The Educational Gradient of Childbearing within Cohabitation in Europe

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THE INCREASE in nonmarital childbearing is one of the most striking demographic changes to have occurred in Europe in the past several decades, with nearly every country having experienced some increase in nonmarital childbearing. The vast majority of the increase has been the result of births to cohabiting couples, not to single mothers. This increase has led demographers to consider the rise of childbearing within cohabitation as one of the defining elements of family change. While some information is known about basic trends in nonmarital childbearing, few studies have examined the educational gradient of childbearing within cohabitation or whether this gradient has remained constant over time.

Identifying the educational gradient of childbearing within cohabitation is fundamental to understanding how family behaviors diffuse throughout different strata of society. We conceptualize the educational gradient as a reflection of the social stratification that distinguishes basic socioeconomic groups. Education can be seen as a proxy for the opportunities and resources available to women and subsequently transmitted to their children. Individuals with different educational attainment may have different reasons for choosing new family behaviors, reasons that reflect their attitudes, opportunities, or constraints. Thus, the educational gradient can provide information on how and why a particular behavior increases over time.

Research from the United States provides substantial evidence that nonmarital childbearing is associated with lower education, regardless of whether the births occur to single mothers or to cohabiting couples (Rindfuss,

Morgan, and Offutt 1996; Upchurch, Lillard, and Panis 2002; Ventura 2009). Low levels of education often translate into disadvantage: unmarried mothers in the United States have higher rates of poverty and welfare dependency than their married counterparts (Lichter, Graefe, and Brown 2003). Although nonmarital childbearing in the US is often associated with single motherhood, in 1997–2001 18 percent of births occurred within cohabiting unions (half of all nonmarital births), and almost all of the recent increase in the percentage of nonmarital births has resulted from births to cohabiting couples (Kennedy and Bumpass 2008). In addition, extensive evidence shows that cohabitation has been associated with union instability (Brines and Joyner 1999), poor relationship quality (Brown and Booth 1996), physical violence, and emotional abuse (Kenney and McLanahan 2006). Thus, the evidence from the United States indicates that childbearing within cohabitation is associated not only with low education, but also with disadvantage and economic instability.

The structure of the American family, however, and specifically the pattern of nonmarital childbearing, are often characterized as substantially different from those in much of Europe, especially Western and Northern Europe (Lesthaeghe and Neidert 2006; Raley 2001; Cherlin 2009). Cohabiting unions in Europe are often considered to be stable, long-term relationships (Raley 2001; Kiernan 2004); indeed, researchers in Europe often combine cohabitation with marriage and emphasize the importance of the union per se, regardless of whether it is legalized (e.g. Henz and Thomson 2005). In general, this is a result of the magnitude of cohabitation—in some European countries, more than 40 percent of first births occur within cohabitation. But this distinction between the United States and Europe is also made because changing family behaviors in Europe are usually considered to be related to the emergence of new lifestyles and living arrangements, often referred to as the second demographic transition.

Proponents of the second demographic transition (SDT) argue that new family behaviors, such as childbearing within cohabitation, are the manifestation of lifestyle choices related to ideational and value change (Surkyn and Lesthaeghe 2004; Sobotka 2008). Thus, higher education—especially prolonged education—is considered an avenue for the transformation of values and the emergence of childbearing within cohabitation. Yet very little direct empirical evidence has provided generalized support for this aspect of the SDT. On the contrary, studies from individual countries in Europe, such as Britain (Hobcraft and Kiernan 2001) and Russia (Perelli-Harris and Gerber 2011), provide evidence that childbearing within cohabitation is significantly associated with lower education. For example, our data from the early 2000s in the UK and Russia show that women with low education are nearly twice as likely to give birth within cohabitation as women with high education. These findings have motivated us to ask whether this finding is replicated in Europe more generally. Answering this question would allow us to better

understand how this behavior developed and whether it is generally related to economic uncertainty and a "pattern of disadvantage" (Perelli-Harris and Gerber 2011).

To examine the educational gradient of childbearing within cohabitation, we focus below on eight European countries broadly representing different regions. We use retrospective fertility and union histories to compare the development of childbearing within cohabitation and changes in the educational gradient of such childbearing across time. We focus on first births, because we are specifically interested in union status at the time of entrance into parenthood. Also, including higher-order births in our analysis would risk conflating trends in parity and birth spacing with trends in nonmarital childbearing. Using models that control for the age and period distribution of fertility by union status, we address the following questions: is there a significant educational gradient for childbearing within cohabitation, and is it steeper than the gradient of marital fertility, indicating that childbearing within cohabitation is more likely to be found among couples with higher or lower education? Did the educational gradient of nonmarital childbearing change over time, and is the change the same in all countries observed?

Our results provide evidence that childbearing within cohabitation is associated across Europe with a negative educational gradient, and in most countries the negative educational gradient for childbearing within cohabitation is steeper than the gradient for childbearing within marriage. We find in some countries, however, that childbearing within cohabitation is associated with higher education at the onset of the phenomenon, indicating that the more highly educated may have been responsible for the initial increase. By and large, though, our findings show that childbearing within cohabitation does not follow a pattern typically predicted by the second demographic transition and therefore requires a revised interpretation of the underlying mechanisms.

