

## THE IMPACT OF EDUCATION ON MODERN FAMILY-UNION INITIATION

Jan M. HOEM \*

*University of Stockholm, Sweden*

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*Abstract.* The impact of education on formation of first unions is analyzed using interview data from a sample of Swedish women born in 1936–1960. A distinction is made between achieved level of education and the effect of being a student. The former appears to have little effect, but students start consensual unions at lower rates than corresponding non-students, and they also marry at much lower rates. Social background has not been important for marriage formation, but it has been for cohabitation, which was pioneered by the working class. There is no evidence that modern cohabitation started as a campus movement.

### *Résumé. Effet du niveau d'instruction sur la formation du couple moderne*

L'impact du niveau d'instruction sur la conclusion d'une première union est analysé à partir de données d'enquête sur un échantillon de Suédoises nées entre 1936 et 1960. Le fait d'être étudiante se révèle plus décisif que le niveau d'instruction lui-même. Les étudiantes sont moins enclines que les non-étudiantes à s'engager dans une union consensuelle, et beaucoup moins encore à se marier. Si le milieu social n'a guère eu d'effet sur le mariage, il en a eu sur la cohabitation, qui a été 'lancée' par la classe ouvrière. Rien ne prouve que le concubinage moderne ait débuté sur les campus.

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*Author's address:* Section of Demography, University of Stockholm, S-106 91 Stockholm, Sweden.

## 1. Introduction

In the study of modern cohabitation, Sweden is of particular interest because of its old tradition [Hyrenius (1941), Matović (1985), Winberg (1986)] of and strong recent increase in consensual unions [Hoem and Rennermalm (1985)] with a counterpart swift decline in marriages. In extension of a traditional pattern, young women of the working class have been at the forefront of these trends, but the trends have extended to all other social groups as well [Etzler (1984a), Bernhardt and Hoem (1985)]. This report continues the analysis of cohabitation among young Swedish women, based on the retrospective interviews of the fertility survey among Swedish women born in 1936–1960, conducted in 1981 by the National Central Bureau of Statistics (now Statistics Sweden). We address the issue of the importance of education as a determinant of entry into a first family union (through marriage or through the start of cohabitation). We distinguish between education as an on-going process and the level of education to which that process leads the individual, for being a student may have an impact on behaviour that is separate from the influence of the knowledge, attitudes, and maturity acquired by taking an education.

Our analysis controls for differentials in social background, takes account of age patterns, and concentrates on young women of parity zero. Unlike Waite and Spitze (1981), who used probit analysis to investigate single-year marriage probabilities in the United States, we find no significant effect of the *amount of education* on initiation of marriages or of consensual unions, but like them, we get a clear effect of *being a student*. Much as expected, we find that students<sup>1</sup> marry much less than comparable non-students. In fact, in all our cohorts, single<sup>2</sup> female Swedish students in their early twenties have married at a rate less than half that of comparable non-students, and the marriage rates for the two groups have dropped roughly parallel to each other.

We also find that at most ages consensual-union initiation has been much lower for students than for non-students. We suggest why such a finding should be expected, for it has come as a surprise to many

<sup>1</sup> In this article, anyone enrolled in education is called a student, i.e., this epithet is not confined to university students.

<sup>2</sup> In this report, a woman is called *single* only if she has never married nor lived in a consensual union.

(particularly American)<sup>3</sup> colleagues with whom we have discussed these matters. Among our results we find that relative student cohabitation rates at ages 21 to 23 have increased from something less than half the rates of non-students in the cohort born in 1936–1940 to about ninety per cent of non-student rates in the cohort born in 1951–1955. Both for students and non-students, cohabitation rates have escalated over these cohorts, and the students have been on the verge of catching up on the lead of non-students, but in our youngest cohort (born in 1956–1960), student rates actually fell back to about half those of non-students. In a concluding discussion, we suggest how our results can be understood and why they are a priori plausible. We also discuss why female students at age 24 have had cohabitation rates *above* those of non-students.

Our analysis is made by means of hazard regression in a model where a woman's birth cohort and social background are fixed regressors while student/non-student status and amount of education received are time-varying covariates. Our basic 'time' variable is age attained. This technique is now so commonplace that we include only a brief description, mostly to introduce notation and to explain in which form we prefer to present our results. An earlier report [Hoem (1985)] contains more discussion of our data problems and of alternative methods of analysis.

