First births in Sweden during three decades: The importance of normative factors

Sara Ström *
Eva Bernhardt *

* Stockholm University, Demography unit

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Introduction

A widely cited work in studies of population and fertility is "Becoming a parent in Europe" by John Hobcraft and Kathleen Kiernan (1995). The aim of this study is to empirically test the hypotheses proposed by Hobcraft and Kiernan that childbearing in modern societies is contingent upon five normative factors: 1) partnership, 2) education, 3) employment, 4) housing and, 5) a sense of security. To our knowledge the relative importance of these factors compared with each other has not yet been tested. The society under study is Sweden, and we use data from two separate sources covering the birth cohorts of 1956, 1964, 1968, 1972, 1974, 1976 and 1980. Thus, we will be able to study differences between cohorts and developments over time.

Framework

According to Hobcraft and Kiernan (1995) five factors together form the prerequisites for childbearing in modern societies: partnership, education, employment, housing and security. In general, a stable relationship is a prerequisite for having children. Marriage rates in Sweden have declined from 1968 until today with some variations due to e.g. policy changes. While marriage is traditionally viewed as the more stable form of relationship a majority of firstborn children in Sweden are born within consensual unions.

A strong norm in Western societies is to postpone family formation until education is completed and a stable income is attained. During the 1990s enrolment in higher education dramatically increased in Sweden (Regnér and Öckert 2000). This resulted in a greater proportion of young adults with university education but possibly also postponement of childbearing in the same group. A majority of fertility research within the social sciences relates to labor market and incomes. Several studies based on Swedish data indicate a strongpositive association between income and first-birth propensities (Hoem 1998; Andersson 2000; Duvander and Olsson 2001). Two Swedish studies have also shown that fertility co-varies with unemployment rates (Hoem 2000; Andersson 2000). More women than men have temporary employment in Sweden, while more men than women are unemployed (Bygren et al. 2004).

Leaving the parental home is an important component in gaining independence for a young individual. Hobcraft and Kiernan (1995) argue that the typical Western family is a nuclear

family, and that the norm is one such family per housing unit. Thus, is seems reasonable to assume that an independent residence is an important prerequisite for family formation in modern societies. However, the access of housing varies between societies and time periods. For example, individuals from different birth cohorts face different possibilities of acquiring independent housing during an early stage of adult life partly due to variations in demand and supply on the housing market.

Finally, Hobcraft and Kiernan (1995) discuss "security" as a prerequisite for childbearing. By this they refer to whether the individual consider themselves to have sufficient resources to provide for and raise a child from infancy to early adulthood. The individual's own perception of future prospects regarding stable partnership, income and housing is probably interrelated to this. But Hobcraft and Kiernan also refer to "…whether society (through its agent government) will also make provisions for the rising generation of young people" (Hobcraft and Kiernan 1995:27). Policies regarding labor market, education, family and housing are such contextual factors that may influence the feeling of security.

Research questions

We will analyze first birth propensities in relation to educational attainment, steady income and housing. We will focus on 1) the relative importance of each factor in relation to the other factors and 2) the importance of different interactions between these factors. The analyses are based on information about married and cohabiting respondents only. The analyses will be carried out for seven separate birth cohorts and will thus implicitly also include the impact of contextual factors.

Data

In the study we will use data from two independent sources: The Swedish Housing and Life Course Cohort Study (HOLK) and the Young Adult Panel Study (YAPS). The HOLK-material is a combination of survey and register data. The sample consists of 3 600 individuals born in Sweden 1956, 1964 and 1974. The cohorts are selected in order to reflect different historical periods in Swedish housing policy and labor market. The data collection was carried out during the spring of 2005 and was administered by the Swedish Institute for Futures Studies in collaboration with Statistics Sweden. The response rate was 62 percent or 2

242 individuals. As a whole, the material presents a clear picture of partner biographies, education, labor market attachment, housing biographies and childbearing. In summary, the material is unique in both Swedish and international perspective.

YAPS has information on attitudes and norms, work and family situation in the first phases of young adult life in Sweden in the beginning of the 21st century. Based on a nationally representative sample, YAPS contains information about approximately 3 500 individuals from three different sources: 1) responses to the questions in two mail questionnaire surveys, 1999 and 2003, 2) register data on educational level and line of study in 1999 and 2003, and 3) register data on vital events, namely births, marriages and divorces in the years 1999-2006. A third data collection has been carried out in 2009, but those data are not yet available for analysis.