Historical trends in nonmarital childbearing

Church and other historical records for Europe show that from the sixteenth to nineteenth centuries, the "illegitimacy ratio," or the fraction of births outside marriage, ranged from about 2 percent to 7 percent in most countries (Laslett, Oosterveen, and Smith 1980), although exceptions were documented in certain regions of Austria, Hungary, and Norway (Mitterauer 1983; Trost 1978). In the Nordic countries, nonmarital cohabitation was particularly high in the mid-1800s; one study estimated that in Norway around 1855, the proportion of children born or conceived out of wedlock was as high as 44 percent (Trost 1978).

Historically, nonmarital childbearing has generally occurred among the most disadvantaged groups of society, for example rural inhabitants, the

previously married, or the poor (Kiernan 2004; Mitterauer 1983; Laslett, Oosterveen, and Smith 1980). For example, until the late nineteenth century, landless and unskilled laborers in West Germany were not granted the right to marry, because marriage was tied to the status of a Bürger or citizen (Mitterauer 1983). During the nineteenth century in some parts of Austria, farmers' children not entitled to inherit the farm and people from lower classes, such as servants, had to remain unmarried, resulting in a high fraction of births out of wedlock (Mitterauer 1983; Kytir and Münz 1986). Thus, nonmarital births were often the result of social or financial barriers to marriage and often considered outside the norms of respectable society (Laslett, Oosterveen, and Smith 1980).

In some countries, however, cohabitation and childbearing within cohabitation may have developed as a rejection of the traditional institution of marriage. Sometimes the explicit rejection of marriage was practiced by the highly educated. In Sweden in the early 1900s, an intellectual elite rejected religious marriage, insisting instead on civil marriages, or "marriages of conscience" (Trost 1978). By the 1960s and 1970s in the Low Countries of Belgium and the Netherlands, new living arrangements such as cohabitation were practiced by better-educated younger couples with an "egalitarian world view" (Surkyn and Lesthaeghe 2004). Thus, the increase in childbearing within cohabitation appears to have started with one of two distinct social patterns: either the lack of human and financial resources associated with disadvantage, or the ideational change that produced the elite forerunners who rejected traditional institutions.

Explanations for increases in childbearing within cohabitation

Since the late 1970s and early 1980s, first births within cohabitation have increased substantially in most regions of Europe (see Figure 1). Norway, similar to other Nordic countries, was a forerunner in childbearing within cohabitation; by the early 1980s, the slope of increase was much steeper than elsewhere, and only in the mid-1990s did it start to level off. France started at a slightly higher level of first births within cohabitation in the 1970s, but subsequently increased at a slightly slower pace than Norway. Austria, which historically had one of the highest nonmarital birth rates in Europe (Kytir and Münz 1986), also experienced a rapid increase in the 1980s and 1990s, and recorded nearly 40 percent of first births within cohabitation by 2004. The UK started at a low level of childbearing within cohabitation, but the percent of first births within cohabitation rapidly increased; by 2004, nearly a third of first births were to cohabiting mothers. The Netherlands also started at a low level; the major increase in first births within cohabitation did not start until the late 1980s. By 2003 about 30 percent of births were to cohabiting women.

FIGURE 1   Percent of first births occurring within cohabitation in eight European countries, 1970 to latest date available
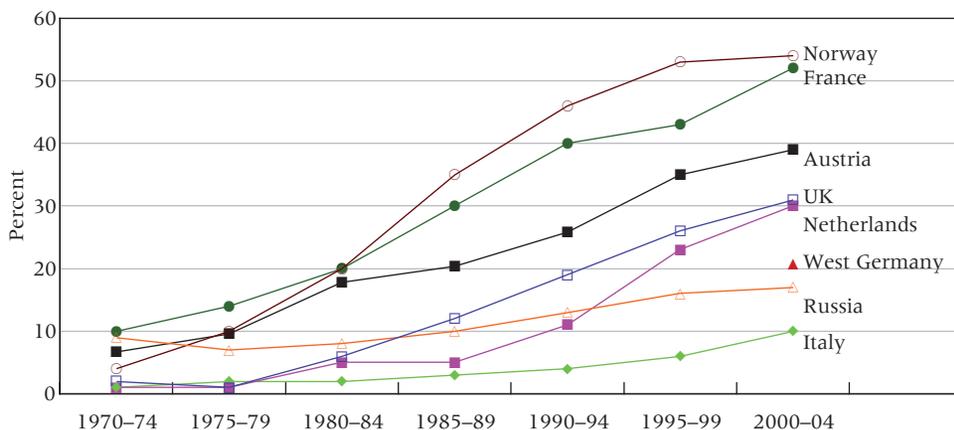
SOURCE: See section on data below.

In Russia, childbearing within cohabitation started to increase in the 1980s, reaching 17 percent by 2000–04. The most recent figures for West Germany suggest that about 20 percent of births occurred within cohabitation; however, because of data limitations (see below), we have little information with which to gauge change over time. Finally, even Italy experienced a gradual increase in childbearing within cohabitation in the 1990s, with about 10 percent of first births occurring in cohabitation by 2000–03. In sum, a good deal of variation in childbearing within cohabitation is evident across Europe, both in levels and in rates of increase.