## 2. Data

As we noted above, our data come from the 1981 Swedish fertility survey. The target sample was drawn by simple random sampling from each of the five-year cohorts born in 1936–1940, 1941–1945, ..., 1956–1960, among women born in Sweden and registered as resident in

<sup>3</sup> Some non-American demographers similarly feel that until quite recently, trends in behaviour must have been different in Sweden from what they have been in their own countries. In a seminar discussion at INED (March, 1986), Gérard Calot stated that it was his impression that in France non-marital cohabitation started among intellectuals. Brown and Kiernan (1981, p. 9) suggest that modern consensual unions in Britain first started in the upper class, though in the early decades of this century, cohabitation in Britain 'was sufficiently visible... among *working class women* to attract a good deal of comment' [Kiernan (1983, p. 34); my italics]. For some impressions from the American scene, see Catlin, Croake and Keller (1978). There is room for a comparative study using our methodology.

the country when the sample was drawn (February, 1981), irrespective of marital status. Interviews were achieved with 4300 respondents (87%). The data obtained from 43 of these were irreparably incomplete for our purposes and were deleted from our analysis. They were spread quite evenly over the cohorts. In principle, the remaining 4257 records<sup>4</sup> contained complete marital and cohabitational histories, childbearing histories, occupational histories, and a wealth of other data about the respondents. For further general information about the Swedish data, see the reports by Arvidsson et al. (1982), Palmgren and Springfieldt (1984), Lyberg (1984), or Hoem and Rennermalm (1985). The latter discusses the reporting of consensual unions. Hoem (1985) gives more particulars concerning the variables used in the present paper.

We have computed occurrences and exposures for respondents under the 'risk' of starting first family unions while recorded as a student or as a non-student at each age between 17 and 24 years, inclusive. The student/non-student status was updated month by month by means of the occupational history.

To a large extent, the *occupational histories* were reported without noticeable problems, but the transformation of what was recorded in the questionnaires into plausible and usable data records has been a time- and work-consuming exercise. Some of this work was done in Statistics Sweden and is available to all users of the released data. Many questions vital to an event-history investigation remain open in that version of the data, however, and we have had to spend a considerable effort checking, correcting, adjusting, and imputing information [Etzler (1984b, 1985)]. This includes resolving apparent and real inconsistencies between a respondent's educational history as reflected in the report on her occupations and the information collected on education elsewhere in the questionnaire, where deficient coding of the latter has been a problem. For some aspects, problems still remaining must be tackled through suitable grouping of categories or restriction of the analysis.

Information on the *level and type of schooling ever completed* was solicited in some detail in the questionnaire. This included the year in which a respondent finished her highest education (prior to the inter-

<sup>4</sup> The distribution of our usable records over the five cohorts is 492 in cohort 1 (born in 1936-1940), 1002 in cohort 2, and 1020, 1040, and 703 in the other cohorts, respectively.

view), but no other note was made of when various educational milestones were passed. There is evidence in the data that the year reported by many respondents was not the year when they actually stopped taking education, apparently because the subsequent education was not considered completed by the time of the interview or because it was not on a higher level than the one for which the finishing year *was* reported.

Great caution should be exercised in using the released records on educational level. Any simple attempt at coding our data on *type of education* into a sharp hierarchy in which an individual rises from one level to the next by taking more education, and where a woman's final educational level is reached at an early age, is precluded by the inducement to return to school at an adult age, not necessarily to go on to further education at a higher level than before but perhaps just to take a different education on the same general level. Even if such a hierarchy could be established, it would be hard to pinpoint in our data just *when* respondents moved from one rung to the next on the educational ladder, as would be necessary for a true event-history analysis. However, as is well recognized, an (outcome-based) analysis of retrospective data that uses the educational level *at interview* is fraught with difficulties, for it may bias results and confuse causal relationships [see, e.g., Hoem and Funck Jensen (1982, section 5.3)]. At each stage in a respondent's life, *current* educational level is wanted, or at least the level at the time of the last previous signal event (say, last previous birth). Even if final education were to be used only as an indicator of, say, level of aspiration, educational level recorded at interview would be inadequate because of the potential for educational achievement after the interview. This limitation is more important for our younger than for our older cohorts, but precisely because it is, the use of educational level at interview may disturb inter-cohort comparisons of the kind we want to make.

On the basis of these reflections and the character of the Swedish educational system, as well as our experience with the reliability of our data, we have based our investigations of the behavioural effects of educational level mostly on the *months of education currently acquired*, counted from September of the calendar year of a respondent's sixteenth birthday, by which age her occupational history is sufficiently reliable. We have grouped the months as follows:

- Low level:* Ten or fewer months of education achieved;
- Middle level:* More than ten but not more than forty months of education acquired;  
*or* more than forty months of education recorded, but no course examination or degree passed in post-secondary education;
- Higher level:* More than forty months of education recorded, *and* some course examination or degree passed in post-secondary education.

In the original data released by Statistics Sweden, the respondents were classified by *social background* according to the reported occupation of the main bread-winner in the parental home [Lyberg (1984)]. Seven categories were used, namely, unskilled worker; skilled worker; salaried (white collar) employee, lower level; salaried employee, middle level; salaried employee, higher level; farmer; and self-employed. The latter category consists largely of self-employed people in the crafts and trades, small businessmen in unincorporated firms, and the like. In Sweden (and presumably elsewhere), it pays to incorporate larger firms, and their directors and managers will then be classified as salaried employees. Members of the liberal (academic) professions have been classified into the group called 'higher-level salaried employees'. To get better group sizes, we have combined daughters of middle and higher-level white-collar employees into a single category in our analyses.

