# DEPARTMENT OF ECONOMICS

## Working Paper

Availability and Price of High Quality
Day Care and Female Employment.

Marianne Simonsen

Working Paper No. 2005-08


ISSN 1396-2426

# UNIVERSITY OF AARHUS • DENMARK

# INSTITUT FOR ØKONOMI

AFDELING FOR NATIONALØKONOMI - AARHUS UNIVERSITET - BYGNING 322
8000 AARHUS C - ☎ 89 42 11 33 - TELEFAX 86 13 63 34


WORKING PAPER

# Availability and Price of High Quality Day Care and Female Employment.


Marianne Simonsen



Working Paper No. 2005-08



# DEPARTMENT OF ECONOMICS

SCHOOL OF ECONOMICS AND MANAGEMENT - UNIVERSITY OF AARHUS - BUILDING 322
8000 AARHUS C - DENMARK ☎ +45 89 42 11 33 - TELEFAX +45 86 13 63 34

# Availability and Price of High Quality Day Care and Female Employment.

Marianne Simonsen*
Department of Economics,
University of Aarhus

May 2005

**Abstract**

In this paper I analyse to what degree availability and price of high quality publicly subsidised child care affects female employment for women living in couples following maternity leave. The results show that unrestricted access to day care has a significantly positive effect on female employment. The price effect is significantly negative: An increase in the price of child care of €1 will decrease the female employment with 0.08% corresponding to a price elasticity of −0.17. This effect prevails during the first 12 months after childbirth.

**JEL classifications:** J13, J22, J38

**Keywords:** Child care, prices, waiting lists, regional variation, female employment

**Acknowledgements:** I thank the Danish Social Science Research Council (the FREJA grant) for financial support and The Institute for Local Government Studies (akf) for support to access data from Statistics Denmark. Leif Husted has provided excellent data support. Furthermore, I much appreciate comments from Nabanita Datta Gupta, Inga Persson, Lars Skipper, and Michael Svarer, along with seminar participants at the University of Aarhus and The Institute for Local Government Studies (akf). I am especially indebted to Helena Skyt Nielsen. All errors are my own.

*Corresponding address: Marianne Simonsen, Department of Economics, University of Aarhus, Building 326, DK-8000 Aarhus C, Denmark. Email: msimonsen@econ.au.dk. Phone: +45 8942 1599. Fax: +45 8613 6334.

# 1 Introduction

A well-established result in the literature on female labour supply is that costly child care works as a barrier to employment for women in the US: e.g. Heckman (1974), Connelly (1992), Ribar (1992), Kimmel (1998), and Powell (2002) all find negative child care price elasticities of employment. In addition, using an IV approach Gelbach (2002) finds that provision of free kindergarten increases employment of mothers of five-year old children and exploiting waiting lists for child care subsidies Berger & Black (1992) find that a reduced price increases female employment. Given that female labour force participation is valuable both for the society as a whole and for the individual woman a natural solution seems to be to subsidise parental costs of day care. Interestingly, US politicians have recently paid much attention to the possible role of expanded child care subsidies and direct provision of public pre-school, see Gelbach (2002).

Yet Ruhm (2004) finds that parental employment is negatively correlated with child cognitive development in the US, which suggests the existence of a trade off between increased female labour force participation and child development. What is not accounted for in Ruhm (2004), though, entirely due to lack of data, is the quality of nonparental care that is likely to be of considerable importance for the results. In fact, the author points out that the average quality of day care in the US is extremely low and a study for Sweden (Andersson (1992)) that along with the other Nordic countries provides high quality publicly funded child care finds that day care increases childrens' cognitive skills.[1]

For these reasons, it seems that the Nordic policy of providing high quality publicly funded day care institutions[2] and parental cost subsidies (that are decreasing in income) is potentially welfare improving and of general interest. Furthermore, Gustafsson & Stafford (1992) argues that because quality of child care in the Nordic countries is more homogenous compared to, for example, the US, estimates of price responsiveness are more easily uncovered and not as biased by product heterogeneity.

The results on effects of child care on female labour supply in general in the Nordic countries are sparse. Using a small survey Gustafsson & Stafford (1992) find that high quality public child care in Sweden encourages labor market activity of women with preschool children. Furthermore, by constructing a measure of rationing they find that when spaces are not limited, a lower price encourages use. In contrast, Pylkkänen & Smith (2004) find that decreasing costs of day care in Denmark has no significant effect on the duration of leave after giving birth. Not taking account of the existence of waiting lists may, however, explain why Pylkkänen & Smith (2004) do not find effects of day care prices on employment.[3]

It is therefore of importance and interest to perform further analysis on the effects of child care on female employment in regimes with high quality publicly funded day care and in this paper I analyse the Danish set-up using data from 2001. As opposed to earlier studies (Gustafsson & Stafford (1992), Pylkkänen & Smith (2004)) I have access to precise information on access to day care and I introduce family-specific prices. Estimations are

[1] Another factor that might affect the results for the US and Nordic countries is the time at which the parents return to the labour market after giving birth. The generous maternity leave schemes in e.g. Denmark means that the majority, 96%, of all mothers take all the leave possible (28 weeks in 2001) whereas working mothers in the US return much earlier after giving birth.

[2] According to Jaumotte (2003) Denmark has by far the highest level of spending on child care within the OECD countries amounting to 2.7% of GDP in 1999.

[3] The authors include a dummy for living in a big city as a proxy for existence of waiting lists. This is, however, not a perfect measure and may capture other effects than those of waiting lists.

performed on a rich register-based Danish data set consisting of 10% of the population that includes high-quality information on demographics and income for both spouses on a yearly basis. In addition, individual event history in terms of employment, unemployment, retirement, maternal leave, publicly subsidised child rearing leave, education, and the residual category non-participation is known on a monthly basis.

Firstly, I analyse price effects. A common problem in the literature is identification of prices of child care since they are often not directly observed. In the Danish case parental costs of day care vary deterministically with income, place of living (municipality), and number of siblings in day care yet the problem of identifying prices still remain: I do not observe labour income and therefore prices for a non-employed woman in the counterfactual case of employment. To overcome this problem I use a novel identification strategy: I exploit the fact that families with income over a certain treshold face prices which are independent of income. Using information on minimum compensation levels in the nonemployment state I restrict the sample to consist of women for whom prices are independent of income no matter her employment status. This group includes 62% of all families representing a more well-off part of the population causing the estimated parameters to be local in the sense that they only hold true for the estimation sample.

In addition, in line with Gustafsson & Stafford (1992) I introduce a potentially important factor, namely the existence of queing systems for day care. I take advantage of the fact that the system generates waiting lists in some municipalities while others guarantee open slots. In other words there exists a period and municipality specific probability that a child is not granted a slot in day care.[4] This is used to identify effects of limited access to publicly funded day care: Do households rely on alternative means of day care or do parents, in particular women, withdraw from the labour market to take care of their children?

I find that provision of unrestricted access to day care (henceforth $UADC$) has a significantly positive effect on female employment following child birth. The price effect is significantly negative: An increase in the price of child care of €1 will decrease the female employment rate with around 0.08%. This effect prevails during the first 12 months after childbirth.

The paper is organised as follows: Section 2 presents day care in Denmark, Section 3 discusses the identification and estimation strategy, Section 4 presents the data and Section 5 the results. Finally, Section 6 concludes.

# 2 Day Care in Denmark

Day care in Denmark (along with other Nordic countries) is characterised by high expenditure levels per capita compared to other countries within the European Union (Rostgaard (2003)). To the extent that high expenditure levels reflect high quality this places the Danish day care system among the best in Europe which along with the generous subsidies may explain the high use. In fact, according to Society of Day Care Teachers (Pædagogisk Medhjælper Forbund) (2004), about 75% of all children aged 6-9, 96% of children aged 3-5, and 61% of 0-2 year olds attended public day care in 2002. There are several types of day care including nursery centers and family day care (as a general rule less than 5

[4] In fact, in the data this probability varies to a large extent: the municipality of Copenhagen has the lowest number of slots in 2001 (39.4 slots per 100 children aged 0-10 years) while the municipality of Ledøje-Smørum has the highest (112.2 slots).

children) for 0-2 year olds, kindergartens for 3-6 year old preschool children along with after-school care for 6-10 year olds.

