**The heretogenous effect of unemployment on fertility in Sweden**

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We analyse the causal effect of unemployment on fertility in Sweden. We follow in the vein of other studies that implemented a causal design to assess the effect of a job loss on fertility behaviour. Using a well-established method, we make the case that (unexpected) « firm closure » represents an exogenous source of unemployment. Thus, we adopt this as an instrument to estimate men's and women's fertility responses.
We use administrative panel data from Swedish registers which include residents born between 1972 and 1990. The data contain yearly information about employment, relationship status and fertility history as well as some key information on the firms they worked in. We run separate analysis for men and women. Our preliminary results show that unemployment instrumented by firm closure negatively affects men and, to a larger extent, women's timing of birth in the short run (within two years after experiencing the job loss).

**Keywords:** Unemployment, Firm closures, Fertility

## Introduction

Previous research has shown a correlation between adverse economic conditions and the postponement of childbearing, in aggregated data (Adserà 2004; Ahn & Mira, 2002; Currie and Schwandt 2014). The well-known negative correlation between Total Fertility Rates (TFRs) and female labour force participation, which had been found in most Western Countries throughout the 1970s and 1980s, has thus started to revert from the 1990s in countries such as France, Sweden and Denmark (e.g. Ahn & Mira, 2002; Adsera, 2004; Engelhardt & Prskawetz, 2004). A positive correlation in the correlation between the extended duration of high (female) unemployment and fertility has emerged in Southern and Central European countries throughout the 1990s (Andersen & Ozcan, forthcoming).

However, the micro-level evidence on this relationship is ambiguous, as little or no association between individual unemployment and birth rates has been found (Matysiak & Vignoli, 2013; Özcan et al., 2010; Schmitt 2012; Vignoli et al., 2012). The possible explanation for the lack of micro-level evidence is the endogeneity of unemployment and the lack of a causal approach. Researchers typically use simple duration models to estimate fertility timing *in association with* unemployment. This approach is not resolutive in eliminating the endogeneity problem: the decisions about fertility and the likelihood of being unemployed are intertwined and might be well determined through a series of other episodes and unobserved preferences (Andersen & Ozcan, forthcoming; Angrist & Evans, 1998; Hofmann et al., 2017).

This study follows in the vein of the relatively recent strand of the literature addressing the causal impact of adverse economic conditions on fertility behaviour. First, we aim to provide micro-level evidence on the question of whether experiencing job displacement is consequential on fertility outcomes in the short, mid and long-run. Second, we also intend to explore whether job loss at different ages has distinct effect on fertility behaviour.
In this paper, we use (unanticipated) firm/plant closure in Sweden as source of exogenous variation of individuals' employment status. Previous studies have already used job displacements to predict fertility outcomes (Del Bono et al., 2012; 2015; Huttunen & Kellokumpu, 2010; Hofmann et al., 2017; Andersen & Özcan, forthcoming). Del Bono et al. (2012; 2015) analyse only wives' job losses and found a significant reduction of cumulative fertility in a 11-year time window of women working in firms hit by plant closures as opposed to their counterparts working on a continuous basis. Andersen & Özcan (forthcoming) highlight a substantial delay in the odds of first and second birth in Denmark. Huttunen and Kellokumpu (2010) focused on job displacement for both partners during the recession in Finland in 1991. The effects of the crisis were significant only for educated women, and only on the timing of birth and not completed fertility; they also found that a husband's job loss reduces completed fertility more than a wife's job loss. Hofmann et al. (2017) found that women exposed to a firm closure in Germany were statistically more likely to have their short-term fertility reduced in times of economic downturns only.

Our research builds upon these studies but contributes originally to the literature in a number of ways.
In contrast to previous literature, we address fertility outcome in a wider time spectrum as opposed to previous studies. We study the consequences of unemployment on a birth in three windows: short run (1-2 years), mid run (5 years) and long-run (10 years). Also, we explicitly concentrate on

age-specific effect of unemployment: we test whether people experiencing a job loss at (e.g.) 25 report similar cumulative fertility in short-, mid, and long-run as those who did not.
We use unexpected firm/plant closures in Sweden as an exogenous source of variation in individuals' employment condition. A firm closure can be viewed as a quasi-experiment, since all workers are laid off regardless of their personal characteristics, productivity and childbearing behavior. For example, people who plan to become parents might have their work performance affected and their attachment to the job consequently impaired. Also, women with more family-oriented characteristics might more likely to self-select into motherhood and be less performing in the labour market, and, thus, less vulnerable to the risk of unemployment. An exogenous source of unemployment, which does not depend on individuals' observed or unobserved characteristics, reduces substantially the identification issues associated with the causal effect of unemployment on fertility.