By way of summary, we have found it convenient to introduce the following simple mnemo-technical notation for the variables discussed above and used in our analysis:

- Factor A:* Age in single years for ages 17 to 24, inclusive;
- Factor B:* Birth cohort (five five-year cohorts born between 1936 and 1960);
- Factor C:* Class or social background (six categories);
- Factor E:* Educational level (three levels);
- Factor S:* Student/non-student status.

The version of the basic time variable of event-history theory we use is *age*, measured to an accuracy of a month. Factor *A* is a grouping of this basic time variable. Factors *B* and *C* are fixed for the individual. Factors *E* and *S* are time-varying covariates, values of which are assessed month by month over each life-history segment.

### 3. Methods

#### 3.1. Statuses and transitions

As is usual in a life-history analysis, our investigation is concerned with rates of transition between various statuses, where the transitions represent lifetime events. Our statuses are depicted by the annotated boxes in fig. 1, and the events by arrows. We investigate the transitions corresponding to solid arrows, i.e., starts of consensual unions and marriages among students and non-students. A study of transitions between the student and non-student statuses lies in the future.

#### 3.2. Model notation

The model counterpart of a rate of transition is the corresponding hazard or intensity function. Let  $\lambda$  be such a function for a particular student/non-student status and for a particular transition, say, the marriage intensity for students. For a particular age group  $a$ , birth cohort  $b$ , and social class  $c$ , assume that we can write the intensity  $\lambda(a, b, c)$  in the form

$$\ln \lambda(a, b, c) = A(a) + B(b) + C(c) + AB(a, b), \tag{1}$$

and assume for illustration that the intensity does not depend on other factors. Here,  $A(a)$  is a parameter that represents the main effect of the age group,  $B(b)$  is the corresponding main effect of the birth cohort,  $C(c)$  is the effect of the social background, and  $AB(a, b)$  is a parameter that represents the interaction between age and cohort. Let  $b_o$  be the middle cohort and  $c_o$  the class ‘medium- and high-level

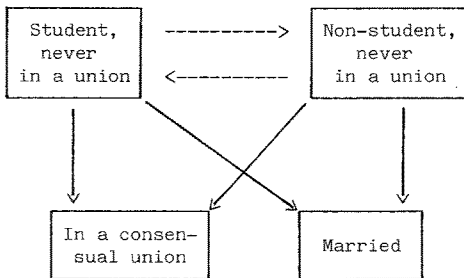


Fig. 1. Status diagram.

white-collar employees'. We make all parameters in (1) identifiable by using  $b_o$  and  $c_o$  as base levels of variables (factors)  $B$  and  $C$ , i.e., by defining  $B(b_o) = C(c_o) = 0$  and  $AB(a, b_o) = 0$  for all  $a$ . This makes  $\lambda(a, b, c)/\lambda(a, b, c_o) = \text{antilog}[C(c)]$  the relative risk in social class  $c$ , relative to the risk in class  $c_o$  at all ages and in all cohorts. The presence of the (non-zero) interaction term  $AB(.,.)$  in (1) means that each cohort has its own age structure for this intensity, in that if we plot

$$\lambda(a, b, c_o) = \text{antilog}[A(a) + B(b) + AB(a, b)]$$

as a function of  $a$  for fixed  $b$ , we get a different curve for each  $b$ . To plot such diagrams and to tabulate relative risks is a convenient way to present our empirical results.

If (1) holds for a particular intensity function, we denote this as the model  $ABC/AB$ . If an interaction term  $BC(b, c)$  is also needed, we denote it as model  $ABC/AB + BC$ . If no interaction term is needed, we write  $ABC/-$ . Similar notation is used for other models. This notation allows for models where a factor may be involved in some interaction term(s) without also being involved in all lower-order interaction terms or in a main effect.

### 3.3. Model fitting

We have fitted models for the two transition intensities for students separately from those for non-students. Mathematically, this corresponds to fitting a single model to the incidence rates of cohabitation, say, for both student/non-student statuses at the same time but with an additional number of interaction terms involving factor  $S$ , namely, the model  $ABC/AB + AS + BS + CS + ABS$ .

Maximum-likelihood theory allows separate fitting of individual transition intensities. Of the available computer programmes, we have used Version 1.64 of LOGLIN [Olivier and Neff (1976), Laird and Olivier (1981)] which applies the algorithm called Iterative Proportional Fitting [described, for example, by Bishop, Fienberg, and Holland (1975)]. LOGLIN makes it simple for the user to include interactions in the model, a feature that is valuable when interactions can be important. LOGLIN also has an option called LIKE to produce the basic ingredients of likelihood-ratio tests. This can be used to test any number of hypotheses about parameters like  $A(a)$  and  $AB(a, b)$ ,



including whether inclusion of an additional variable or interaction significantly improves the fit of a model, whether levels of a factor may be collapsed, or whether an empirical difference in relative risks is significant.