The theory of the second demographic transition has been the primary explanation for the increase in childbearing within cohabitation in Europe (Lesthaeghe and Surkyn 2002; Sobotka 2008; Lesthaeghe and Neidert 2006; Zakharov 2008; Hoem and Kostova 2008; Hoem et al. 2009; Raley 2001). According to van de Kaa (2001), the behavioral changes associated with the SDT typically occur in sequence, starting with declines in fertility and culminating in the dissociation between marriage and fertility. Over time, cohabiting unions become more stable, similar to marital unions, and widespread. In addition, cohabiting unions become common for childbearing and rearing. Proponents of the SDT argue that the twin engines of social and economic change propelled transformations in family behavior starting in the 1960s and 1970s. Lesthaeghe and colleagues (2002, 2006) draw connections to Inglehart's (1990) theory of post-materialism, which posits that values change as material needs are met, not only through economic development, but also through greater investments in education. Indeed, studies show that the val-

ues associated with post-materialism and the SDT are strongly correlated with higher education (Weaklim 2002). Thus, although the SDT is not explicitly a model of how education leads to changes in family behavior, education can be used as a proxy for ideational change, with the most highly educated women more likely to adopt the new behaviors associated with the second demographic transition (Lesthaeghe and Surkyn 2002).

The preoccupation with ideational change implies that one group—the highly educated—is at the vanguard of new behaviors such as childbearing within cohabitation. We challenge this view by demonstrating that childbearing within cohabitation is more likely to be associated with low education. We then suggest a new interpretation for the increase in childbearing within cohabitation that focuses on the widespread acceptance of new family behaviors, women's empowerment along the educational gradient, and general economic constraints and insecurity.

Analytic strategy

Data

We use a number of surveys to study the educational gradient of nonmarital childbearing. The data from Austria, France, Italy, Norway, and Russia come from the Generations and Gender Surveys (GGS), a set of comparative surveys that are representative of their respective populations (see «www.ggp-i.org»). The GGS questionnaire in each country is intended to follow a standard format, but several countries had to incorporate it into existing surveys and included context-specific questions. The Dutch data come from the 2003 Fertility and Family Survey, which interviewed women aged 18–62. The analytic sample for the UK is drawn from women interviewed in the 2005 wave of the British Household Panel Survey (BHPS). Data for West Germany come from the first wave of the Panel Analysis of Intimate Relationships and Family Dynamics (*pairfam*), conducted in 2008–09.[1] We have limited the sample to the western states of the country, because the special demographic situation in the eastern states would have required a separate analysis. In contrast to the other data sets, *pairfam* follows a cohort design. We used the 1971–73 cohorts for this investigation, which mainly reflect fertility and union formation behavior since the 1990s, when nonmarital childbearing within western Germany began to increase (Konietzka and Kreyenfeld 2002).

Although each survey employs different survey and sampling designs, we followed standardized procedures to create comparable union and reproductive histories (Perelli-Harris, Kreyenfeld, and Kubisch 2009; see also «www.nonmarital.org» for details about samples). The events studied here—births, union formation, and education—are relatively comparable across

countries. Cohabitation could have different meanings in different settings, but the questions generally relate to co-resident relationships with an intimate partner. In some of the GGS surveys (and the BHPS), the question specifically referred to cohabiting relationships that last more than three months. The BHPS sample includes all women who were interviewed in wave 15 and who provided information on the start and end dates of their partnerships. Because these data are retrospective, they are subject to recall error, which may be particularly problematic for the start and end of cohabiting relationships. We think misreporting of marriage dates, however, is less likely. Thus, underreporting would most likely result in an overestimation of births to single women relative to cohabiting women.

Methods

We are interested in examining the educational gradient for childbearing to single mothers and cohabitors and determining whether the educational gradient changes over time. Because a greater proportion of first births compared to higher-parity births are nonmarital, an analysis of first births provides a general depiction of the educational gradient of nonmarital childbearing.

Simply presenting proportions of first births by union status and education does not account for factors such as changes in the age composition of the population or period effects. Thus, we focus on rates of childbearing by union status. Following the approach taken in Perelli-Harris and Gerber (2011), we estimate the monthly rates of single, cohabiting, and marital births, defined simply as the number of first births of each type occurring in a given month divided by the number of women at risk of any first birth at the start of that month. The three birth rates of interest are equivalent to three competing risks, which we model in a discrete-time framework by estimating multinomial logistic regressions using the sample of all person-months in which childbearing-age respondents were at risk for having a first birth.[2] The basic form of the model is:

$$h_{it}(m) = \frac{\exp(\sum_j x_{ijt}\beta_{jm})}{\sum_{k=1}^{M}\exp(\sum_j x_{ijt}\beta_{jk})} \tag{1}$$

where $h_{it}(m)$ denotes the hazard that respondent i will experience event m in month t. There are four types of outcomes ($M=4$): a birth to a single respondent, a birth to a cohabiting respondent, a birth to a married respondent, and no birth in month t; x_{ijt} represents the respondent's values on a set of j potentially time-varying covariates at time t; β_{jm} are parameters estimated from the data using maximum likelihood; the subscript m indicates that a separate parameter vector is estimated for each possible type of event. The

model is identified by constraining all the elements in one such vector (the reference category) to equal zero (e.g., $\beta_{j1} = 0$). The models include women aged 15–44 in each period.

When "no birth" is the reference category, the exponentiated parameters are roughly equivalent to the change in the relative risk of giving birth resulting from a change in the associated control variable. This is because the reference category is extremely likely. As a consequence, the expressions in the top and bottom terms that comprise the relative risk ratio approach one, and the relative risk ratio approaches a relative risk. For example, the exponentiated parameter for high education can be interpreted as the change in the risk of a birth outcome when a woman has high rather than medium education (the reference category for the education variable) when all other variables are held constant.