Self-perceived constraints on childbearing

In this part of the paper we will analyze how the perceptions of young adults concerning their own situation with regard to housing, achieved education and income influence their actual childbearing. We look at the transition to parenthood among childless young adults 22-34 years of age, using information about self-perceived constraints on childbearing from the 2003 YAPS survey, combined with register information about whether or not they had a first birth in the four-year period following the survey.

The analysis is based on responses to the following question: "*Do you think that the following circumstances apply to you right now? a) I live in a good partner relationship, b) I (we) have a dwelling suitable for a child, c) I have completed my education, and d) I (we) have a sufficient income to support a child*". Thus they refer directly to three of Hobcraft-Kiernan's five normative factors (partnership, education and housing) and indirectly to the other two (employment and a sense of security). The respondents could answer 'yes' or 'no' to these questions.

In figure 1 and 2 we show the percentages of childless, non-pregnant young adults, who think that these four pre-conditions (partner, housing, education, and income) are fulfilled in their own lives. Women are more likely than the men to report that they have a partner and adequate housing, reflecting the fact that women start family formation earlier than men. Men

are, on the other hand, more likely to indicate that they have completed their education and that they have a sufficient income. The age gradients in figure 2 show, as expected, that the proportion with completed education, adequate housing and a sufficient income increase with age (the increase is particularly marked between age 22 and 26). The percentage living in a good partner relationship increases from 50 to a little over 60 percent from age 22 to age 26, but then decreases again. This reflects the fact that with increasing age an increasing proportion has made the transition to parenthood, and thus they are not included in the analytic sample of childless, non-pregnant young adults. This sample includes both those who are single and those with a co-residential partner, a total of 1712 individuals

The descriptive statistics in Table 1 are, on the other hand, based on the 751 individuals who lived with a co-residential partner in 2003. Thus, one of the constraints on childbearing has been removed. About one-third of these respondents report that none of the three other pre-conditions are fulfilled in their lives (at the time of the 2003 survey) - they neither have a dwelling suitable for a child (in their subjective judgement), nor have they completed their education or have a sufficient income to support a child. On the other hand, about one in five think that all of these requirements are met. The distribution according to age shows that a little over 70 percent are below age 30 (22 or 26 at the time of the 2003 survey). Likewise, a little over 70 percent said they they planned to have children in the future (30 percent said 'no' or 'perhaps'), while about half reported having a permanent job.

**Figure 1. Fulfilled pre-conditions among childless, non-pregnant
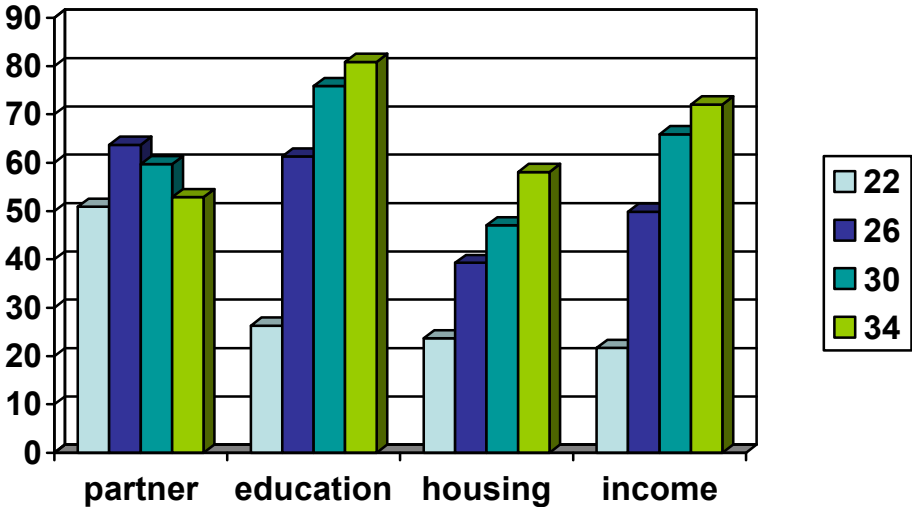   young adults in Sweden, by age.**