## Theoretical Background

Individuals' unemployment experiences may affect their fertility either directly or indirectly – through affecting their patterns of partnership formation and dissolution (Eliason, 2012; 2014). The mechanisms that link unemployment directly to fertility decisions are derived from the neoclassical (economic) model of fertility proposed by Becker (1960, 1963, 1981) and Willis (1973) and extended by Hotz et al. (1997), Kravdal (2002), Adsera (2004, 2011).
Becker's model holds three major assumptions. The first one is that children are similar to consumption goods from which parents derive utility. The second one is that children are costly in economic and social terms and they require attention and efforts from their parents. The third assumption holds that gender roles are still common and spread-out and, in particular, women bear most of the brunt of children's childcare. In other words, men might invest less resources in their offspring, which might produce differential utility functions of fertility by gender.
A job loss impacts negatively on a man's total pool of resources and, thus, of his propensity to have a child, through the channel of the *income effect*. However, in addition to this channel, the theory predicts the existence of a *substitution effect* which implies that a temporary loss of job also reduces the opportunity cost of a birth, as the time devoted to a child's upbringing in the early stages of his/her life is not subtracted to work time. In the light of the aforementioned assumptions, women, who provide extra time for childbearing and childcare, have their opportunity cost of childbearing reduced. Therefore, we can conclude that unemployment is expected to influence fertility decisions of men negatively, while the impact for women is ambiguous.

## Data

We benefit from administrative panel data for all residents in Sweden born between 1972 and 1990. These data are annual and include a rich set of information about the personal and professional life of individuals. We are able to identify the birthdate of individuals' children (day, month, year), their marital status (celibate, married, divorced, civil union), and their work history (e.g., the main company they worked for on a yearly basis, the kind of social security benefits). We created linked employee-employer data containing information on longitudinal information across the period 1990-2016. We combined the registers LISA containing details on individuals' personal life, such as fertility, with the Register Based Labour Market Statistics (*Terbaserad Arbetsmarknadsstatistik*), and the Income and Wealth Register (*Nkomst-och Förmögenhetsstatistiken*), which contain information on individuals' career and firms. Linking

various registers is made possible by the unique identity number assigned to citizens and organizations. Further, thanks to obligatory income statements filed to the taxation authorities by the employer, which contain both the employee's civic registration number and the organization's number, it is possible to link all employees to their companies.

In the registers, we have yearly information on all Swedish firms, which allows us to identify the firm workers have (mainly) worked for in a given year. The data allowed us to identify the closing establishments and the workers who were displaced. A closing establishment is identified not only because of its disappearance from the tax returns files. If a company – and its related company number – disappears, it is eligible as a disappearing firm. This is not the only condition to qualify as a "closing firm". A firm might (1) change address having the same owner, (2) continue to operate with a different owner, (3) change owner and address and keep the workforce, (4) be completely or partly absorbed by a new firm. Therefore, we also imposed that no more than 15% of workers of that firms transitioned to another firm on the following year. This situation would correspond to a "false firm death" such that a change in the organization number stands for a new legal form, a merger, or the change of property.

**Methods**

We analyse the effect of unemployment on completed fertility on timing of fertility using different model specifications. First, we adopt a Pooled OLS model that associates the fertility outcome – transition to a birth, and transition to a first and second birth – on experiencing unemployment one or two years before. Also, we use a fixed-effect linear probability model that nets out the possible bias caused by time-invariant personal factors. These specifications do not take into account the potential endogenous relationship between unemployment and conception discussed earlier – namely, that unemployment may affect the decision to conceive a child, and that the having a child may also increase the risk of unemployment. In order to tackle this issue, we apply a two-step procedure (2LSLS) in which we instrument unemployment. We run separate models for men and women.

Firm closure has been proved to be an exogenous source of variation for unemployment (Eliason & Storrie, 2004; Eliason, 2009; Bauman, 2016). This instrument relies on two assumptions: 1. most (all) employees cannot anticipate that they will lose their job; 2. employment occurring as a result of such firm closure is uncorrelated with employee characteristics. Also, the anticipation problem – if workers are able to foresee the shutdown of an enterprise – is considered a standard weakness of the instrumental variable approach.