We are also interested in directly comparing the educational gradient of cohabiting births to the gradient of marital births to see whether the steepness of the educational gradient is significantly greater for cohabiting births. This analysis will tell us to what extent the characteristics of cohabiting women who give birth differ from those of their married counterparts. Thus, we estimate competing-risk hazard models using marital births as the reference category. The exponentiated parameters, however, cannot be interpreted in the same way as in the models with no birth as the reference category. Instead they reflect a comparison of two relative risk terms associated with a change in the associated parameters. Thus, in the analyses shown below, the parameters reflect a comparison of the slope of the educational gradient for cohabiting births with the slope for marital births. This information allows us to assess whether the educational gradient of childbearing within cohabitation is truly negative and does not simply reflect the overall educational gradient of childbearing.

Measures

Education. Although the educational systems differ greatly across countries, we have attempted to standardize the analyses by using the International Standard Classification of Education (ISCED 1997) to classify country-specific data into six educational categories.[3] We then collapse these six categories into three basic educational categories: low (ISCED 1 and 2), medium (ISCED 3 and 4), and high (ISCED 5 and 6). The lowest education level refers to less than completed basic secondary school, medium refers to completed secondary school and any education beyond secondary education but less than completed college (including vocational and technical schools), and higher education refers to a bachelor's or university degree and higher.

We construct time-varying covariates for school enrollment and educational attainment based on data available in the survey, registry data, or external sources. Norway has the most accurate time-varying covariates, because

the GGS can be linked to retrospective educational histories in civil registers, and time-varying covariates can be coded based on dates of graduation from each level of school. For Austria, Italy, and Russia, we use questions in the GGS on the date of graduation from the highest level of education achieved and impute values assuming continuous schooling from age 15 to that date. We also use information on whether the respondent was enrolled at the time of interview and assume continuous schooling up to age 23.[4] After that age we no longer assume continuous enrollment, since respondents could have taken a break from education, especially to care for young children. In West Germany, the Netherlands, and the UK, we use external sources to impute continuous education from age 15 to the average age of graduation from each level of schooling achieved. For West Germany and the Netherlands we use census or administrative data to construct the average date of graduation for each level of education (Feuerstein 2008), while in the UK we use information on highest qualification combined with a schedule of educational progress outlined in the national curriculum of England and Wales («http: // www.britishschool.org/Admissions/GroupEntry»). We also use information on school enrollment at the time of interview and assume continuous schooling up to age 23 in West Germany, the Netherlands, and the UK.

Period. To show change over time, we include five-year periods. We also tested ten-year periods, but found that five-year periods provided a more accurate fit. Given a smaller age range interviewed in Austria, we can only examine trends back to the 1980s in that country. Because the German data include only the cohorts 1971–73, we do not include any period measures in the German models.

Age. Age refers to women's current age in a particular month. We include age and age-squared to identify non-linearities in the effect of age on fertility risks.

Limitations

Some limitations of this study must be noted. First, by focusing on first births, we do not address possible increases in nonmarital childbearing for later births, which could lead to slightly different interpretations from those presented below. Second, when comparing education levels across countries, it is difficult to know whether the meaning of education is the same in all countries, especially as the distribution of education changed over time. Nonetheless, because our goal is simply to determine whether childbearing within cohabitation is associated with the top or the bottom of the educational distribution, we think these categories are adequate to identify these trends. Third, we had to impute school enrollment based on crude measures, which may underestimate interruptions in schooling. However, because we focus

on births usually occurring after graduation, this limitation may be less im-
portant. Fourth, each survey has specific limitations; for example, response
rates in Moscow and St. Petersburg—the largest urban areas in Russia—were
very low, meaning that the survey may be representative only of the rest of
Russia (Houle and Shkolnikov 2005). The BHPS data have limited informa-
tion on start dates of some unions, which if non-random could potentially
introduce sample selection bias. The Austrian GGS only interviewed women
aged 18–45, and the German *pairfam* data included only three cohorts, thus
restricting analyses over time. Finally, we acknowledge that our analyses do
not incorporate country-specific cultural, social, and policy changes that may
be highly relevant for explaining the development of childbearing within
cohabitation in a particular country.

Results

Descriptive statistics

Table 1 shows changes in the distribution of first births by union status for
three educational levels. The educational gradient for cohabiting births ex-
hibits some cross-country variation. There is a strong and persistent negative
educational gradient in Norway and Russia. In the other countries, the pattern
is less consistent. In the UK, the educational gradient is not as pronounced
in the 1980s and 1990s, when the percent of births within cohabitation was
highest for those with medium education, but it becomes strongly negative in
the 2000s.[5] In the Netherlands, a slightly positive educational gradient exists
in the 1970s and 1980s, but it reverses in the later periods, when the percent
of cohabitating births increases rapidly. This suggests that highly educated
Dutch couples could have been the forerunners of childbearing within co-
habitation, with the least-educated overtaking them in the 1990s when the
phenomenon became more widespread. The data for France follow a similar
trend. The educational gradient is slightly positive in the 1970s, but becomes
mixed in the 1980s. It becomes negative in the 1990s, but less distinct in
2000–04 when women with medium education have the highest percent of
births to cohabiting parents. Finally, Austria, West Germany, and Italy do not
appear to have a strong gradient. In West Germany, where we only have data
for the 1971–73 cohorts, there is no educational gradient in cohabiting births.
In Austria, the gradient appears to become more negative over time, but it is
difficult to tell since sample sizes are too small to examine temporal change.
In Italy, the only pattern appears in the 1980s and 1990s, when women with
medium education have the lowest percent of births within cohabitation. To
summarize, Table 1 suggests multiple paths for the initiation of childbearing
within cohabitation, but for most countries a general convergence to a nega-
tive educational gradient appears after 1990.