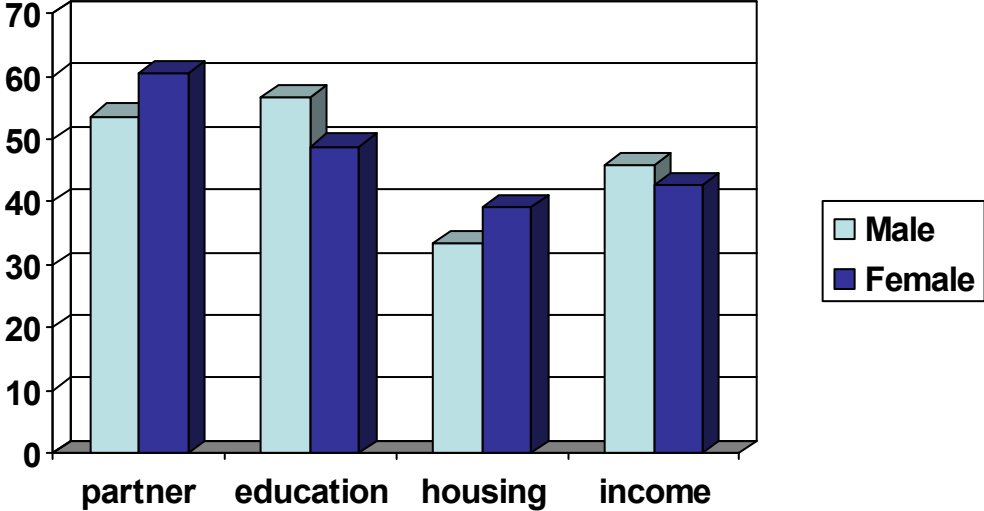**Figure 2. Fulfilled pre-conditions among childless, non-pregnant young adults in Sweden, by gender.**

Table 1. Percentage distributions of variables, separate by sex. Childless, non-pregnant Swedish young adults with a co-residential partner in 2003. YAPS.

	Men	Women	All
Fulfilled pre-conditions			
None	17,5	17,63	17,58
Only adequate housing	5,00	9,51	7,59
Only completed education	8,44	6,03	7,06
Only sufficient income	2,81	5,10	4,13
Housing and education	9,06	4,87	6,66
Housing and income	5,00	10,44	8,12
Education and income	15,94	12,53	13,98
Housing, education and income	36,25	33,87	34,89
Age			
22	25,62	33,64	30,23
26	38,75	40,84	39,95
30	24,06	20,42	21,97
34	11,56	5,10	7,86
Had birth plans in 2003	82,81	80,05	81,23
Had permanent job in 2003	66,88	50,35	57,39
N	320	431	751

In Table 2 we present the results of a logistic regression analysis of a first birth in the period 2003-2006 for those who reported that they lived with a co-residential partner (cohabiting or married) at the time of the 2003 survey. Our main explanatory variable is a combination of the three remaining pre-conditions of 'adequate housing', 'completed education' and 'sufficient income', *as perceived by the respondent* at the time of the 2003 survey. The variable that we have constructed has eight categories: 1) none of the pre-conditions fulfilled, 2) only adequate housing, but not completed education nor sufficient income, 3) only completed education, but not the other two, 4) only sufficient income, but not the other two, 5) housing and education, 6) housing and income, 7) education and income, and 8) all three, namely adequate housing, completed education, and sufficient income. This makes it possible to evaluate their relative importance for childbearing. We run the analysis separately for men and women, and also control for the respondent's birthyear (age in 2003), birthplans and job stability in 2003.

Not having a sufficient income seems to be the crucial self-perceived constraint on childbearing for men, likely reflecting the pervasive strength of the male provider role

ideology in Sweden (in the minds of young men anyway). Adequate housing also seems to be of some importance in the minds of young adults, although it reaches significance (at the 5 % level) only in combination with sufficient income. This is particularly true for women, who seem to require both adequate housing and a sufficient income to make the transition to parenthood. To have completed one's education seems to be of lesser importance – adding completed education to adequate housing and a sufficient income gives a higher odds ratio, but the difference is not significant., neither for men nor for women. The odds ratios are noticeably higher for men than for women – for example, for those who consider that they have adequate housing as well as completed education and a sufficient income, the odds ratio is 12,56 for men and 5,55 for women. Thus, the normative factors seem to matter more for men than for women. Not unexpectedly, having birthplans in 2003 significantly increases the odds for having a birth in the following four years, and the odds ratios are about the same for men and women (3,41 versus 3,28). However, having a permanent job in 2003 has no significant impact on subsequent childbearing.

Adding all the categories of the main explanatory variable which include 'a sufficient income' and creating a dichotomous variable (income included versus income not included) and running an interaction with gender, shows that having a sufficient income is significantly more important for men's transition to parenthood than for women's.

Table 2. The impact of fulfilled pre-conditions on the transition to parenthood among Swedish young adults with a co-residential partner. Logistic regression. Odds ratios, p-values. YAPS.