Day care is for the major part publicly provided and organised by the 271 municipalities. *All* children are eligible for community child care, including children born to unemployed parents. The only exception occurs if one of the parents take maternity or child care leave, see below for a description of these schemes.

Municipalities can choose to guarantee $UADC$, either in nursery centers or in family day care, for all preschool children *older than 6 months*, yet the parents cannot themselves decide on a specific institution. When providing $UADC$ the municipality is required by law to pay a minimum of 67% of the total costs per child. Should the municipality choose not to guarantee $UADC$ they are required to pay at least 70% of the total costs per child in day care. According to the The Law of Service (Servicelovens §15a), if a municipality is unable to honour $UADC$ it must immediately switch to the higher cost subsidy. A significant part of the municipalities do, as a matter of fact, have waiting lists: In 2001 this amounted to 19.3% of all municipalities (affecting 22% of the women in the estimation sample, see Table 3 below). Thus, the incentive scheme seems too weak to secure complete immediate publicly provided day care for all children. In case of waiting lists, open slots in child care are allocated according to seniority and age.

Mothers have the right to a maximum of 28 weeks of job protected maternity leave and, as will become clear from the descriptive analysis below, the vast majority of mothers take full advantage of this. The degree of compensation while on maternity leave varies with union membership but with a legally ensured lower bound on benefits received. In addition to maternity leave, parents have the right to 26 weeks of paid child care leave before the child turns 1.[5] Thus, potential provision of $UADC$ coincides with the expiration of formal maternity leave but mothers of children who are not granted a slot in day care have the possibility of taking child care leave.

**TABLE 1**
FURTHER DAY CARE SUBSIDIES[a]

| Family Income (2001) | Further subsidy (% of total costs per child) |
|---|---|
| €16,215 or below | 30% |
| €16,215 − 16,573 | 28.5% |
| €16,573 − 50,300 | Subsidy reduced by 0.285 percentage points when income is increased by €337 |
| €50,300 or above | 0% |

[a]Source: www.retsinfo.dk

Depending on household income municipalities may take on an even larger part of the financing than the minimum 67%/70%. Table 1 above shows further munipality subsidies for a family with one child. The critical income levels are increased by €1000 for each additional sibling under the age of 18. Moreover, parents only pay the full price of day care for the child placed in the most expensive type of public child care. For every additional sibling placed in public care parents are granted a 50% price subsidy. The average price

[5]Child care leave from employment is job protected. Child care leave during unemployment prolongs the period of unemployment insurance benefit entitlement and temporarily pauses workfare participation.

of day care without any further subsidies amounts to €280 per month and varies between €160 – €420.

Table 2 above shows the share of women in each subsidy category 6 months after child birth. Clearly, the mass of women (and therefore families) do not receive any subsidy beyond the 67%/70%.

**TABLE 2**
SHARE OF WOMEN IN SUBSIDY CATEGORIES[a]

| Degree of further subsidy | Share of women 6 months after birth |
|---|---|
| Full coverage | 0.009 |
| Some further subsidy | 0.170 |
| No further subsidy | 0.821 |

[a]Source: own calculations, based on observed family income, standard deviations in brackets

# 3 Identification and Estimation strategy

In this section I will briefly discuss the objectives of the econometric analysis and notation and continue on to discuss the parameters of interest along with identification and estimation strategy. The goal of the evaluation is to measure the effect or impact of a given treatment, $D$, on an outcome variable, $Y$. Here treatments are the municipality child care policies, namely $UADC$ and prices, and the outcome of interest is the female employment status in the period after giving birth. Let $Y^*$ be the underlying utility of employment. I follow Connelly (1992), Kimmel (1998), and Ribar (1992) wrt. the behavioural model forming the basis for the empirical analysis. That is, $Y^*$ is linear and additively separable:

$$Y^* = \beta_0 + \beta_1 \mathbf{1}_{UADC} + \beta_2 P + \gamma X + u. \tag{1}$$

$\mathbf{1}_{UADC}$ is a dummy taking the value 1 if the woman is living in a municipality that guarantees unrestricted access to day care and $P$ is the price to the parents of placing the newly born in day care. The latter is a function of municipality policy, parental income, number of older siblings and whether these are placed in public day care.[6]

$X$ is a set of conditioning variables including regional dummies, labour market experience, experience squared, level of education of the mother, husband's income, and number of siblings in different age groups. I do not explicitly include expected wages in the participation equation since the parameters of interest are related to child care policies and not wages.[7] However, I do include determinants of the wage. This means, for example, that the estimated parameter from level of experience and education includes both a wage effect and a participation effect, see also Tekin (2004). $u$ is assumed to be a normally distributed random variable and the parameters of (1) can then be estimated using a probit where

[6]I do not have information on whether children are placed in day care. Therefore, I assume that parents do not place a newly born in day care and keep older pre-school siblings at home after birth. This assumption does not seem too strict given the share of children in public day care, see above.

[7]Estimating a Heckman selection model a la Kimmel (1998) does not change the conclusions from the analysis presented below.

$$Y = \begin{cases} 1 & if \quad Y^* > 0 \\ 0 & otherwise \end{cases}$$

Clearly, to avoid selection bias in the estimation of the effects of child care policy there must be no dependence between $Y^*$ and $u$. In other words, there must be no unobserved factors that explain both labour force participation and policy. In particular, there cannot be any settlement effects: Couples must not move because of expected gains from child care policies. Is this likely and if not, is it possible to counterbalance such effects? Firstly, there is municipality specific variation in $UADC$ over time.[8] A couple can therefore not be sure that a municipality will not change its policy. In addition, there is a tendency for more municipalities to provide $UADC$ over time. This does, of course, not exclude the possibility that people settle because of child care policies but it decreases the probability. Secondly, it is extremely unlikely that the child care policy is the main driver for settlement when compared to job opportunities and prices of real property. Furthermore, I condition on the number of older siblings, which is expected to capture part of the expected gains from living in a municipality with $UADC$. I realise, though, that child care policy is likely to be correlated with other municipality specific characteristics, which may affect, on the one hand, the woman's (or couple's) decision of where to live and, on the other hand, the municipality's capability of providing services in general. Therefore, the conditioning set is augmented with municipality characteristics including level of female unemployment rates and a social index constructed by the Danish Ministry of the Interior.[9] The index captures how cost intensive the municipality environment is, and is based on several social criteria such as number of single parents, outdated housing, high crime areas, number of unemployed, and concentration of third world immigrants. A higher value of the index reflects higher social costs. The index has been normalised to have mean 1.

Unfortunately, it is impossible to identify $P$ for all women in both counterfactual states, since (family) income depends on the employment decision. One strategy would be to perform a Heckman type estimation to predict labour market income and thus $P$. This would, however, require an exclusion restriction in the employment equation to avoid strong reliance on functional form assumptions. Such a variable is not immediately at my disposal. Therefore, I rely on an alternative strategy: I limit the sample to consist of a group of women for whom $P$ is independent of income by excluding those whose compensation do not exceed the upper limit in Table 1 (€ 50,300 corrected for number of siblings) both when employed and not employed. This requires information about the woman's compensation in both states while the husband's income, $H\_INC$, is taken as given. Unemployed individuals receive *unemployment insurance benefit,* $UI$, or approximately € 21,800 per year in 2001. Compensation during child care leave amounts to 60% $UI$,[10] or approximately € 13,100 per year in 2001. I assume that compensation in employment always exceed this latter lower bound. Therefore, the smallest level of compensation during non-employment is 60% $UI$ and family income, $F\_INC$, will for all mothers both during employment and nonemployment at least equal $MIN\_INC$

[8] Unfortunately, I cannot exploit this variation since the information on individual and municipality specific characteristics only overlap in 2001. 22 out of 271 municipalities, or 8%, change their policy between 2001 and 2002. Of these, 2 municipalities were unable to provide $UADC$ in 2002 compared to 2001. Furthermore, 40 municipalities, or 15%, change their policy between 2001 and 2004. Of these, 3 municipalities were unable to provide $UADC$ in 2004 compared to 2001.