Competing-risk hazard models

Estimating rates of single, cohabiting, and marital births provides more information than simple proportions, because rates can vary independently, while proportions are dependent on the changes that may occur to the other types of births. In addition, competing-risk hazard models allow us to investigate whether childbearing within cohabitation is significantly associated with education for each union status, while controlling for the age structure of fertility, changes in single or marital fertility, and the influence of school enrollment. Table 2 shows the relative risk ratios for covariates associated with having a first birth by union status, with "not having a birth in a given month" as the reference category. As we discussed in the methods section, these ratios can be roughly interpreted as relative risks because all of the outcome variables are rare outcomes—in the vast majority of person-months, no birth occurs. Because we are interested in education level, our focus initially is on the first three rows, which show the relative risk of a birth within cohabitation by level of education. For each union type, a relative risk above one implies a higher likelihood of birth relative to women with medium education (the reference category), and a relative risk below one implies a lower likelihood of birth relative to women with medium education.

Table 2 shows that the educational gradient for cohabiting births is generally negative in every country studied. At least one parameter is significant for each country, and the patterns suggest that the risk of a first birth for women with low education is significantly higher than for women with medium education, and/or the risk of a first birth for women with high education is significantly lower than for women with medium education. In Austria, West Germany, and Norway, parameters for both high and low education are significant. In France, Russia, and the UK, the only significant distinction is between women with high levels of education and all other women. On the other hand, for Italy and the Netherlands, the significant difference is between women with low levels of education and all other women. Overall, these first results suggest that childbearing within cohabitation has a negative educational gradient.

Fertility, however, may in general be associated with a negative educational gradient, indicating that women with lower education have higher fertility risks for all types of union status. This is certainly the case for single women: we find a strong negative educational gradient for the risk of first births to single women in each of the sample countries. In general, single women with the lowest education are significantly more likely to become mothers than their counterparts with medium education. The only exception is Russia, where the coefficient for low education is positive but not significant. Women with high levels of education are less likely to have a birth while single than women with medium levels of education in all of the sample countries, and the parameter

TABLE 1 Percent of women in eight European countries who had a first birth, by union status, educational level, and period

Country	Low education			Medium education			High education			All educational levels		
	Single	Cohabitation	Married	Single	Cohabitation	Married	Single	Cohabitation	Married	Single	Cohabitation	Married
Austria												
Total 1980–2009[a]	25	35	40	12	37	50	3	30	66	14	36	50
France												
1970–79	13	11	76	10	11	79	7	13	80	11	12	78
1980–89	12	29	58	7	21	72	8	26	66	9	25	66
1990–99	16	47	36	7	45	48	4	33	63	8	41	51
2000–04	18	50	32	7	60	33	0	46	54	5	52	43
West Germany												
Cohorts 1971–73	18	21	62	10	20	69	5	23	72	10	21	69
Italy												
1970–79	5	1	94	3	1	95	1	1	98	4	1	95
1980–89	5	3	92	4	1	95	0	4	95	5	2	93
1990–99	8	7	85	5	4	91	2	5	93	6	5	89
2000–04	8	14	78	8	8	84	5	11	84	8	10	82
Netherlands												
1970–79	3	3	94	1	2	96	0	9	91	2	3	95
1980–89	6	5	89	3	4	93	2	7	91	4	5	91
1990–99	11	20	69	4	16	80	3	15	82	6	17	77
2000–03	10	35	55	3	30	67	0	29	71	3	27	70

Norway

1970–79	27	14	59	8	84	5	7	88	13	9	78
1980–89	18	34	48	10	59	4	2	94	12	25	63
1990–99	17	55	28	9	37	6	38	56	9	48	42
2000–04	12	63	25	5	32	3	47	50	5	54	41

Russia

1970–79	16	13	71	10	82	9	9	82	11	9	80
1980–89	19	17	64	11	80	9	8	83	11	10	78
1990–99	17	21	62	12	74	16	13	71	13	16	71
2000–04	28	27	44	19	65	11	15	74	19	18	63

UK

1970–79	10	3	87	5	93	3	1	97	6	2	93
1980–89	26	6	68	18	69	5	9	87	14	10	76
1990–99	45	17	38	18	47	12	13	76	18	23	60
2000–04	49	45	6	25	36	6	23	71	16	31	53

[a] Total reported because of small sample size
SOURCES: See text

TABLE 2 Relative risk ratios for first births, by union status, educational level, and period, women aged 15–44 in eight European countries (Reference category: no birth)

