)	0.067	0.250	0.061	0.240
Latest birth-related leave in 96 (0/1)	0.133	0.340	0.116	0.320
Mother public sector (0/1)	0.345	0.476	0.300	0.458
Father public sector (0/1)	0.127	0.333	0.099	0.299
N	13988		15442	

ENDNOTES

[1] In line with this finding, a consultancy report from SBK Scandinavia showed that in contrast to their privately employed peers, females employed as trade and office

workers (Handel og Kontor) in the public sector do not experience increased risk of marginalization following a period of child-rearing leave.

[2] In total, real wages declined by 3% over the period. In addition, a small but increasing amount has been locally negotiated.

[3] Though a majority of women start their labour market career in the private sector, the likelihood of a transition to the public sector is more than double of the likelihood of going in the opposite direction.

[4] Most often, children from separated homes live with their mother. Moreover, in 1996 the number of adoptions amounted to only 600 in total. In our sample this would amount to approximately 30 adoptions in 1996.

[5] In addition to birth-related leave, we account for unemployment, educational leave, child-rearing and sabbatical leave and non-participation. Results are only reported for leave related to children.

[6] Remember, though, that we do not model the participate decision.

[7] All relevant coefficients are used to draw the wage profile no matter whether they are significant.

[8] The same variation over education is seen in the papers by Datta Gupta & Smith (2002) and Albrecht *et al.* (1999), though the net effect of interruptions on wages is only positive for short periods of leave.

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