[9] See www.noegletal.dk

[10] See discussion above for child care leave during unemployment.

$$MIN\_INC \equiv H\_INC + 0.6 \cdot UI \leqslant F\_INC,$$

For the subsample of individuals with $MIN\_INC$ (and therefore family income) always above the appropriate upper limit, $MC$ is independent of income. In principle, more individuals belong to this group (82% of all mothers 6 months after child birth): I do, for example, observe women in nonemployment with family income that is higher than the upper limit. Assuming that income in employment always exceed income in the nonemployment state these women could be included. The problem is, though, that I do not observe income in the nonemployment state for employed women. Such an inclusion will therefore treat nonemployed and employed women asymmetrically, whereas imposing a common minimum income during nonemployment will not. Obviously, the selection procedure means that the estimated parameters only hold true for this group, consisting of approximately 60% of mothers following child birth.[11]

I estimate female employment propensities on a monthly basis from 5 months after child birth. Month 5 is included as a (weak) consistency check: Since $UADC$ is not provided in any municipality before month 6 a significant effect will indicate a misspecification of the model and/or that the analysis has excluded factors that simultaneously explain a municipality's choice of policies in general and female employment. Similarly, any significantly positive effects of providing $UADC$ are likely to die out over time since child care slots are allocated both according to seniority and age. If such a trend is not observed within a given time frame it could either be because of extensive waiting lists or, importantly, because of settlement effects: If women who reside in municipalities which provide $UADC$ have unobserved characteristics that increase their employment propensity, the estimated effect of $UADC$ is likely to be *permanent*, not temporary.

Alternatively, I could have applied a duration model, yet this would have reduced my sample drastically due to left censoring because I only would have been able to use observations for women *giving birth* in 2001 as opposed to the larger sample described in the following section. Constructing data to be used for a duration model analysis would also reduce my horizon to 12 months. The reason is that information on availability of child care only exists for 2001. Furthermore, Figure 2 below shows that women enter employment relatively quickly after the expiration of formal maternity leave indicating little risk of duration dependence. See also Lechner (2000) and Larsson (2003) for examples of papers evaluating period specific effects.

# 4 Data

I employ register based data maintained by Statistics Denmark along with municipality information supplied by the Ministry of the Interior from 2001. The register data set contains information on a representative sample of 10% of all Danish individuals in the 15-74-age bracket. Information stems from several registers all maintained by Statistics Denmark. The registers include yearly information on income and demographics. Furthermore, the individual event history in terms of periods of employment, unemployment, retirement, maternal leave, publicly subsidised leave (child rearing or sabbatical), education, and the residual category non-participation is known on a monthly basis. A woman

[11] See below for comparisons of the excluded and included group of women. This exclusion reduces the variability in the price information but only to a small degree: The standard deviation on $MC$ among the excluded group is €75 and €87 for the included group, see Table 3 below.

is coded as being employed only if she is working. Importantly, a child register provides exact information on the date at which women in the sample give birth. This information allows for identification of the labour market status of a woman in each month after giving birth.

The information from the Ministry of the Interior include municipality specific prices of child care, the social index described above and whether or not the municipality expects to be able to provide $UADC$. This last piece of information is reported to the Ministry of the Interior as part of the municipality budget requirements.

Self-employed individuals, women with no labour market insurance along with women on early retirement and under education are excluded from the analysis to secure a homogenous estimation sample representing women for whom the choice of being employed is real. This excludes 10% of the full sample.

To estimate the effect of child care policies on female labour supply 5 months after giving birth I choose as outcome the labour market status in January 2001 for women giving birth in July 2000, the labour market status in February 2001 for women giving birth in August 2000 and so forth. The estimation samples used to evaluate the effects in the following months are constructed similarly. As will become clear, it is possible to establish a distinct pattern of the effects of the policies within the first 15 months after child birth. Therefore, I limit the analysis to cover this period. I end up with around $5,100$ observations for each month. As explained in Section 3, to be able to identify $P$ both when a woman is employed and the counterfactual case I am forced to consider only women for whom $P$ is independent of income. This step also excludes single women from the analysis since 60% $UI$ obviously does not exceed the appropriate upper limit in Table 1. The final sample consists of $3,200$ observations in each month.

Table 3 compares the characteristics of the excluded and included group of women 6 months after child birth. Note that the price variation is still significant. Clearly, the included group of women have different characteristics compared to excluded the group. In particular, husbands' income is higher among the included women which is due to the selection criteria. In addition, the group of included women are older, have slightly more children, higher education, higher income, and live in municipalities with higher social expenses and higher unemployment rates. In this sense, the 38% women excluded from the analysis have less favourable socio-economic characteristics. Therefore, their reactions to changes in policies may potentially differ from that of the estimation sample. With the available data this, however, cannot be investigated.

Figure 1 depicts female employment 5-15 months after giving birth for the included group. We see that only 4% of women are employed 5 months after giving birth.[12] Hereafter, we observe a gradual increase in the female employment propensity. After 14 months the profile levels at a 71% employment propensity. This corresponds to the average propensity for Danish women.

Figure 2 shows the difference in female employment in municipalities with and without $UADC$. We see that there is a significantly higher employment rate in municipalities with $UADC$ from month 7-13 yet after this point the difference is not significantly different from zero. The difference in employment rates is of considerable size: Women in $UADC$ municipalities have an 11% higher employment propensity 9 months after child birth. However, municipalities who guarantee unrestricted access to day care may not have the same cost structure of child care as municipalities who do not provide such a guarantee

[12] During the 4 first months after child birth the share of women participating in the labour market is even smaller.

specifically due to the incentive structure mentioned above.

**TABLE 3**

COMPARISON, EXCLUDED AND INCLUDED GROUPS,
6 MONTHS AFTER CHILD BIRTH[a]

| | Excluded group | | Included group | |
|---|---|---|---|---|
| | Average | Std. Dev. | Average | Std. Dev. |
| UADC | 0.77 | 0.42 | 0.77 | 0.42 |
| Age | 30.06 | 4.77 | **31.43** | 4.12 |
| # siblings aged 0-2 | 0.13 | 0.34 | 0.13 | 0.34 |
| # siblings aged 3-6 | 0.39 | 0.58 | **0.47** | 0.58 |
| # siblings aged 7-9 | 0.14 | 0.37 | 0.13 | 0.37 |
| # siblings aged 10-14 | 0.10 | 0.35 | **0.07** | 0.30 |
| # siblings aged 15-17 | 0.02 | 0.14 | 0.01 | 0.12 |
| Education (years) | 12.32 | 2.97 | **13.46** | 2.53 |
| Own income (€) | 25,538 | 9,691 | **29,932** | 12,129 |
| Husband's income (€) | 24,355 | 12,649 | **58,451** | 32,776 |
| Single | 0.14 | 0.35 | **0** | 0 |
| Child care price, $P$ - family specific (€) | 169 | 87 | **209** | 75 |
| Child care price - municipality level (€) | 278 | 27 | **282** | 29 |
| Social index | 1.01 | 0.32 | **0.96** | 0.32 |
| Female unempl. rate - municipality (per cent) | 6.12 | 1.86 | **5.76** | 1.77 |
| Observations | 2276 | | 3141 | |
| Share of all | 0.42 | | 0.58 | |

[a]Bold indicates a significant difference between the two groups at the 5% level