Status, level, period	Austria	France	West Germany	Italy	Netherlands	Norway	Russia	United Kingdom
Cohabiting								
Low	1.43**	1.14	1.86***	2.07***	1.48***	1.33***	1.22	0.76
Medium	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
High	0.61**	0.82*	0.78*	1.41	0.97	0.75***	0.60***	0.46***
1970–74		0.31***		0.14***	0.08***	0.07***	0.58***	0.06***
1975–79		0.38***		0.24***	0.07***	0.08***	0.44***	0.03***
1980–84	0.84	0.43***		0.28***	0.10***	0.13***	0.51***	0.14***
1985–89	0.93	0.62***		0.27***	0.13***	0.24***	0.76	0.33***
1990–94	0.69**	0.86		0.36***	0.29***	0.35***	0.97	0.46***
1995–99	0.79*	0.94		0.68*	0.61***	0.49***	0.87	0.87
2000–04	0.87[a]	1.00		1.00	1.00	1.00	1.00	1.00
In school	0.30***	0.29***	0.27***	0.11***	0.34***	0.27***	0.30***	0.22***
Age	2.41***	2.27***	1.41***	1.37***	2.14***	1.56***	1.69***	1.16
Age-squared	0.98***	0.98***	1.00*	0.99***	0.99***	0.99***	0.99***	1.00*
Number of cohabiting births	640	872	290	342	299	1,299	692	402
Married								
Low	1.24*	1.03	1.75***	1.45***	1.13**	1.01	0.65***	1.25*
Medium	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
High	0.89	0.98	0.72***	0.92	0.90	1.19**	0.82***	0.87*
1970–74		3.86***		2.45***	1.05***	1.51***	1.30***	2.07***
1975–79		3.14***		2.34***	1.02	1.31***	1.28***	1.79***
1980–84	2.83***	2.22***		1.98***	1.18	0.93	1.33***	1.45**
1985–89	2.68***	1.74***		1.45***	1.12	0.72***	1.44***	1.23

1990–94	1.76***	1.49***		1.20***	1.00	0.63***	1.52***	0.91
1995–99	1.11	1.41***		1.08***	0.91	0.57***	1.02	0.98
2000–04	1.08[a]	1.00		1.00	1.00	1.00	1.00	1.00
In school	0.28***	0.28***	0.27***	0.23***	0.30***	0.27***	0.48***	0.40***
Age	2.73***	3.45***	2.13***	2.75***	3.43***	2.00***	2.66***	2.69***
Age-squared	0.98***	0.98***	0.99***	0.98***	0.98***	0.99***	0.98***	0.98***
Number of marital births	881	2,610	950	13,898	2,260	2,228	4,443	1,949
Single								
Low	1.73**	1.56***	2.10***	1.59***	2.46***	2.05***	1.26	2.27***
Medium	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
High	0.31*	0.72	0.36*	0.48**	0.75	0.63**	0.61***	0.48***
1970–74		3.12***		0.68*	0.28***	0.59*	0.65***	0.34**
1975–79		2.37***		0.75	0.21***	0.70	0.46***	0.11***
1980–84	1.27	1.60		0.60**	0.50	0.49***	0.56***	0.44**
1985–89	1.55	1.97*		0.64*	0.69	0.53**	0.73*	0.76
1990–94	1.28	1.83*		0.76	0.99	0.64**	0.80	0.77
1995–99	0.81	1.70		0.65*	1.22	0.73	0.67*	1.19
2000–04	0.77[a]	1.00		1.00	1.00	1.00	1.00	1.00
In school	0.24***	0.36***	0.39***	0.21***	0.31***	0.27***	0.30***	0.36***
Age	1.37**	1.65***	1.60**	1.16*	1.40**	1.15	1.85***	1.38
Age-squared	0.99***	0.99****	0.99**	1.00***	0.99**	1.00	0.99***	0.99*
Number of single births	242	441	144	808	107	400	787	363
Number of person-months (000)	645	597	291	2,004	635	444	499	533

*p<.05, **p<.01, ***p<.001; "a" refers to Reference category 2005–09.

estimates are statistically significant in six of the eight sample countries. These results are in line with other analyses showing that births to single women occur more often to those with lower levels of education (McLanahan 2004).

What is pertinent to our research question is whether marital fertility is associated with a negative educational gradient and whether the negative educational gradient of cohabitation is steeper than the educational gradient of marital fertility. If the educational gradient of cohabiting first births is significantly more negative than that of marital first births, then we can conclude that the characteristics of married and cohabiting women differ significantly. A significantly more negative educational gradient for cohabiting births would suggest that childbearing within cohabitation is more selective of women with lower education than is childbearing within marriage. To compare marital fertility with cohabiting fertility, we first consider the coefficients for marital fertility in Table 2. In most countries—Austria, West Germany, Italy, the Netherlands, and the UK—marital fertility is associated with a negative educational gradient, and it is unclear whether the marital gradient is significantly different from the cohabiting gradient. The educational gradient for marital births in France is very flat, with no significant differences. Marital fertility in Norway, on the other hand, has a positive educational gradient—the opposite of its negative educational gradient of cohabiting fertility. Finally, Russia has a U-shaped gradient, which is also different from that of cohabiting fertility.