The specification of the 2SLS model follows:

1) $unemployment_{it} = \alpha_{it} + \delta instrument_{it} + \varepsilon_i$
2) $fertility\ outcome_{it} = \beta_i + \theta x_{it} + \delta\ \widehat{unemployment}_{it-J} + u_\iota$

Where individuals $i$ are followed over time in a specific year $t = \{1, \dots, M\}$. Equation 1) is the first stage regression, in which the endogenous variable is regressed on a vector of endogenous controls $x_{it}$ and the instrument. The second stage regression uses the predicted values of the instrumented variable.

At this stage, we focus on the propensity to experience a birth. Our outcome is the birth of a child (or twins or triplets) in a given year. For the year that an individual gives birth to his/her child, the

indicator changes from 0 to 1, and switches to 0 in case no birth is registered in the following year(s). $fertility\ outcome_{it}$ is a dichotomous variable which takes value 1 when a birth occurs in a given year. Our key explanatory variable is whether the individual is unemployed in a given year or not. We create this variable based on the registers' information about whether individuals received unemployment benefits in a given year. $unemployment_{it-j}$ is lagged by $j = \{18 - 24, 21 - 27\}$ months with respect to the dependent variable to deal with possible reverse causality. For instance, job loss might occur anytime in year 2010 (as tax records are recorded annually) and a birth that qualifies as dependent variable occur between July 2011 and June 2012 in the first specification, and between September 2011 and August 2012 in the second. The first specification allows for residual reverse causality because a job loss occurring in December 2010 could precede a conception by up to three months (September through December 2010). The second operationalization does not allow for reverse causality instead. However, the estimates of both models might be biased and reduce the impact of unemployment in magnitude because an episode of unemployment in January 2010 might lead individuals to conceive a child during the forced out-of-labour period. Under the assumption of a nine-month pregnancy, any birth occurring between September 2010 and June 2011 – associated to a conception between January 2010 and August 2010 – would not be treated as though unemployment lagged by one period (it would be considered contemporary instead).

We also control for other factors which might affect a birth: age (linear and quadratic), marital status (civil partnership, married, single), education (expressed in a 7-category variable) as a time-varying variable. In the next specifications of the model, we will control also for the industry of each firm and the region of residence of individuals, which may affect both the probability of unemployment and the fertility decision. More details about these variables are displayed in Table 1.

**Results**

We present the results of the short-term effect on unemployment on the probability of a birth in three models. Table 2 displays the results from OLS models, which must be interpreted in terms of a non-causal association between childbearing and unemployment. Men and women hit by unemployment in a given year have a lower risk of birth in the following childbearing window. These estimates reveal that men (women) experiencing unemployment in a given year are associated with a probability of approximately 1 (0.8) percentage points lower of having a birth in the following year.

The other covariates have the expected signs. Couples who have already one child display a higher risk of having a second birth, while those who have reached parity two are less likely to experience a third birth. Being married is associated with a higher risk of a birth and so are individuals belonging to the higher percentile of income distribution.

The second specification, shown in Table 3, addresses a fixed-effect linear probability model for the relationship between the timing (probability) of a birth and unemployment. The estimates show that experiencing unemployment is associated with a lower probability of having a birth in the following year for both women and men. Although the previous models do not support any causal claim regarding the effect of unemployment of fertility behavior, they provide a reference which does not factor in any potential endogeneity between fertility and unemployment.

The 2SLS model displayed in Table 4 address the potential endogeneity between unemployment and fertility. The coefficient of interest of the effect of unemployment on a birth occurring in the

following periods. As discussed in the Data section, we adopt two dependent variables to address the issue of reverse causality. The first estimate is the least conservative because it allows for conceptions preceding unemployment, while the second is more conservative because it rules out conceptions occurring during any period of unemployment. The standard 2SLS regression do not highlight any negative effect of unemployment on short-term fertility while the effect for women is strongly positive in the first definition of fertility and positive in the second. The 2SLS regression in the panel setting reveals a slightly different picture. The effect of unemployment is significantly negative on the first measure of fertility and non-significantly negative in the second one for both men and women. Table 5 reports the first-stage estimates, which reveal that firm closure significantly increases the probability of unemployment for men and women. Table 6 and 7 collect estimates for order-specific births. We weigh up the impact of unemployment on a first and a second birth separately. The models reveal that the effect of a job loss are generally stronger when an individual has already achieved parenthood. In other words, the second birth seem to be more *elastic* to the temporary reduction in salary.