**FIGURE 1**

EMPLOYMENT PROPENSITY AFTER CHILD BIRTH,
ESTIMATION SAMPLE, 2001

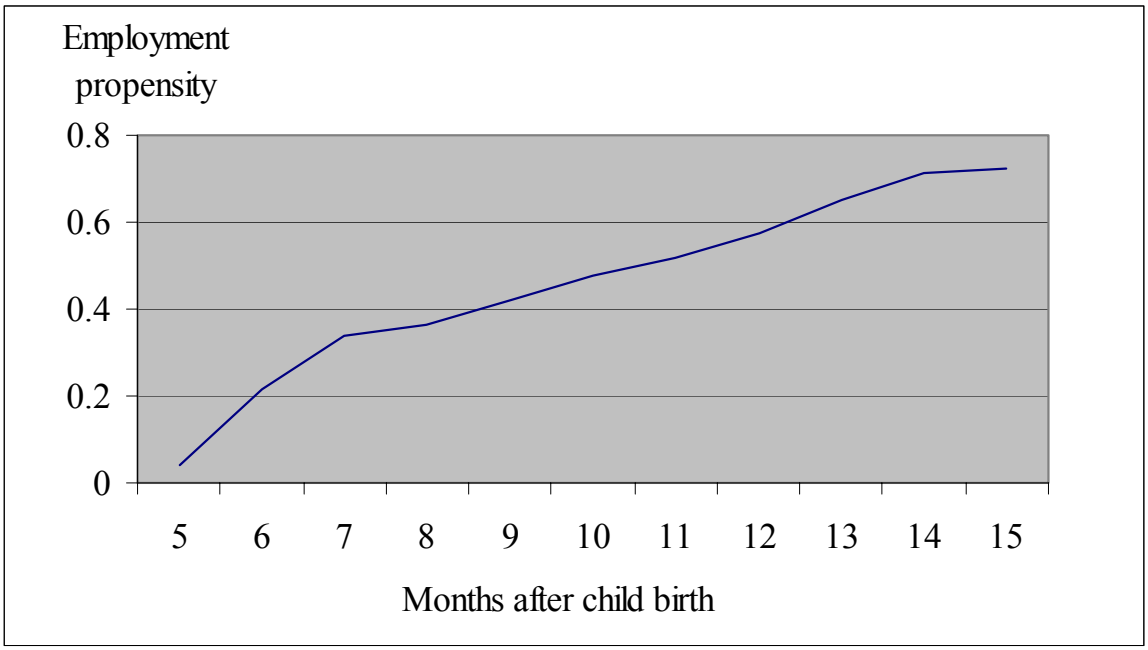
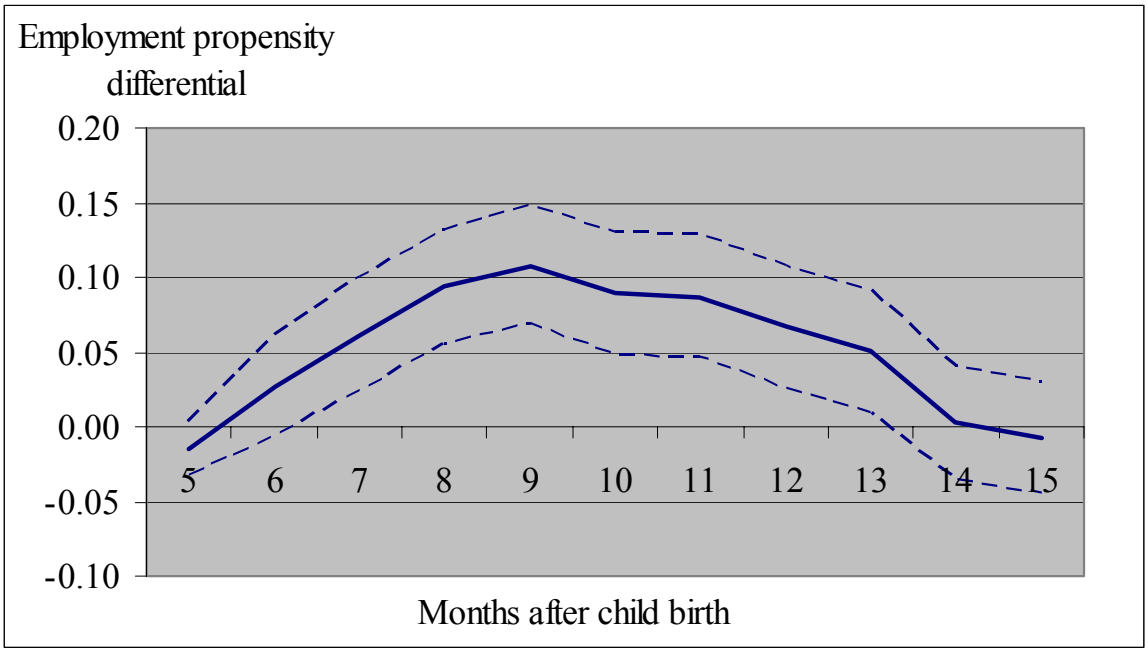


**FIGURE 2**

DIFFERENCE IN EMPLOYMENT PROPENSITY AFTER CHILD BIRTH, MUNICIPALITIES WITH AND WITHOUT UNRESTRICTED ACCESS TO DAY CARE[a]




[a]With 95% confidence bounds

Figure 3 below illustrates this point: The distribution of prices in muncipalities who do not provide $UADC$ have fatter tails: More municipalities within this category have both very low prices and very high prices. Therefore, though municipalities with $UADC$ have significantly lower prices on day care, see Table 4 below, it is not the case that there is a systematic relationship between provision of unrestricted access to day care and price structure. It should thus be possible to identify *both* an effect of $UADC$ and a price effect.

Furthermore, there may be differences in the observable characteristics of women in the two types of municipalities. Table 4 provides descriptive evidence on this. We see that in $UADC$ municipalities women have significantly more children and they face a *lower* price of child care, both in terms of the municipality stated price per child and in terms of the family specific price. Also, $UADC$ municipalities are less social cost intensive as captured by the social index but have higher female unemployment. Clearly, not accounting for other factors is likely to bias the effect of $UADC$.

**FIGURE 3**

DISTRIBUTION OF MONTHLY PRICES OF DAY CARE (€)
MUNICIPALITIES WITH AND WITHOUT UNRESTRICTED
ACCESS TO DAY CARE

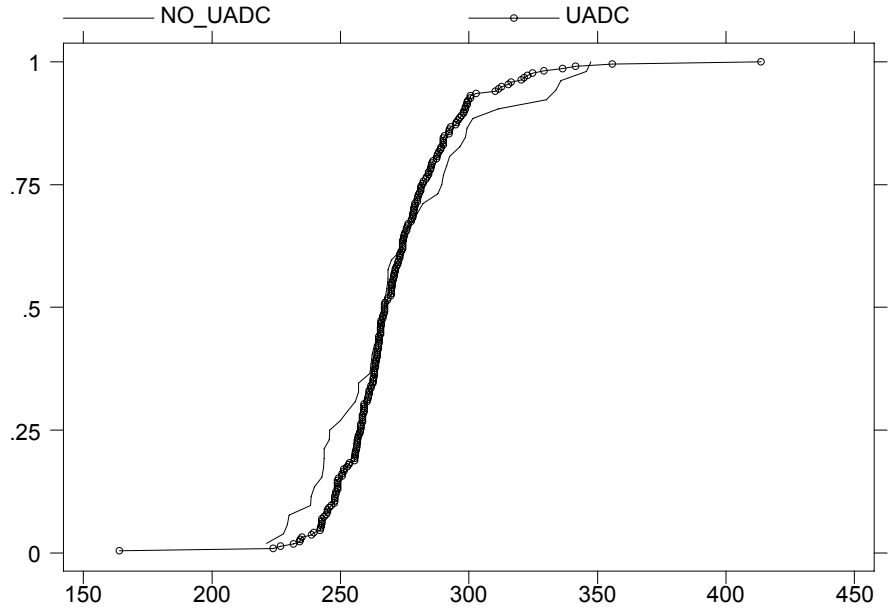



**TABLE 4**

DESCRIPTIVE STATISTICS, ESTIMATION SAMPLE
6 MONTHS AFTER CHILD BIRTH[a]