These tools have produced the results presented below. The structure of many of our findings is quite clear-cut. We should like to note that they appeared only after considerable experimentation made us realize which angle to choose. Among less successful attempts was one with more occupational types and more age groups as well as some where each cohort was analyzed separately with the intensity model  $ACES/AC + AS$ .

## 4. Results

### 4.1. Fitted models

Our model-fitting experiments have shown that the model  $ABC/AB$  fits the intensity of consensual-union formation well for both students and non-students, while the model  $AB/AB$  similarly fits marriage intensities. This means that the educational level (factor  $E$ ) did not have any significant influence on these aspects of behaviour (measured in our manner), and that social background had a significant impact on the incidence of cohabitation but *not* on marriage formation. No further interactions beyond that between age and birth cohort were needed. On the other hand, there was a strong impact of student status.

The specification  $AB/AB$  for the marriage intensity means that the model is saturated in the two variables age and cohort. To use this model is equivalent to basing further analysis on age-specific occurrence/exposure marriage rates, separately for each of the two student statuses in each of the five cohorts. Our statistical tests show that a more complicated model based on our variables does not fit the data significantly better.

We now turn to a more detailed presentation of the various items in this account.

### 4.2. Cohort trends

The fact that the  $AB$  interaction was needed in all four intensity specifications means that for each intensity, every cohort has its own

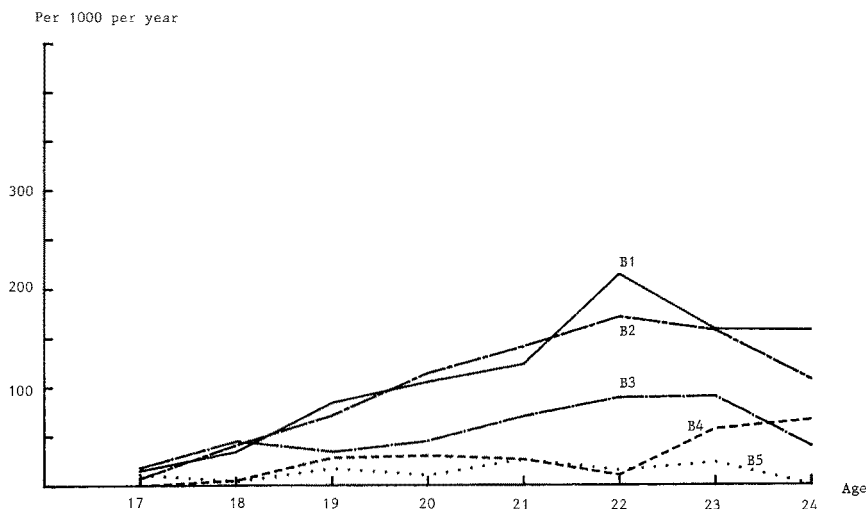


Fig. 2. Estimated first marriage intensities for *non-students*, by birth cohort (B1 to B5), for ages 17 to 24. Model:  $AB/AB$ .

age profile. As has been demonstrated before [Hoem and Rennermalm (1985), Etzler (1984a), Bernhardt and Hoem (1985)], marriage rates have fallen strongly, particularly between cohorts 2 and 3, born during the Second World War and in the subsequent five years, respectively. Fig. 2 shows the age profiles for *non-students* (of all social backgrounds). The corresponding rates for *students* (not shown here) are consistently much lower, and marriage without prior cohabitation has virtually disappeared among *students* in our youngest cohort, born in 1956–1960.

Conversely, cohabitation incidences have increased tremendously between our first and fourth cohorts, both for *students* and for *non-students*<sup>5</sup> (figs. 3 and 4). For the latter, there is also a jump between the second and third cohorts. Rapidly changing norms and an improving economic situation will have gone hand in hand to produce such effects. No doubt the growing availability of suitable housing was an important element in the strongly increasing incidence of young cohabitation in the 1960s and most of the 1970s.

<sup>5</sup> The age profiles of the intensities of consensual-union formation have the same form for all social backgrounds since factor  $C$  is not involved in any interaction terms in our intensity model  $ABC/AB$ . For each social background, the intensities of all cohorts are a scaled-up or scaled-down version of the intensities of daughters of unskilled blue-collar workers. For this reason, it suffices to include the latter here (figs. 3 and 4).