To ascertain whether the cohabiting educational gradient is steeper than the marital educational gradient, we estimate competing-risk hazard models with marital births (rather than no births) as the reference category. Results presented in Figure 2 suggest that the negative educational gradient for cohabiting births is steeper than that of marital births for all countries except Italy. The magnitude and significance of the relative risk ratios differ, however, across countries. The strongest differences emerge in Norway, Russia, and the UK. As noted above, in Norway we are comparing a negative educational gradient for cohabiting births with a positive gradient for marital births. For the other two countries, the cohabiting educational gradient is more steeply negative. For example, in Russia, the relative risk ratio for low education (relative to the reference category of medium education) is 1.89, and for women with the highest education the relative risk ratio is 0.73, suggesting that the negative educational gradient for birth risks is steeper for cohabiting than for married women. The coefficients for the Netherlands show that the distinction between low and medium education is significantly more negative for cohabiting women than for married women, but the gradient does not differ significantly for highly educated women. In Austria, France, and West Germany the educational gradient of cohabiting fertility is negative, but there is no significant difference between the educational gradients for cohabiting and married women. Finally, Italy provides an exception to the pattern: the relative risk ratios for both high and low education are significantly higher than for medium education, suggesting that the educational gradient

FIGURE 2 Relative risk ratios for identifying the educational gradient of first births to cohabiting women relative to married women in eight European countries, 1970 to latest date available
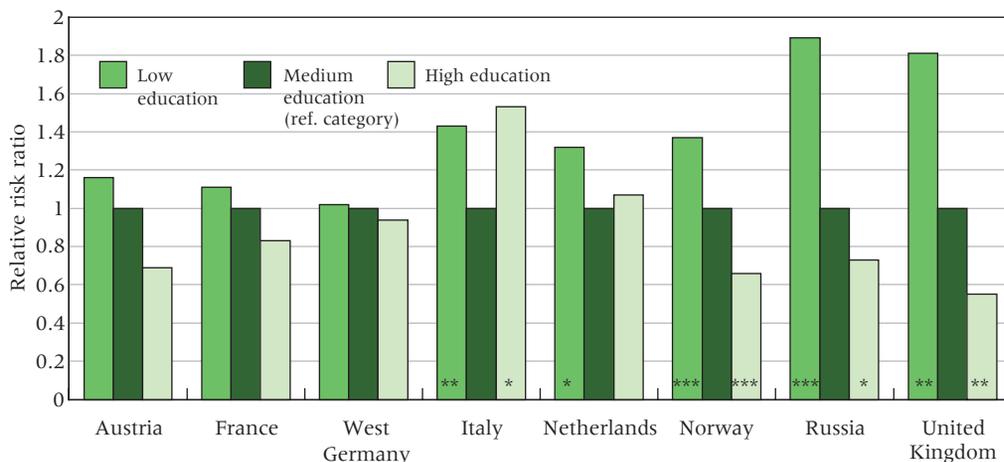
*p<.05, **p<.01, ***p<.001.
SOURCE: See text.

is steeper for cohabiting births at lower levels of education and steeper for marital births at higher levels of education. Note that even though cohabitation is still "marginal" in Italian society (Heuveline and Timberlake 2004; Perelli-Harris et al. 2010) and less than 10 percent of Italian women gave birth within cohabitation, the model coefficients are significant because of the very large sample size of Italy's GGS. Thus, we have the statistical power to analyze and compare educational gradients in a country where childbearing within cohabitation is just starting to emerge.

These results suggest that, by and large, childbearing within cohabitation not only differs from marital childbearing; it is, in most of our sample countries, associated with low education. This pattern appears to be a general phenomenon in those countries where more than 18 percent of first births occur within cohabitation. Of course, comparisons between educational levels across countries must be made cautiously; for example, the ISCED classifications may not accurately represent the value of a vocational degree versus a college degree in a particular society, rendering the comparison between higher education levels across countries unsound. However, because we are comparing educational gradients rather than the meaning of education across different countries, this limitation is less important. In addition, if we were to move people from one education category to another, the most that could happen would be to negate a significant effect, creating a flatter educational gradient; it would be nearly impossible to reverse the educational gradient.

Finally, we note the association with control variables. As expected, the period coefficients in Table 2 show that women in all sample countries (West Germany is excluded here) experienced an increase over time in birth risks

within cohabitation, although the size and significance of the parameter estimates indicate some leveling off in recent years. In most countries the risk of a marital birth generally decreased, as the age at first birth was postponed and childlessness increased. In contrast, trends in the risk of a birth to single women are less consistent. All countries showed that school enrollment lowered the risk of a single birth by about 65–80 percent, a cohabiting birth by about 65–90 percent, and a married birth by about 50–80 percent. Age effects were also relatively similar across countries, reflecting the general age pattern of fertility that rises and then falls throughout the reproductive years.

Has the educational gradient changed over time?

As noted above, one of our primary goals is to investigate the initiation of childbearing within cohabitation and to examine whether the educational gradient changes over time. A limited time period in West Germany and a restricted age range interviewed in Austria means that we could only carry out this additional analysis with six countries. For these countries, we included interaction terms between educational level and five- or ten-year periods. In most countries, the interaction terms for cohabitation were insignificant or showed no consistent pattern.

    In France, however, an interesting pattern emerges when interaction terms are included. When "no birth" is the reference category, the pattern is very similar to what we saw in Table 1: women with low education have a higher risk of first birth within cohabitation in all periods, and the interaction terms do not suggest that the educational gradient in the risk of having a cohabiting birth has changed over time. We are also interested in whether the negative educational gradient of cohabitating fertility has persisted over time and whether it became steeper than the educational gradient of marital fertility. To determine this, we estimate models with marital births as the reference category. We find that the coefficients for all of the period dummies, higher education, and the interaction terms for higher education in the periods 1975–84 and 2000–04 are significant. Figure 3 shows the relative risk ratios, which allow us to compare the relative slopes of the gradients for marital and cohabiting births in each of the time periods.