	Men		Women	
	Odds ratio	p-value	Odds ratio	p-value
Fulfilled pre-conditions				
None	1		1	
Only adequate housing	3,72	0,093	2,33	0,086
Only completed education	2,03	0,352	2,07	0,211
Only sufficient income	**6,40**	0,037	0,91	0,890
Housing and education	3,30	0,102	2,68	0,107
Housing and income	**9,23**	0,004	**5,04**	0,000
Education and income	**6,51**	0,004	2,35	0,074
Housing, education and income	**12,59**	0,000	**5,55**	0,000
Age				
22	1,44	0,504	1,49	0,540
26	1,72	0,253	2,56	0,126
30	2,38	0,070	3,21	0,066
34	1		1	
Birthplans in 2003	**3,41**	0,004	**3,28**	0,001
Permanent job in 2003	1,57	0,188	1,24	0,388
n	320		431	

Constraints on childbearing from a life-course perspective

While the previous part of the paper focused on self-perceived constraints on childbearing, this part will focus on constraints from a life-course perspective and their influence on childbearing. Using the HOLK-material we study the transition to parenthood among three Swedish cohorts born in 1956, 1964 and 1974. The analyses are based on life-course data from registers (education and incomes) and self-reported biographies (housing). The focus in this study is the transition from being childless state to becoming a parent. The most appropriate way to study this transition – when you have access to life-course data – is to use intensity regression. The dependent variable used in the empirical analyses is the hazard rate:

$$h(t / X(t)) = \lim_{\Delta t \to 0} \frac{P(t, t + \Delta t \mid T \geq t, X(t))}{\Delta t} , \qquad (1)$$

where T is the time of the birth of the respondent's first child (or the time of the birth minus 16 months), t is any fixed point in time under risk, while p$(t, t+\Delta t)$ is the probability that the event occurs in the interval $[t, t+\Delta t)$, and $x(t)$ is a vector of covariates, given that the event has not occurred before t. Information on first births has been gathered from Statistics Sweden. Year and month of the first birth defines the event under study.

Income is measured annually as disposable household income. For co-residing couples that cannot be linked to each other, household income is defined as the respondent's income multiplied by two. Information on household income has been collected from taxation registers maintained at Statistics Sweden, and has been divided into two groups based on percentiles of earnings (low incomes form one category, while medium and high incomes constitute the other category).

Information on education has also been collected from registers maintained at Statistics Sweden and is measured as the highest attained, completed, education. Education has been divided into two categories; no post-secondary education, and secondary education. Income and education are lagged by one year to avoid anticipatory analyses.

Information on housing situation has been taken from the HOLK-survey. Adequate housing is defined as being either a home-owner or a tenant (as opposed to sublet or lodge) and living in a dwelling with at least two rooms. Thus, these are concrete measures of three of Hobcraft and Kiernan's five normative factors. We limit our analyses to co-residing couples (married or cohabiting) thus covering a fourth factor.

Basic time is defined as age 16, and all observations occurring prior to age 16 are excluded. Changes in housing status, union status, income (measured annually) and age are treated as time-varying covariates. The respondents are censored either at the event of the first birth or at age 32. There are several reasons for censoring at age 32. First, young individuals are more likely that older to still be in the process of acquiring adequate housing and sufficient income, and to be enrolled in higher education. Thus, societal norms are likely to affect childbearing

through different mechanisms in different ages. Second, censoring at age 32 makes the life-course analyses based on HOLK-data more comparable to the analyses based on YAPS presented in the previous section.

As for the analyses of self-perceived constraints on childbearing, we have constructed a categorical variable measuring different combination of constraints: (1) none of the pre-conditions fulfilled; (2) adequate housing but not completed education nor sufficient income; (3) completed education, but not adequate housing or sufficient income; (4) sufficient income, but not completed education nor adequate housing; (5) adequate housing and completed education, but not sufficient income; (6) sufficient income and adequate housing, but not completed education; (7) completed education and sufficient income but not adequate housing; (8) all of the pre-conditions fulfilled. Table 3 shows exposures by cohort and age.