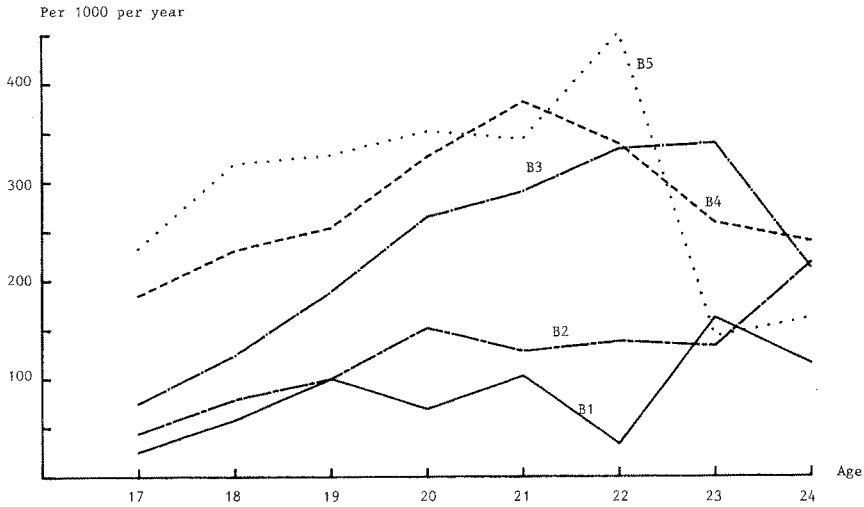


Fig. 3. Estimated intensities of first consensual-union formation for *non-student* daughters of unskilled blue-collar workers, by birth cohort (B1 to B5), for ages 17 to 24. Model: ABC/AB.

The growth in consensual-union formation seems to have come to an end largely with cohort 4 (born in 1951–1955). In our youngest birth cohort, there is actually a strong drop at ages 23 and 24 for non-stu-

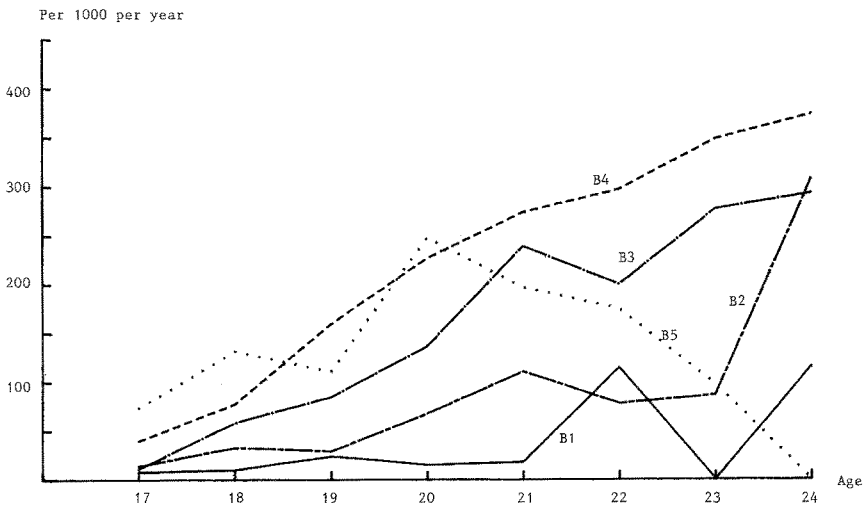


Fig. 4. Estimated intensities of first consensual-union formation for *student* daughters of unskilled blue-collar workers, by birth cohort (B1 to B5), for ages 17 to 24. Model: ABC/AB.

dents, a drop which among students extends to all the ages where young people normally take post-secondary education if they go to school at all. The recession at the end of the decade may have led young women to seek cheaper living arrangements than cohabitation, such as staying longer in the parental home<sup>6</sup> or sharing an apartment with friends. There are some indications that students were hit harder than non-students by the deteriorating general economic situation.<sup>7</sup> Since our youngest cohort has very few respondents in the most

<sup>6</sup> As yet, the evidence concerning moves out of the parental home in the late 1970s is ambiguous. Lundberg and Modig (1984, ch. 4) found some but not much difference in the percentage that had moved out by relevant ages when they compared girls born in 1957 with girls born in 1960. In the early 1980s, moves out of the parental home definitely decreased, but that is after the period we consider. In his analysis of our data, Kravdal (1985, table 6) found that, between the cohorts born in 1951–1955 and 1956–1960, the intensity for moves out of the parental home decreased at ages 20–24 for most social groups in Stockholm and in Northern Sweden, but increased in the rest of Southern Sweden, including the conurbations of Gothenburg and Malmö. Both these observations concern students and non-students taken together. It may be more significant that in a study of the economic situation of university students, Reuterberg and Svensson (1983, p. 23) found that those of their respondents who said that food and lodging in the parental home were their main means of support while they were students, increased from 10% to some 17–18% between the cohorts born in 1948 and 1953. The members of the first cohort were students in the late 1960s and early 1970s. For the second cohort, the student period was through the 1970s. The build-up of a system of regional colleges made it easier for students to continue to live with their parents in the younger cohorts.