| | No UADC | | UADC | |
|---|---|---|---|---|
| | Average | Std. Dev. | Average | Std. Dev. |
| Age | 31.75 | 4.05 | **31.34** | 4.13 |
| # siblings aged 0-2 | 0.11 | 0.32 | 0.13 | 0.35 |
| # siblings aged 3-6 | 0.40 | 0.52 | **0.49** | 0.59 |
| # siblings aged 7-9 | 0.11 | 0.33 | 0.14 | 0.38 |
| # siblings aged 10-14 | 0.06 | 0.27 | 0.08 | 0.31 |
| # siblings aged 15-17 | 0.01 | 0.09 | 0.01 | 0.12 |
| Education (years) | 13.66 | 2.70 | **13.41** | 2.48 |
| Own income (€) | 30,719 | 13,299 | 29,694 | 11,744 |
| Husband's income (€) | 59,784 | 31,352 | 58,046 | 33,191 |
| Child care price, $P$ - family specific (€) | 226 | 78 | **204** | 74 |
| Child care price - municipality level (€) | 295 | 28 | **278** | 28 |
| Social index | 1.05 | 0.27 | **0.93** | 0.33 |
| Female unempl. rate - municipality (per cent) | 4.89 | 1.36 | **6.02** | 1.80 |
| Observations | 731 | | 2410 | |
| Share of all | 0.23 | | 0.77 | |

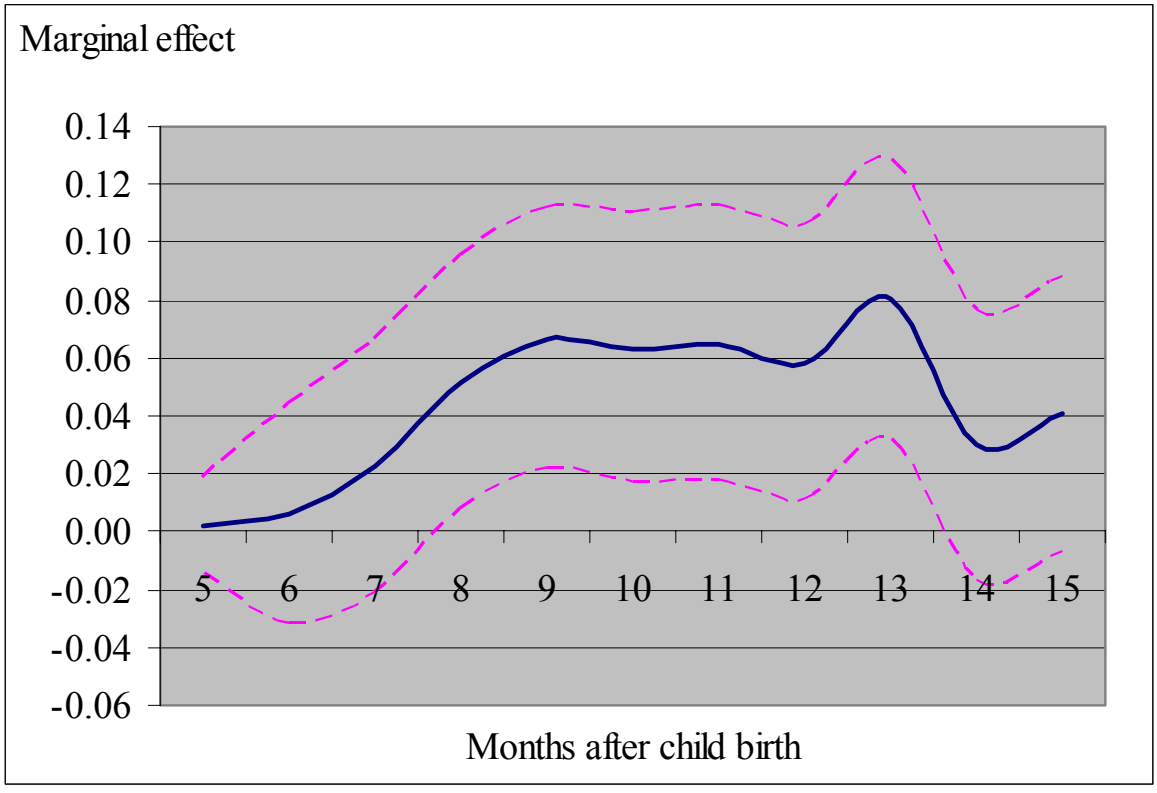
[a]Bold indicates a significant difference between municipalities with and without unrestricted access to day care at the 5% level

# 5 Estimation Results

This section presents selected results from the analysis discussed in Section 3. The full set of estimation results is shown in Tables A1-A11 in Appendix A.[13,14] Figure 4 depicts the marginal effects (evaluated at the sample mean) on the female employment propensity of providing $UADC$ 5-15 months after child birth. We see that provision of $UADC$ has a positive and significant effect on the female employment propensity 8-13 months after child birth. The effect is relatively large: during this period women in $UADC$ municipalities have around 6% higher employment propensity. Unrestricted access to day care seems, therefore, to enable women to return to employment after child birth. Note that there is *no* statistically nor economically significant effect of the policy before month 6. Similarly, the effect of $UADC$ dies out over time, indicating no evidence that the analysis has excluded factors that simultaneously explain a municipality's choice of policies in general and female employment.

**FIGURE 4**

Marginal Effects on Female Employment Propensity of Providing Unrestricted Access to Day Care After Child Birth[a]




[a]With 95% confidence bounds, $UADC$ provided 6 months after child birth

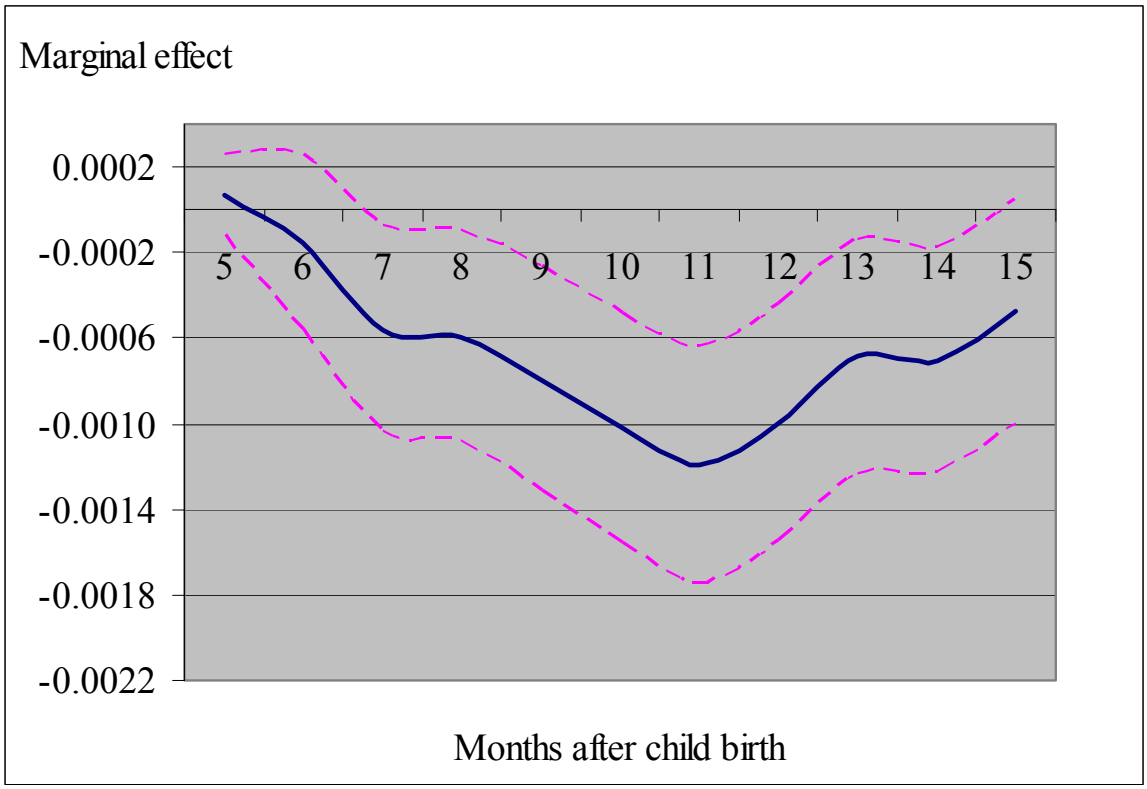
[13]I reject the null-hypothesis of parameter equality across the 11 models.