Table 3. Percentage distribution of exposures, separate by birth cohort. Swedish Housing and Life Course Cohort Study, 1972-2005

	Cohort 1956	Cohort 1964	Cohort 1974
Person-months	107401	104196	119529
Age			
16-19	13,74	11,51	9,13
20-21	19,63	20,63	21,23
22-23	20,64	20,25	19,72
24-25	16,56	16,62	16,11
26-27	12,48	12,83	13,32
28-29	9,38	10,57	11,24
30-31	7,57	7,59	9,24
Total	*100*	*100*	*100*
Fulfilled pre-conditions			
None	4,31	4,79	7,93
Only adequate housing	14,66	13,30	7,88
Only completed education	4,01	7,56	14,47
Only sufficient income	18,44	19,14	8,09
Housing and education	7,65	8,45	15,41
Housing and income	27,44	23,66	9,71
Education and income	6,35	10,27	14,90
Housing, education and income	17,14	12,83	21,59
Total	*100*	*100*	*100*
Missing values (person-months)	*3490*	*989*	*1048*
Gender			
Male	47,35	45,09	47,84
Female	52,65	54,91	52,16
Total	*100*	*100*	*100*

Focusing first on the distribution of person-months by age, the cohort born in 1974 is overrepresented in the relatively higher ages and in particular among those aged 30-31. This reflects that those born in 1974 on average have their first child at older ages compared with those born in 1956 and 1964. The cohort born in 1974 also have higher proportion only having completed education (but not income nor housing), and a lower proportion having sufficient income (but not education or housing). The cohorts born in 1956 and 1964, on the other hand, have higher proportions compared to the cohort born in 1974 having both sufficient income and adequate housing but not completed education. This might be a

reflection of the expansion of higher education in Sweden which implies that young individuals to a greater extent are enrolled in higher education. It might also be a reflection of increased difficulties for young individuals in establishing themselves on the labor market or a combination of both factors. The cohort born in 1974 also has a substantially lower proportion having only adequate housing but not sufficient income nor completed education. Naturally, this can reflect a tight housing market that demands a stable income (which in turn often demands a completed education). Paradoxically, the cohort born in 1974 is also the cohort with the largest proportion of person-months having all three pre-conditions fulfilled.

Table 4. The impact of fulfilled pre-conditions on the transition to parenthood among Swedish young adults with a co-residential partner. Piecewise constant hazard model. Hazard rates (HR), p-values. The Swedish Housing and Life-Course Cohort Study, 1972-2005

	Cohort 1956		Cohort 1964		Cohort 1974	
	HR	p-value	HR	p-value	HR	p-value
Age						
16-19	1		1		1	
20-21	**2,23**	0,01	1,00	1,00	0,67	0,39
22-23	**2,00**	0,02	1,69	0,19	1,22	0,64
24-25	**3,03**	0,00	**3,11**	0,00	**2,46**	0,03
26-27	**4,99**	0,00	**5,05**	0,00	**4,03**	0,00
28-29	**5,27**	0,00	**5,24**	0,00	**5,15**	0,00
30-31	**5,06**	0,00	**7,61**	0,00	**7,81**	0,00
Fulfilled pre-conditions						
None	1		1		1	
Only adequate housing	1,14	0,75	**1,85**	0,03	**2,65**	0,04
Only completed education	0,35	0,09	**0,30**	0,04	**0,21**	0,04
Only sufficient income	0,42	0,22	0,61	0,29	0,25	0,10
Housing and education	1,11	0,81	0,77	0,42	2,12	0,11
Housing and income	0,90	0,81	0,97	0,92	1,44	0,45
Education and income	0,56	0,34	0,38	0,07	**0,19**	0,03
Housing, education and income	1,07	0,88	1,14	0,66	0,77	0,58
Gender						
Male	1		1		1	
Female	**1,35**	0,01	**1,42**	0,00	1,12	0,30
n (individuals)	507		548		640	
n (observations)	2648		3720		4657	
n (events)	333		375		340	
-2 LL	-204,06		-201,54		-238,68	

Table 4 shows a piecewise constant hazard model of the transition to parenthood. The analyses are made separately for the three cohorts and controls for age and gender. For the cohort born in 1956, no significant effects of pre-conditions on the transition to parenthood are found. One possible interpretation is that for this cohort education, income and housing were perceived as attainable within a near future or within a time-span that one considered appropriate. In contrast, the cohorts born in 1964 and 1974 have higher first-birth propensities

when they have adequate housing (but not education nor income) as compared to not having any of the pre-conditions fulfilled. Further, having completed education (but not sufficient income or adequate housing) is associated with lower first-birth propensities among the cohorts born in 1964 and 1974 compared to not having any of the pre-conditions fulfilled. For the cohort born in 1974, a significant and negative association is found between having completed education and sufficient income but not adequate housing on the one hand, and first birth propensity on the other hand as compared to not having any of the pre-conditions fulfilled. The same pattern is found for the cohort born in 1964. However, the estimate is significant at the 7 percent level which calls for a cautious interpretation.

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