<sup>7</sup> In a private discussion, Sven-Eric Reuterberg has suggested the following two hypotheses for the drop in student cohabitation, based on his research with Allan Svensson [see Reuterberg and Svensson (1983), Svensson (1984), and their references]:

(i) Swedish students can get governmental support on request. This support is linked to a general cost-of-living index, and its real value was thus stable through the 1970s. During the same period, other groups experienced an increase in the standard of living, however, and students may have felt progressively more deprived in relative terms [Reuterberg and Svensson (1983, p. 52)]. Moreover, towards the end of the 1970s, cheap flats became much harder to obtain on the open market because of renovation and clearance of outdated housing and, in addition, rents in student housing skyrocketed in 1978 and 1979, according to an oral report by Per Olsson. Taken together, these developments may have made cohabitation less feasible or attractive for students.

(ii) Swedish governmental student support is composed of a scholarship part and a loan part. While the level of student support did not fall in real terms, the scholarship portion fell from 25% in 1965 to about 11% in 1980 [Svensson (1984, p. 2)]. At the same time, real wages for academics were eroded, so students must have felt that their prospective ability to pay back loans became progressively dimmer. According to Nilsson (1984), '[the] economic incentive to higher education practically disappeared during the first half of the 1970s'. Students will then have become more reluctant to take out student loans and will have felt themselves to be in a situation less conducive to strong personal commitments, like those of cohabitation.

I am grateful to Carl-Axel Axelsson, Monika Björkqvist, Sven-Eric Reuterberg, and Per Olsson for discussion concerning the situation of Swedish students in the 1970s. I have added the information from Olsson and Nilsson to Reuterberg's argument above.

Table 1

Median age <sup>a</sup> at formation of first union and percentage who ever experienced a first union by ages 21 and 25, by cohort, separately for students and non-students. <sup>b</sup>

Cohort born in	Median age <sup>a,b</sup> at first union		Percentage who ever experienced a first union <sup>b</sup>			
			By age 21		By age 25	
	Students	Non-stud.	Students	Non-stud.	Students	Non-stud.
1936–1940	25.4 <sup>a</sup>	22.1	9	36	46	77
1941–1945	24.3	21.6	18	43	62	81
1946–1950	23.0	20.9	24	51	72	87
1951–1955	22.0	20.3	37	60	80	88
1956–1960	22.7	19.8	36	67	59	88

<sup>a</sup> Age at which half the group have ever experienced a first marital or consensual union, computed by linear interpolation (extrapolation for students born in 1936–1940).

<sup>b</sup> All computations have been based on age-specific occurrence/exposure rates of first union, separately for students and for non-students (model *AS/AS*) in each cohort. Model computations of ‘pure’ measures assume a single decrement (union formation) and no communication between student/non-student statuses.

relevant ages because of censoring, so that our computed exposures for students at ages 23 and 24 are particularly thin for these women, it is prudent, however, to postpone further interpretation until more data can be obtained.

Adding the incidence of cohabitation and the marriage intensity at each age gives the total intensity of union formation. Except for a drop at ‘higher’ ages in the youngest cohort, these intensities (not shown here) have largely increased from each cohort to the next, in reflection of a tendency to start first unions at progressively earlier ages. The latter point appears clearly in table 1, where the median age at first union is seen to drop by two years and a third for non-students and by about three years for students (‘pure’ estimates computed by the single-decrement life-table technique). It is also reflected in the rise in the corresponding percentage who ever experienced a first union by ages 21 and 25. By our youngest cohort, a third of students and fully two-thirds of non-students have ever lived in a union before age 21 (table 1).

#### 4.3. *The effect of being a student*

In our data, students have had much lower marriage intensities than non-students at all ages in each cohort, irrespective of social back-

Table 2

Student intensities as percentage of corresponding non-student intensities,<sup>a</sup> by cohort, for selected age groups. Formation of marriages and consensual unions.

Cohort born in	Marriage intensities <sup>b</sup>			Cohabitation incidences <sup>c</sup>		
	Ages: 17-19	21-23	24	17-19	21-23	24
1936-1940	0% <sup>d</sup>	53%	32%	23%	45%	101%
1941-1945	13	36	89	34	69	141
1946-1950	10	38	79	40	74	138
1951-1955	24	45	41	41	94	155
1956-1960	0 <sup>d</sup>	44	0 <sup>d</sup>	36	50	0 <sup>d</sup>

<sup>a</sup> Summary measures computed by adding up estimated student rates (of marriage and cohabitation starts) over the ages in question and dividing by the similar sum for non-students.

<sup>b</sup> Rates estimated in the model  $AB/AB$ .

<sup>c</sup> Rates estimated in the model  $ABC/AB$ .

<sup>d</sup> No recorded marriages (consensual unions) started among students at this age.

ground. This is evident from our account above, and it shows up again in table 2. This is as one would expect, and it is a consequence of factors like the less beneficial economic situation, the greater time pressure, and the different immediate direction of interests among students and non-students. Students simply have less money, time, and inclination for the commitments of marriage.

The same type of arguments should lead one to expect a similar impact on cohabitation rates, and indeed table 2 and a comparison between figs. 3 and 4 show that students have lower intensities of consensual-union formation at most ages.