[14]Extensive sensitivity analysis has been performed to check for the validity of the results and the parameters are extremely robust to the choice of specification. Importantly, I have tried including number of day care teachers per child as a proxy for quality. Furthermore, I have used an alternative measure of $UADC$, namely whether the municipality guarantees access to day care centres instead of family care. 85 municipalities provide such a guarantee. Finally, I have tried including interaction terms between number of children and costs of child care. None of this makes any difference to the conclusions of the analysis.

The price of child care seems to be very important for the female employment propensity in the short term as well.[15] Figure 5 shows the marginal effects (evaluated at the sample mean) of increasing monthly family specific prices of €1. The marginal effects of a price increase on female labour supply are significantly negative and vary between −0.0006 and −0.0012 8-12 months after child birth. This corresponds to average price elasticities between −0.13 and −0.25. Interestingly, there is a negative effect of increases in prices during the months where women have the possibility of taking child rearing leave. This option makes it much less costly to temporarily opt out of employment because the leave is job protected. When the child turns 1, the only alternatives to employment are non-participation and (voluntary) unemployment. Hence, it makes perfect sense that women are less price responsive from 13 months after child birth onwards.

**FIGURE 5**

MARGINAL EFFECTS ON FEMALE EMPLOYMENT PROPENSITY OF CHILD CARE PRICES AFTER CHILD BIRTH[a]




[a]With 95% confidence bounds, $UADC$ provided 6 months after child birth

The (short term) cross price elasticities for Danish cohabiting mothers turn out to be in the lower end compared with cross price elasticities found in the literature for the US yet still in the neighbourhood. This is likely due to the differences across countries in child care regimes and compensation schemes while on parental leave. Among papers comparable in terms of the underlying model Connelly (1992) finds a cross price elasticity of −0.20 (a replication by Kimmel (1998) including a richer set of conditioning variables results in an elasticity of −0.42), Ribar (1992) finds an elasticity of −0.74, while the results from Kimmel (1998) indicate a cross price elasticity of −0.92 for married mothers. The other Nordic result differ to some extent from the findings of this paper. Gustafsson &

[15]I have tested for differences in price response among $UADC$ and $non - UADC$ municipalities and found no difference, neither economically nor statistically.

Stafford (1992) consider familes with precisely one child and find an elasticity of $-0.06$ for all individuals and $-1.88$ for those not subject to rationing.[16] Pylkkänen & Smith (2004) use af different approach: They estimate a duration model and consider the effect of child care prices on the timing of mothers' return to the labour market after child birth in Denmark and find no significant effects of price changes. Clearly, this paper differs from Pylkkänen & Smith (2004) in several respects but importantly they force the effect of prices on the hazard into employment to be constant over the spell yet the results above suggest that price effect may only exist 6 months after child birth and then only for a limited period.

# 6 Discussion

This paper presents empirical evidence of the effects of providing unrestricted access to day care following expiration of formal maternity leave 6 months after child birth along with the effect of increases in the marginal child care costs for women living in couples. I analyse the case of Denmark, where the quality of public day care is considered high in an international comparison. The effects are identified through variation across municipalities in the provision of unrestricted access to day care and prices along with varying pricing schemes for families with unequal numbers of children. To overcome the problem of identifying child care prices for nonemployed women I exploit the fact that families with income over a certain treshold face prices which are independent of income. The downside to this is that the estimated parameters only hold true for the more well-off part of the population.

The results show that the provision of $UADC$ has a significantly positive effect on female employment following child birth. The price effect is significantly negative: An increase in the price of child care of €1 will decrease female employment with around 0.08% corresponding to a price elasticity of $-0.17$. This effect prevails during the first 12 months after childbirth. That is, using data from a regime such as the Danish with highly subsidised publicly child care to uncover effects of child care on female employment reveals a considerable price sensitivity and the size of the effects, though short-lived, is in the lower end but still comparable to effects found in other papers for other regimes.

July 1 2005 $UADC$ will become universal in Denmark. Given the results from this analysis this policy is likely to increase female employment immediately after child birth. In addition, there seems to be a willingness among all political parties to significantly reduce the price of child care. Clearly, one of the advantages of providing low price, high quality child care is that it is likely to decrease the length of women's career interruptions after childbirth and thus diminish child related wage penalties (Mincer & Polachek (1974), Mincer & Ofek (1982), Nielsen, Simonsen & Verner (2004)) in the longer run.

# References

Andersson, B. (1992), 'Effects of day care on cognitive and socio-emotional competence of 13-year old Swedish schoolchildren', *Child Development* **63**, 20–36.

[16] As noted above I have reestimated the model using only 1-child families. The results are not sensitive to this. Furthermore, including regional and not family specific prices as in Gustafsson & Stafford (1992) renders the price elasticity insignificant.

Berger, M. C. & Black, D. A. (1992), 'Child care subsidies, quality of care, and the labor supply of low-income, single mothers', *Review of Economics and Statistics* **74**, 635–642.

Connelly, R. (1992), 'The Effect of Child Care Costs on Married Women's Labor Force Participation', *The Review of Economics and Statistics* **74**, 83–90.

Gelbach, J. (2002), 'Public schooling for young children and maternal labor supply', *American Economic Review* **92**, 307–322.

Gustafsson, S. & Stafford, F. (1992), 'Child care subsidies and labor supply in sweden', *Journal of Human Ressources* **27**, 204–230.

Heckman, J. (1974), 'Effects of child-care programs on women's work effort', *Journal of Political Economy* **82**, 136–169.

Jaumotte, F. (2003), Female Labor Force Participation: Past Trends and Main Determinants in the OECD Countries. OECD working paper no. 376.

Kimmel, J. (1998), 'Child Care Costs as a Barrier to Employment for Single and Married Mothers', *The Review of Economics and Statistics* **80**, 287–299.

Larsson, L. (2003), 'Evaluation of Swedish youth programs', *The Journal of Human Resources* **38**, 891–927.

Lechner, M. (2000), 'An evaluation of public-sector-sponsored continous vocational training programs in East Germany', *The Journal of Human Resources* **35**, 347–375.

Mincer, J. & Ofek, H. (1982), 'Interrupted Work Careers: Depreciation and Restoration of Human Capital', *The Journal of Human Resources* **17**, 3–24.

Mincer, J. & Polachek, S. (1974), 'Family Investments in Human Capital: Earnings of Women', *Journal of Political Economy* pp. 76–108.

Nielsen, H. S., Simonsen, M. & Verner, M. (2004), 'Does the Gap in Family-Friendly Policies Drive the Family Gap?', *Scandinavian Journal of Economics* **106(4)**, 721–744.

Powell, L. M. (2002), 'Joint labor supply and childcare choice decisions of married mothers', *The Journal of Human Resources* **37**, 106–128.

Pylkkänen, E. & Smith, N. (2004), Career Interruptions Due to Parental Leave - A Comparitive Study of Denmark and Sweden. IZA Working Paper, 1050.

Ribar, D. C. (1992), 'Child care and the labor supply of married women: Reduced form evidence', *The Journal of Human Resources* **27**, 134–165.

Rostgaard, T. (2003), Social Care Regimes - The Configuration of Care for Children and Older People in Europe. ESPAnet Conference Paper.

Ruhm, C. J. (2004), 'Parental employment and child cognitive development', *The Journal of Human Resources* **39**, 155–192.