Although the instrument is found to have a strong statistical power, we cannot argue beyond any reasonable doubt that unemployment has a negative impact on fertility. The available estimates lead us to argue that a positive effect – which implicitly supports the *substitution effect* hypothesis – is to be ruled out, for both men and women. Most estimates, including those that tackle the issue of endogeneity, mildly back up the hypothesis of a negative effect of unemployment on short-run childbearing, more marked for women.

We conclude that there is a general evidence of the dominating income effect for both genders when it comes to short-term fertility.

**Discussion**

These results show that experiencing unemployment has a negative causal effect on the total number of conceptions, both for men and for women. When we look at the probability of first births only, we see a less negative causal effect. The findings about the second birth reveal a stronger negative impact of unemployment. The estimates are consistent with the interpretation based on the static-Beckerian model that the income effect of unemployment surpasses the substitution effect of unemployment for both men and women. As a result, both groups may end up having fewer conceptions due to unemployment by firm closures. Put differently, while unemployment may reduce the time cost of childbearing and childrearing, the negative shock to current income may be more important for women and men, at least in the short run.

***Table.1 Summary Statistics of main variables***

| | **Men** | **Women** |
|---|---|---|
| | *N* | *N* |
| Number of observations | 14,034,154 | 12,032,879 |
| Number of individuals | 866,202 | 819,578 |
| Completed fertility | *N (std)* | *N (std)* |
| Age 30 | 0,38 (0,85) | 0,55 (0,93) |
| Age 35 | 0,97 (0,92) | 1,23 (1,12) |
| Age 40 | 1,35 (1,03) | 1,55 (1,31) |
| Age 44 | 1,44 (1,35) | 1,57 (1,65) |
| | *Mean (std)* | *Mean (std)* |
| Unemployment | 0,09 (0,28) | 0,013 (0,35) |
| Firm closure | 0,003 (0,04) | 0,003 (0,05) |
| Married | 0,30 (0,37) | 0,35 (0,44) |
| Age | | |
| 25-29 | 0,37 (0,45) | 0,38 (0,45) |
| 30-35 | 0,23 (0,40) | 0,22 (0,38) |
| 35-44 | 0,60 (0,53) | 0,60 (0,53) |
| Level of education | | |
| Gymasial utbildning 3är | 0,16 (0,31) | 0,18 (0,32) |
| Förgymnasial utbildning 9 är (motsvarande) | 0,13 (0,32) | 0,12 (0,31) |
| Gymnasial utbildning högst 2-ärig | 0,08 (0,23) | 0,08 (0,21) |
| Eftergymnasial utbildning kortare än 3 är | 0,12 (0,21) | 0,14 (0,23) |
| Eftergymnasial utbildning 3 är eller l ängre | 0,24 (0,31) | 0,22 (0,35) |
| Forskarutbildning | 0,25 (0,41) | 0,26 (0,45) |