This is at variance with the notion that modern non-marital cohabitation is (or started out as) a campus phenomenon. It certainly has not been so in modern Sweden. This is a society of generally liberal sex norms, where consensual unions have long been tolerated, especially in the working class, and where there has been a general cave-in of any remaining resistance against non-marital cohabitation. In such a population, there is every reason to believe that other factors than any particular liberality of student attitudes will be decisive for differential behaviour in union formation.

Consider a young woman who has found a man to whom she feels attracted but does not feel ready to marry. Given that housing is available, and given that when the cost of starting a new home has been covered, a couple can live together at a lower total expense than the

two partners can do separately, she may consider the opportunity cost of *not* starting a consensual union with him. In addition to any pecuniary elements, such a 'calculation'<sup>8</sup> may include the benefits of love, companionship and a regular sex life, as well as costs like the reduction in freedom and privacy and the burden of household chores, which tend to fall disproportionately on the woman, in Sweden as well as elsewhere [Nordenstam and Lyberg (1984), Nordenstam (1984), Grønmo and Lingsom (1982, 1983), Pleck (1985)]. The balance among these items may easily be different for students than for non-students. The character of student housing in Sweden usually entails no stronger restraints on privacy and sex life than the conditions for non-students, and companionship is likely to be found at least as easily among students without the need to form either a marital or a consensual union. Students are bound to have less free time to fill, more commitment to preparing for the future at the cost of current enjoyment of life and less tolerance of the inequities of family life. Most of these considerations are common to male and female students, and their effect is likely to be strengthened when both partners are students. Altogether, it is easy to understand both why students mostly have lower cohabitation rates, and why their relative *marriage* intensities are even lower than their relative *cohabitation* intensities (table 2).<sup>9</sup> The increase in the latter between our first and our fourth cohort may reflect a shift in this balance as any stigma of non-marital cohabitation disappeared and may even have been replaced by bandwagon effects as consensual unions became normal behaviour. The noticeable drop in our last cohort, if confirmed in new data, is an interesting topic for further research.

The relative cohabitation incidences of students aged 24 show a striking departure from the rest of the pattern in table 2. In cohorts 1 to 4, 24-year-old female students started consensual unions (but certainly not marriages) more readily than non-students. At this age, most

<sup>8</sup> Matović (1985) posits that in the second half of the nineteenth century, unpropertied women in Stockholm may have chosen between cohabitation and marriage on the basis of similar 'calculations'. Following Boudon, Hansen (1986) uses similar reasoning to explain the social gradient in the use of educational opportunities in Norway.

<sup>9</sup> As is also apparent in table 2, the balance of the argument is even more loaded towards lower consensual-union formation rates among students than among non-students for teenagers than at ages 21–23. 'Students' at ages 17–19 are mostly pupils in secondary schools, and they live in their parental homes to a much larger extent than equally young non-students and older girls [Lundberg and Modig (1984, table 4.4), Kravdal (1985)].

remaining students will be in the process of winding up their education, and many of those who go on to graduate work will get a more regular financial situation. This marks the transition from one life stage to the next for many people. Perhaps increased union formation is a reflection of this transition. Maybe finishing female students are just settling into situations already held by non-students of their own age. Presumably, their male partners usually are a little older and have finished *their* studies already.

#### 4.4. Social background

As we have mentioned above, adding social background (factor *C*) did not give a significantly improved fit over the model  $AB/AB$ , which only includes age and birth cohort, for the marriage intensities of single<sup>10</sup> students and non-students considered separately. Thus, we have been unable to detect any significant differences in first marriages among students from different social backgrounds in our cohorts, and this holds for non-students as well. This contrasts with previous findings by Etzler (1984a), who did not include student status in her analysis. We conclude that the class differentials which she found in first marriages among single young women of parity zero work their way through from social background to nuptiality via differential use of the educational system.

For the intensities of first consensual-union formation, again separately for students and non-students, our 'best' model is  $ABC/AB$ . As we explained in section 3.2, this means that the intensity for, say, non-student daughters of unskilled workers is *the same multiple* of the corresponding intensity for non-student daughters of middle and high-level employees *at all ages and across all cohorts*. In fact, the former have an estimated 'over-risk' of 44% over the latter, according to table 3, and women of the various other backgrounds similarly have fixed over- and under-risks for each current student/non-student status. There is a definite gradient in these relative risks. Single daughters of the working class have been more prone to start a consensual union at each age than corresponding young women from the bourgeoisie.

<sup>10</sup> Remember that we study parity-zero women at a life stage where they have never lived in a marriage or consensual union, according to their own reports (cf. footnote 2).



Table 3

Relative intensities of first consensual-union formation for students and non-students, by social background, estimated in the model  $ABC/AB$ .<sup>a</sup>

Social background	Students	Non-students	Both together
Unskilled workers	1.33	1.44	1.60
Skilled workers and low-level white collar	1.38	1.30	1.42
White collar (middle and high) and farmers <sup>b</sup>	1	1	1
Self-employed	1.02	1.24	1.24

<sup>a</sup> The relative rates are the same for all cohorts at all ages 17–24.