Society of Day Care Teachers (Pædagogisk Medhjælper Forbund) (2004), Efterspørgslen efter Børnepasning ( The Demand for Child Care).

Tekin, E. (2004), Child care subsidy receipt, employment, and child care choices of single mothers. National Bureau of Statistics, working paper 10459.

# A Appendix

**TABLE A1**

MARGINAL EFFECTS AND ASY. STD. ERR. FROM EMPLOYMENT PROBIT, 5 MONTHS AFTER CHILD BIRTH[a,b]

| Variable | Marginal Effect | Std. Error |
|---|---|---|
| UADC | 0.002 | 0.008 |
| $P$ (€1) | 0.001 | 0.001 |
| Education (years) | 0.002 | 0.001 |
| Experience (1000 years) | 0.005 | 0.003 |
| Experience (1000 years) squared | **0.000** | 0.000 |
| Husband's income (€1000) | 0.000 | 0.000 |
| # Siblings aged 0-2 | 0.009 | 0.014 |
| # Siblings aged 3-6 | −0.008 | 0.012 |
| # Siblings aged 7-9 | 0.007 | 0.009 |
| # Siblings aged 10-14 | 0.001 | 0.011 |
| # Siblings aged 15-17 | 0.003 | 0.030 |
| Unemployment rate | 0.001 | 0.003 |
| Social index | 0.021 | 0.011 |
| # Observations | 3131 | |
| Employment propensity | 0.032 | |
| Pseudo $R^2$ | 0.042 | |

[a] Regional dummies are included

[b] Bold coefficient are significant at the 5% level

**TABLE A2**

MARGINAL EFFECTS AND ASY. STD. ERR. FROM EMPLOYMENT PROBIT, 6 MONTHS AFTER CHILD BIRTH[a,b]

| Variable | Marginal Effect | Std. Error |
|---|---|---|
| UADC | 0.006 | 0.019 |
| $P$ (€1) | −0.002 | 0.002 |
| Education (years) | 0.005 | 0.003 |
| Experience (1000 years) | **0.017** | 0.006 |
| Experience (1000 years) squared | −0.001 | 0.000 |
| Husband's income (€1000) | −0.000 | 0.000 |
| # Siblings aged 0-2 | **−0.074** | 0.033 |
| # Siblings aged 3-6 | −0.016 | 0.026 |
| # Siblings aged 7-9 | 0.000 | 0.019 |
| # Siblings aged 10-14 | 0.024 | 0.024 |
| # Siblings aged 15-17 | −0.080 | 0.071 |
| Unemployment rate | 0.002 | 0.006 |
| Social index | −0.027 | 0.026 |
| # Observations | 3173 | |
| Employment propensity | 0.212 | |
| Pseudo $R^2$ | 0.015 | |

[a] Regional dummies are included

[b] Bold coefficient are significant at the 5% level

**TABLE A3**

MARGINAL EFFECTS AND ASY. STD. ERR. FROM EMPLOYMENT PROBIT, 7 MONTHS AFTER CHILD BIRTH[a,b]

| Variable | Marginal Effect | Std. Error |
|---|---|---|
| UADC | 0.023 | 0.022 |
| $P$ (€1) | **−0.006** | 0.002 |
| Education (years) | 0.006 | 0.004 |
| Experience (1000 years) | **0.026** | 0.007 |
| Experience (1000 years) squared | 0.001 | 0.000 |
| Husband's income (€1000) | **−0.001** | 0.000 |
| # Siblings aged 0-2 | **−0.076** | 0.037 |
| # Siblings aged 3-6 | **−0.098** | 0.031 |
| # Siblings aged 7-9 | −0.042 | 0.022 |
| # Siblings aged 10-14 | −0.031 | 0.028 |
| # Siblings aged 15-17 | 0.032 | 0.075 |
| Unemployment rate | −0.003 | 0.007 |
| Social index | **−0.106** | 0.028 |
| # Observations | 3182 | |
| Employment propensity | 0.329 | |
| Pseudo $R^2$ | 0.028 | |

[a] Regional dummies are included

[b] Bold coefficient are significant at the 5% level

**TABLE A4**

MARGINAL EFFECTS AND ASY. STD. ERR. FROM EMPLOYMENT PROBIT, 8 MONTHS AFTER CHILD BIRTH[a,b]

| Variable | Marginal Effect | Std. Error |
|---|---|---|
| UADC | **0.052** | 0.022 |
| $P$ (€1) | **−0.006** | 0.003 |
| Education (years) | 0.006 | 0.004 |
| Experience (1000 years) | **0.022** | 0.007 |
| Experience (1000 years) squared | −0.001 | 0.000 |
| Husband's income (€1000) | **−0.001** | 0.000 |
| # Siblings aged 0-2 | **−0.106** | 0.040 |
| # Siblings aged 3-6 | **−0.116** | 0.032 |
| # Siblings aged 7-9 | **−0.051** | 0.022 |
| # Siblings aged 10-14 | **−0.057** | 0.029 |
| # Siblings aged 15-17 | −0.018 | 0.077 |
| Unemployment rate | −0.005 | 0.007 |
| Social index | **−0.115** | 0.029 |
| # Observations | 3171 | |
| Employment propensity | 0.347 | |
| Pseudo $R^2$ | 0.036 | |

[a] Regional dummies are included

[b] Bold coefficient are significant at the 5% level

**TABLE A5**

MARGINAL EFFECTS AND ASY. STD. ERR. FROM EMPLOYMENT PROBIT, 9 MONTHS AFTER CHILD BIRTH[a,b]

| Variable | Marginal Effect | Std. Error |
|---|---|---|
| UADC | **0.067** | 0.023 |
| $P$ (€1) | **−0.008** | 0.003 |
| Education (years) | **0.012** | 0.004 |
| Experience (1000 years) | **0.033** | 0.007 |
| Experience (1000 years) squared | **−0.001** | 0.000 |
| Husband's income (€1000) | **−0.001** | 0.000 |
| # Siblings aged 0-2 | **−0.166** | 0.043 |
| # Siblings aged 3-6 | **−0.150** | 0.034 |
| # Siblings aged 7-9 | **−0.073** | 0.023 |
| # Siblings aged 10-14 | **−0.088** | 0.029 |
| # Siblings aged 15-17 | −0.004 | 0.080 |
| Unemployment rate | **−0.010** | 0.008 |
| Social index | **−0.109** | 0.030 |
| # Observations | 3202 | |
| Employment propensity | 0.401 | |
| Pseudo $R^2$ | 0.042 | |

[a] Regional dummies are included

[b] Bold coefficient are significant at the 5% level

**TABLE A6**

MARGINAL EFFECTS AND ASY. STD. ERR. FROM EMPLOYMENT PROBIT, 10 MONTHS AFTER CHILD BIRTH[a,b]

| Variable | Marginal Effect | Std. Error |
|---|---|---|
| UADC | **0.064** | 0.024 |
| $P$ (€1) | **−0.010** | 0.003 |
| Education (years) | **0.020** | 0.004 |
| Experience (1000 years) | **0.034** | 0.001 |
| Experience (1000 years) squared | **−0.001** | 0.000 |
| Husband's income (€1000) | **−0.001** | 0.000 |
| # Siblings aged 0-2 | **−0.194** | 0.046 |
| # Siblings aged 3-6 | **−0.190** | 0.035 |
| # Siblings aged 7-9 | **−0.090** | 0.024 |
| # Siblings aged 10-14 | **−0.108** | 0.030 |
| # Siblings aged 15-17 | −0.020 | 0.085 |
| Unemployment rate | −0.011 | 0.008 |
| Social index | **−0.091** | 0.031 |
| # Observations | 3186 | |
| Employment propensity | 0.451 | |
| Pseudo $R^2$ | 0.047 | |