***Table 2 OLS model on the probability of a birth***

| | **Men** | | **Women** | |
|---|---|---|---|---|
| Variable | *Coeff (std)* | | *Coeff (std)* | |
| | *N. births Jul-Dec X & Jan-Jun X+1* | *N. births Sep-Dec X & Jan-Aug X+1* | *N. births Jul-Dec X & Jan-Jun X+1* | *N. births Sep-Dec X & Jan-Aug X+1* |
| Unemployment | -0,011 (0,000)*** | -0,010 (0,000)*** | -0,009 (0,000)*** | -0,008 (0,000)*** |
| Parity (ref: 0) | | | | |
| 1 | 0.121 (0,000)*** | 0.130 (0,000)*** | 0.119 (0,000)*** | 0.120 (0,000)*** |
| 2+ | -0.051 (0,000)*** | -0.055 (0,000)*** | -0.061 (0,000)*** | -0.061 (0,000)*** |
| Educational level (*ref:* Gymasial utbildning 3är) | | | | |
| Förgymnasial utbildning kortare än 9 år | -0,003 (0,000)*** | -0,003 (0,000)*** | -0,013 (0,000)*** | -0,003 (0,000)*** |
| Förgymnasial utbildning 9 är (motsvarande) | 0,010 (0,000)*** | 0,010 (0,000)*** | 0,018 (0,000)*** | 0,010 (0,000)*** |
| Gymnasial utbildning högst 2-ärig | -0,002 (0,000)*** | -0,002 (0,000)*** | -0,002 (0,000)*** | -0,002 (0,000)*** |
| Eftergymnasial utbildning kortare än 3 är | -0,007 (0,000)*** | -0,007 (0,000)*** | -0,011 (0,000)*** | -0,011 (0,000)*** |
| Eftergymnasial utbildning 3 är eller l ängre | 0,011 (0,000)*** | 0,011 (0,000)*** | 0,016 (0,000)*** | 0,016 (0,000)*** |
| Forskarutbildning | 0,018 (0,000)*** | 0,018 (0,000)*** | 0,022 (0,000)*** | 0,022 (0,000)*** |
| Year of birth | -0,007 (0,000)*** | -0,007 (0,000)*** | -0,005 (0,000)*** | -0,005 (0,000)*** |
| Tenure (*ref*: 5+ year) | | | | |
| 1-2 years | -0,014 (0,000)*** | -0,013 (0,000)*** | 0,014 (0,001)*** | 0,013 (0,001)*** |
| 3-4 years | -0,006 (0,001)*** | -0,006 (0,000)*** | -0,007 (0,001)*** | -0,007 (0,000)*** |
| Income percentile (*ref*: upper 20 percent) | | | | |
| Lower 20% | -0,020 (0,001)*** | -0,020 (0,001)*** | -0,034 (0,002)*** | -0,034 (0,002)*** |
| 20-40% | 0,025 (0,002)*** | 0,025 (0,002)*** | 0,032 (0,002)*** | 0,032 (0,002)*** |
| 40-60% | 0,032 (0,001)*** | 0,032 (0,001)*** | 0,037 (0,001)*** | 0,037 (0,001)*** |
| 60-80% | 0,014 (0,001)*** | 0,014 (0,001)*** | 0,016 (0,001)*** | 0,016 (0,001)*** |
| Age | 0,111 (0,001)*** | 0,111 (0,001)*** | 0,140 (0,001)*** | 0,140 (0,001)*** |
| Age squared | -0,002 (0,000)*** | -0,002 (0,000)*** | -0,002 (0,000)*** | -0,002 (0,000)*** |

***Table 3 LPM model on the probability of a birth***

| | **Men** | | **Women** | |
|---|---|---|---|---|
| Variable | *Coeff (std)* | | *Coeff (std)* | |
| | *N. births Jul-Dec X & Jan-Jun X+1* | *N. births Sep-Dec X & Jan-Aug X+1* | *N. births Jul-Dec X & Jan-Jun X+1* | *N. births Sep-Dec X & Jan-Aug X+1* |
| Unemployment | -0,011 (0,000)*** | -0,010 (0,000)*** | -0,009 (0,000)*** | -0,008 (0,000)*** |
| Parity (ref: 0) | | | | |
| 1 | 0.121 (0,000)*** | 0.130 (0,000)*** | 0.119 (0,000)*** | 0.120 (0,000)*** |
| 2+ | -0.051 (0,000)*** | -0.055 (0,000)*** | -0.061 (0,000)*** | -0.061 (0,000)*** |
| Educational level (*ref:* Gymasial utbildning 3är) | | | | |
| Förgymnasial utbildning kortare än 9 år | -0,003 (0,000)*** | -0,003 (0,000)*** | -0,013 (0,000)*** | -0,003 (0,000)*** |
| Förgymnasial utbildning 9 är (motsvarande) | 0,010 (0,000)*** | 0,010 (0,000)*** | 0,018 (0,000)*** | 0,010 (0,000)*** |
| Gymnasial utbildning högst 2-ärig | -0,002 (0,000)*** | -0,002 (0,000)*** | -0,002 (0,000)*** | -0,002 (0,000)*** |
| Eftergymnasial utbildning kortare än 3 är | -0,007 (0,000)*** | -0,007 (0,000)*** | -0,011 (0,000)*** | -0,011 (0,000)*** |
| Eftergymnasial utbildning 3 är eller l ängre | 0,011 (0,000)*** | 0,011 (0,000)*** | 0,016 (0,000)*** | 0,016 (0,000)*** |
| Forskarutbildning | 0,018 (0,000)*** | 0,018 (0,000)*** | 0,022 (0,000)*** | 0,022 (0,000)*** |
| Year of birth | | | | |
| Tenure (*ref*: 5+ year) | | | | |
| 1-2 years | -0,014 (0,000)*** | -0,013 (0,000)*** | 0,014 (0,001)*** | 0,013 (0,001)*** |
| 3-4 years | -0,006 (0,001)*** | -0,006 (0,000)*** | -0,007 (0,001)*** | -0,007 (0,000)*** |
| Income percentile (*ref*: upper 20 percent) | | | | |
| Lower 20% | -0,020 (0,001)*** | -0,020 (0,001)*** | -0,034 (0,002)*** | -0,034 (0,002)*** |
| 20-40% | 0,025 (0,002)*** | 0,025 (0,002)*** | 0,032 (0,002)*** | 0,032 (0,002)*** |
| 40-60% | 0,032 (0,001)*** | 0,032 (0,001)*** | 0,037 (0,001)*** | 0,037 (0,001)*** |
| 60-80% | 0,014 (0,001)*** | 0,014 (0,001)*** | 0,016 (0,001)*** | 0,016 (0,001)*** |
| Age | 0,111 (0,001)*** | 0,111 (0,001)*** | 0,140 (0,001)*** | 0,140 (0,001)*** |
| Age squared | -0,002 (0,000)*** | -0,002 (0,000)*** | -0,002 (0,000)*** | -0,002 (0,000)*** |