<sup>b</sup> Base group.

Another aspect of these findings is that the trends in first consensual-union initiation have been essentially parallel between women of the various social backgrounds, for students and non-students alike.<sup>11</sup> No social group has jumped the gun on the others, has separately made a leap midway, or has otherwise had any diverging trend. In this sense, there has been a stable (indeed constant) relation between the behaviour of the various social groups.

This differs from previous findings in analyses of the same data. Etzler (1984a) found that women with a working-class background led the way in these modern trends, and that daughters of salaried employees hesitated long before they followed suit. Bernhardt and Hoem (1985) found class differentials in age patterns and therefore needed an interaction term between factors  $A$  and  $C$ . None of these features show up in our analysis, which suggests that the differential extent of student status is again a mediating influence. Working-class daughters are students less often than white-collar employees' daughters, and students start consensual unions at a slower pace than non-students, therefore working-class daughters have led the way in modern cohabitation. Thus, social background has a direct effect on cohabitational trends (via relative rates like those of table 3) as well as an indirect effect (via the different extents to which education is taken). These two effects have been unravelled by our use of individual student status.

As an experiment, we have combined our data for students and non-students, and have fitted similar intensity models to the combined data for consensual-union formation. It turns out that the model

<sup>11</sup> Otherwise, there would have been an interaction term between factors  $B$  and  $C$ .

$ABC/AB$  fits the combined data<sup>12</sup> as well, and table 3 contains the corresponding relative rates. We see that the importance of social background is then exaggerated by comparison with the separate analysis for students and non-students. This is as we would expect in view of our conclusion above about the direct and indirect effects of social background.

#### 4.5. *Level of education*

We have excluded teenagers from our analysis of any influence of educational level, since no one can reach our middle educational level before about age 17, nor our higher educational level before age 20. As we have mentioned already, once we have accounted for age, birth cohort, social background, and student/non-student status, we have not found any systematic and significant effects of factor  $E$ . Despite any notions about the cumulative impact of the educational process on behaviour, we cannot see it at work in early union formation in our data. Age, social background, and whether a single woman is a student or not, have been important for whether she will start a first (consensual) union in the next interval of time, but once these factors are known (along with her cohort affiliation), it does not matter significantly how much education she has acquired, according to our analysis. This does not seem odd to us. After all, why should the amount of education acquired be an intrinsic determinant of union formation in a society where 'everybody' cohabits in early adult life?

### 5. Discussion

It is not a main purpose of this paper to explain the emergence of consensual unions as a major feature in the behaviour of young Swedish women. This would require a theory that balanced the effects of changes in norms, public policies, and economic trends, and we are not ready for that yet. We concentrate on the impact of student/non-student status and of the achieved level of education. Even though our measure of the latter is quite conventional, the character of our data

<sup>12</sup> This model for the combined data is not implied by the fact that it fits the data for students and non-students separately.

makes it far from ideal. This may be part of the reason why we find no significant effect of educational level on (consensual and total) first-union formation, though intuitively the reality of such a non-effect may be equally plausible.

On the other hand, whether a young woman is a student, is a strong determinant of her family-union formation behaviour. If her student/non-student status is deleted, the effects of other factors may be distorted and unimportant effects may appear as important. As an experiment, we ran a model which as before included the main effects of age, birth cohort, and social class, as well as the interaction between age and cohort, but which excluded student/non-student status (model *ABC/AB* for students and non-students combined), against a model which also included the main effect of educational level (model *ABCE/AB*). This gave an apparently significant improvement in the fit by the inclusion of factor *E* ( $\chi^2 = 6.081$ ,  $DF = 2$ ,  $p = 0.048$ ), produced only by the exclusion of factor *S*. When student/non-student status was deleted, educational level appeared to pick up some of its role as a determinant of cohabitation. The computed cohabitation intensities of women with a low (high) level of education was 112% (91%) of the corresponding intensities for women on the middle educational level, i.e., there appeared to be a negative gradient with increasing education.

The effect of a factor like social background is also seen in a new light when student/non-student status is controlled. It then turns out that social origin influences marriage formation solely via the differential use of the educational system by women from the various social strata, and also that some of its impact on consensual-union formation is indirect in the same manner, while here there is another strong direct effect as well.

All of this highlights the importance of giving more attention than before to obtaining a more complete and more accurate educational history from each respondent in a fertility survey in a modern industrial population. It is far from sufficient to get a description of the educational status achieved at the time of the interview. The timing and character of the individual educational process is also needed. The appearance of improved data will make it worthwhile to apply sharper methods to explore finer effects.

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### **Added in proof**

While this paper was in press, Mauger and Fossé-Poliak (1986) and Lalanne (1986) published material in support of Calot's information about cohabitation in France. Bachrach (1985) has shown that among unmarried women in the United States aged 20–44 in 1982, those who had not completed high school were more likely to cohabit (14 per cent) than those who had (8 per cent).

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