[a] Regional dummies are included

[b] Bold coefficient are significant at the 5% level

**TABLE A7**

MARGINAL EFFECTS AND ASY. STD. ERR. FROM EMPLOYMENT PROBIT, 11 MONTHS AFTER CHILD BIRTH[a,b]

| Variable | Marginal Effect | Std. Error |
|---|---|---|
| UADC | **0.065** | 0.024 |
| $P$ (€1) | **−0.012** | 0.003 |
| Education (years) | **0.024** | 0.004 |
| Experience (1000 years) | **0.037** | 0.007 |
| Experience (1000 years) squared | **−0.001** | 0.000 |
| Husband's income (€1000) | **−0.000** | 0.000 |
| # Siblings aged 0-2 | **−0.294** | 0.050 |
| # Siblings aged 3-6 | **−0.220** | 0.036 |
| # Siblings aged 7-9 | **−0.110** | 0.023 |
| # Siblings aged 10-14 | **−0.112** | 0.030 |
| # Siblings aged 15-17 | −0.004 | 0.080 |
| Unemployment rate | **−0.016** | 0.008 |
| Social index | **−0.066** | 0.031 |
| # Observations | 3227 | |
| Employment propensity | 0.490 | |
| Pseudo $R^2$ | 0.061 | |

[a] Regional dummies are included

[b] Bold coefficient are significant at the 5% level

**TABLE A8**

MARGINAL EFFECTS AND ASY. STD. ERR. FROM EMPLOYMENT PROBIT, 12 MONTHS AFTER CHILD BIRTH[a,b]

| Variable | Marginal Effect | Std. Error |
|---|---|---|
| UADC | **0.059** | 0.024 |
| $P$ (€1) | **−0.010** | 0.003 |
| Education (years) | **0.024** | 0.004 |
| Experience (1000 years) | **0.044** | 0.007 |
| Experience (1000 years) squared | **−0.001** | 0.000 |
| Husband's income (€1000) | **−0.001** | 0.000 |
| # Siblings aged 0-2 | **−0.270** | 0.053 |
| # Siblings aged 3-6 | **−0.200** | 0.037 |
| # Siblings aged 7-9 | **−0.116** | 0.023 |
| # Siblings aged 10-14 | **−0.131** | 0.029 |
| # Siblings aged 15-17 | 0.025 | 0.077 |
| Unemployment rate | **−0.024** | 0.008 |
| Social index | **−0.064** | 0.032 |
| # Observations | 3202 | |
| Employment propensity | 0.542 | |
| Pseudo $R^2$ | 0.073 | |

[a] Regional dummies are included

[b] Bold coefficient are significant at the 5% level

**TABLE A9**

MARGINAL EFFECTS AND ASY. STD. ERR. FROM EMPLOYMENT PROBIT, 13 MONTHS AFTER CHILD BIRTH[a,b]

| Variable | Marginal Effect | Std. Error |
|---|---|---|
| UADC | **0.080** | 0.025 |
| $P$ (€1) | **−0.007** | 0.003 |
| Education (years) | **0.029** | 0.004 |
| Experience (1000 years) | **0.057** | 0.007 |
| Experience (1000 years) squared | **−0.001** | 0.000 |
| Husband's income (€1000) | **−0.001** | 0.000 |
| # Siblings aged 0-2 | **−0.288** | 0.054 |
| # Siblings aged 3-6 | **−0.177** | 0.036 |
| # Siblings aged 7-9 | **−0.128** | 0.023 |
| # Siblings aged 10-14 | **−0.141** | 0.028 |
| # Siblings aged 15-17 | −0.001 | 0.076 |
| Unemployment rate | **−0.018** | 0.008 |
| Social index | −0.039 | 0.031 |
| # Observations | 3161 | |
| Employment propensity | 0.606 | |
| Pseudo $R^2$ | 0.105 | |

[a] Regional dummies are included

[b] Bold coefficient are significant at the 5% level

**TABLE A10**

MARGINAL EFFECTS AND ASY. STD. ERR. FROM EMPLOYMENT PROBIT, 14 MONTHS AFTER CHILD BIRTH[a,b]

| Variable | Marginal Effect | Std. Error |
|---|---|---|
| UADC | 0.030 | 0.024 |
| $P$ (€1) | **−0.007** | 0.003 |
| Education (years) | **0.030** | 0.004 |
| Experience (1000 years) | **0.057** | 0.007 |
| Experience (1000 years) squared | **−0.001** | 0.000 |
| Husband's income (€1000) | **−0.001** | 0.000 |
| # Siblings aged 0-2 | **−0.312** | 0.055 |
| # Siblings aged 3-6 | **−0.161** | 0.034 |
| # Siblings aged 7-9 | **−0.130** | 0.022 |
| # Siblings aged 10-14 | **−0.120** | 0.026 |
| # Siblings aged 15-17 | −0.026 | 0.070 |
| Unemployment rate | −0.014 | 0.008 |
| Social index | −0.023 | 0.030 |
| # Observations | 3129 | |
| Employment propensity | 0.662 | |
| Pseudo $R^2$ | 0.129 | |

[a] Regional dummies are included

[b] Bold coefficient are significant at the 5% level

**TABLE A11**

MARGINAL EFFECTS AND ASY. STD. ERR. FROM EMPLOYMENT PROBIT, 15 MONTHS AFTER CHILD BIRTH[a,b]

| Variable | Marginal Effect | Std. Error |
|---|---|---|
| UADC | 0.041 | 0.024 |
| $P$ (€1) | −0.005 | 0.002 |
| Education (years) | **0.034** | 0.004 |
| Experience (1000 years) | **0.057** | 0.007 |
| Experience (1000 years) squared | **−0.001** | 0.000 |
| Husband's income (€1000) | **−0.001** | 0.000 |
| # Siblings aged 0-2 | **−0.281** | 0.058 |
| # Siblings aged 3-6 | **−0.142** | 0.034 |
| # Siblings aged 7-9 | **−0.106** | 0.021 |
| # Siblings aged 10-14 | **−0.112** | 0.027 |
| # Siblings aged 15-17 | 0.026 | 0.066 |
| Unemployment rate | −0.014 | 0.006 |
| Social index | −0.011 | 0.030 |
| # Observations | 3099 | |
| Employment propensity | 0.668 | |
| Pseudo $R^2$ | 0.133 | |

[a] Regional dummies are included

[b] Bold coefficient are significant at the 5% level

**Working Paper**

2004-9: Bo Sandemann Rasmussen: Preferential Taxation of E-Commerce: Imperfectly Competitive Retail Markets and Trade Costs.

2004-10: Mariarosaria Agostino: Conditionality, Commitment and Investment Response in LDCs.

2004-11: Francesco Busato: Relative Demand Shocks.

2004-12: Francesco Busato, Bruno Chiarini and Enrico Marchetti: Indeterminacy, Underground Activities and Tax Evasion.

2004-13: Michael Rosholm, Michael Svarer and Bo Hammer: A Danish Profiling System.

2004-14: Niels Haldrup, Antonio Montañés and Andreu Sansó: Testing for Additive Outliers in Seasonally Integrated Time Series.

2005-1: Pieter Gautier, Michael Svarer and Coen Teulings: Marriage and the City.

2005-2: Niels Haldrup and Michael Jansson: Improving Size and Power in Unit Root Testing.

2005-3: Niels Haldrup, Svend Hylleberg, Gabriel Pons, Jaume Rosselló, and Andreu Sansó: Common Periodic Correlation Features and the Interaction of Stocks and Flows in Daily Airport Data.

2005-4: Francesco Busato, Bruno Chiarini and Guido M. Rey: Equilibrium Implications of Fiscal Policy with Tax Evasion.

2005-5: Niels Haldrup, Peter Møllgaard and Claus Kastberg Nielsen: Sequential versus simultaneous market delineation: The relevant antitrust market for salmon

2005-6: Charlotte Christiansen, Juanna Schröter Joensen and Jesper Rangvid: Do More Economists Hold Stocks?

2005-7: Ott Toomet: Does an increase in unemployment income lead to longer unemployment spells? Evidence using Danish unemployment assistance data.

2005-8: Marianne Simonsen: Availability and Price of High Quality Day Care and Female Employment.