***Table 4 2SLS model on the probability of a birth***

| | **Men** | | **Women** | |
|---|---|---|---|---|
| Variable | *Coeff (std)* | | *Coeff (std)* | |
| | *N. births Jul-Dec X & Jan-Jun X+1* | *N. births Sep-Dec X & Jan-Aug X+1* | *N. births Jul-Dec X & Jan-Jun X+1* | *N. births Sep-Dec X & Jan-Aug X+1* |
| Unemployment | -0,025 (0,013) | 0,005 (0,017) | -0,166 (0,034)*** | 0,089 (0,034)*** |
| Parity (ref: 0) | | | | |
| 1 | 0.082 (0,000)*** | 0.082 (0,000)*** | 0,090 (0,000)*** | 0,090 (0,000)*** |
| 2+ | -0.041 (0,000)*** | -0.041 (0,000)*** | -0,047 (0,000)*** | -0,048 (0,000)*** |
| Educational level (*ref:* Gymasial utbildning 3är) | | | | |
| Förgymnasial utbildning kortare än 9 år | -0,021 (0,000)*** | -0,021 (0,000)*** | -0,019 (0,000)*** | -0,018 (0,000)*** |
| Förgymnasial utbildning 9 är (motsvarande) | 0,013 (0,000)*** | 0,013 (0,000)*** | 0,021 (0,000)*** | 0,021 (0,000)*** |
| Gymnasial utbildning högst 2-ärig | -0,005 (0,000)*** | -0,005 (0,000)*** | -0,008 (0,000)*** | -0,008 (0,000)*** |
| Eftergymnasial utbildning kortare än 3 är | -0,013 (0,000)*** | -0,013 (0,000)*** | -0,018 (0,000)*** | -0,018 (0,000)*** |
| Eftergymnasial utbildning 3 är eller l ängre | 0,021 (0,000)*** | 0,020 (0,000)*** | 0,019 (0,000)*** | 0,019 (0,000)*** |
| Forskarutbildning | 0,018 (0,000)*** | 0,018 (0,000)*** | 0,022 (0,000)*** | 0,022 (0,000)*** |
| Year of birth | -0,002 (0,000)*** | -0,002 (0,000)*** | -0,003 (0,000)*** | -0,002 (0,000)*** |
| Tenure (*ref*: 5+ year) | | | | |
| 1-2 years | -0,014 (0,000)*** | -0,013 (0,000)*** | 0,014 (0,001)*** | 0,013 (0,001)*** |
| 3-4 years | -0,006 (0,001)*** | -0,006 (0,000)*** | -0,007 (0,001)*** | -0,007 (0,000)*** |
| Income percentile (*ref*: upper 20 percent) | | | | |
| Lower 20% | -0,019 (0,001)*** | -0,020 (0,001)*** | -0,034 (0,002)*** | -0,034 (0,002)*** |
| 20-40% | 0,025 (0,002)*** | 0,024 (0,002)*** | 0,032 (0,002)*** | 0,032 (0,002)*** |
| 40-60% | 0,028 (0,001)*** | 0,028 (0,001)*** | 0,037 (0,001)*** | 0,037 (0,001)*** |
| 60-80% | 0,012 (0,001)*** | 0,012 (0,001)*** | 0,016 (0,001)*** | 0,016 (0,001)*** |
| Age | 0,098 (0,001)*** | 0,098 (0,001)*** | 0,100 (0,001)*** | 0,100 (0,001)*** |
| Age squared | -0,001 (0,000)*** | -0,001 (0,000)*** | -0,001 (0,000)*** | -0,001 (0,000)*** |

***Table 5. 1st stage equation model on the probability of unemployment***

| | **Men** | **Women** |
|---|---|---|
| Variable | *Coeff (std)* | |
| *Instrument* Unemployment | 0,031 (0.000)*** | 0,028 (0.000)*** |
| Parity (ref: 0) | | |
| 1 | -0,017 (0,000)*** | -0,011 (0,000)*** |
| 2+ | -0,024 (0,000)*** | -0,018 (0,000)*** |
| Educational level (*ref:* Gymasial utbildning 3är) | | |
| Förgymnasial utbildning kortare än 9 år | -0,087 (0,004)*** | -0,046 (0,004)*** |
| Förgymnasial utbildning 9 är (motsvarande) | -0,101 (0,003)*** | -0,082 (0,001)*** |
| Gymnasial utbildning högst 2-ärig | 0,087 (0,004)*** | 0,092 (0,002)*** |
| Eftergymnasial utbildning kortare än 3 är | 0,128 (0,003)*** | 0,098 (0,003)*** |
| Eftergymnasial utbildning 3 är eller l ängre | 0,079 (0,003)*** | 0,058 (0,003)*** |
| Forskarutbildning | 0,119 (0,003)*** | 0,102 (0,003)*** |
| Year of birth | 0,003 (0,000)*** | |
| Tenure (*ref*: 5+ year) | | |
| 1-2 years | 0,035 (0,002)*** | 0,022 (0,002)*** |
| 3-4 years | 0,023 (0,007)*** | 0,017 (0,001)*** |
| Income percentile (*ref*: upper 20 percent) | | |
| Lower 20% | 0,123 (0,005)*** | 0,093 (0,004)*** |
| 20-40% | 0,086 (0,007)*** | 0,075 (0,007)*** |
| 40-60% | 0,045 (0,006)*** | 0,035 (0,004)*** |
| 60-80% | 0,019 (0,007)*** | 0,012 (0,002)*** |
| Age | -0,020 (0,000)*** | -0,015 (0,000)*** |
| Age squared | 0,001 (0,000)*** | 0,000 (0,000)*** |

***Table 6. Probability of a first birth. Selected estimates.***

| | **Men** | | **Women** | |
|---|---|---|---|---|
| Variable | *Coeff (std)* | | *Coeff (std)* | |
| | *N. births Jul-Dec X & Jan-Jun X+1* | *N. births Sep-Dec X & Jan-Aug X+1* | *N. births Jul-Dec X & Jan-Jun X+1* | *N. births Sep-Dec X & Jan-Aug X+1* |
| Unemployment (OLS) | -0,008 (0,000)*** | -0,003 (0,001)*** | -0,020 (0,000)*** | -0,020 (0,001)*** |
| Unemployment (LPM) | -0,013 (0,000)*** | -0,011 (0,001)*** | -0,032 (0,000)*** | -0,026 (0,001)*** |
| Unemployment (2SLS) | -0,002 (0,019) | 0,020 (0,02) | -0,109 (0,019)*** | -0,008 (0,022) |

***Table 7. Probability of a second birth. Selected estimates.***

| | **Men** | | **Women** | |
|---|---|---|---|---|
| Variable | *Coeff (std)* | | *Coeff (std)* | |
| | *N. births Jul-Dec X & Jan-Jun X+1* | *N. births Sep-Dec X & Jan-Aug X+1* | *N. births Jul-Dec X & Jan-Jun X+1* | *N. births Sep-Dec X & Jan-Aug X+1* |
| Unemployment (OLS) | -0,033 (0,001)*** | -0,033 (0,002)*** | -0,036 (0,002)*** | -0,038 (0,001)*** |
| Unemployment (LPM) | -0,010 (0,002)*** | -0,018 (0,002)*** | -0,030 (0,003)*** | 0,005 (0,001)*** |
| Unemployment (2SLS) | -0,258 (0,087)*** | -0,229 (0,055)*** | -0,180 (0,072)** | -0,060 (0,088) |

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