    Figure 3 indicates that in the early 1970s, when only about 12 percent of births were to cohabiting women, there was very little difference between the educational gradients of cohabiting and married women. Both were negative, and the steepness of the educational gradient did not differ significantly between married and cohabiting women. In the late 1970s and early 1980s, when childbearing within cohabitation started to increase, the top end of the educational gradient (or the risk of birth to women with high relative to medium education) became steeper for cohabiting women than for married women. This suggests that highly educated women were the forerunners of the increase in childbearing within cohabitation.

**FIGURE 3   Relative risk ratios for identifying the educational gradient
of first births to cohabiting women relative to married women, France
1970–2004**
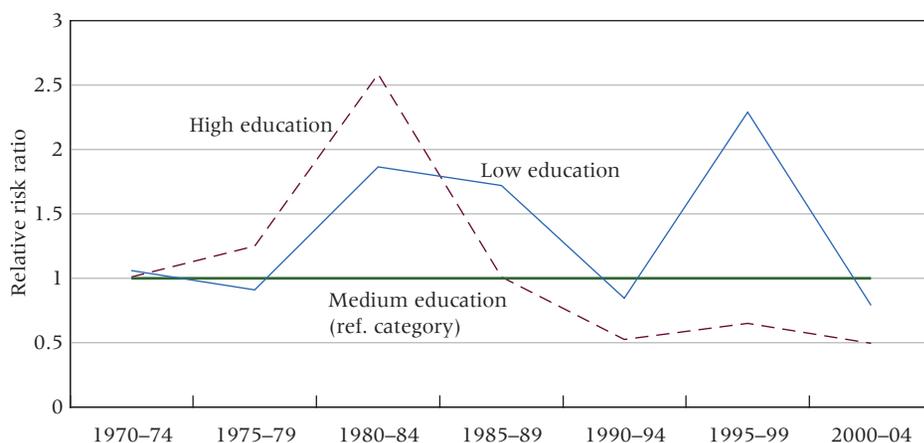
SOURCE: See text.

After 1984, the interaction term between high education and period was
not significant, suggesting there was very little difference in the educational
gradient of childbearing between cohabiting and married women. The sig-
nificance of the main effects (high education) indicates that in 2000–04, the
higher end of the educational gradient between cohabiting and marital fer-
tility again diverged, but this time cohabiting women with higher education
had lower birth risks than married women with higher education (relative to
similarly situated women with medium education). Throughout the period
1975–2004, highly educated women first had a higher risk of childbearing
within cohabitation than within marriage, and then a lower risk of childbear-
ing within cohabitation than within marriage. Note, however, that highly
educated women were a more selective group in the late 1970s and early
1980s and became less selective over time as the proportion of the population
that attained higher education increased. Nonetheless, France is a very inter-
esting case in which the most highly educated appear to have led the increase
in childbearing within cohabitation, as predicted by the second demographic
transition, but by 2000–04 the high end of the educational gradient was less
steep, suggesting this trend was only temporary.

To summarize, our results show some variation over time, indicating
that there were multiple pathways to the development of childbearing within
cohabitation. In most countries, a negative educational gradient has been
entrenched since the 1970s. In Norway, for example, our descriptive statistics
suggest that the innovators in childbearing within cohabitation were among
the least educated. In other countries, such as Russia and the UK, childbearing
within cohabitation remained at a low to medium level for a longer period

and only recently experienced substantial increases, but nevertheless the educational gradient did not change. In France, on the other hand, the most highly educated appeared to initiate increases in childbearing within cohabitation in the late 1970s and early 1980s. By 2000–04, however, the most highly educated had higher birth risks within marriage than in cohabitation. Finally, Italy, which appears to be on the threshold of rising levels of childbearing within cohabitation, shows a pattern similar to France in the late 1970s, when childbearing within cohabitation was also just beginning to emerge. These observations suggest that in some countries, the second demographic transition was important in the initial stages of the development of childbearing within cohabitation, but as the phenomenon diffused, the negative educational gradient became the predominant pattern we see today.

Toward a new interpretation of childbearing within cohabitation

Our results provide evidence that, across Europe, cohabiting women with low levels of education have a significantly greater risk of first births than women with medium education, while cohabiting women with high levels of education have a significantly lower risk. This indicates that, by and large, childbearing within cohabitation is associated with a negative educational gradient. These findings do not confirm the predictions of the second demographic transition, implying that the SDT is not sufficient for explaining the increase in childbearing within cohabitation. In general, the SDT assumes that childbearing within cohabitation has been driven by the same underlying forces that drive other types of family behavior. Post-materialist shifts in values—shifts generally facilitated by increases in education—led to new family behaviors that may have resulted in delays in marriage and childbearing (Billari, Liefbroer, and Philipov 2006). But these same forces apparently were not mainly responsible for the increase in childbearing within cohabitation. The SDT was correct in positing that social and economic change was broadly responsible for the emergence of new values that led to new behaviors, but it misses important elements of that change, especially economic constraints and the increasing economic uncertainty of the 1980s and 1990s. Thus, we propose a new interpretation of those broad social and economic changes.

As argued by the SDT, the social changes beginning in the 1960s in Western Europe, and later in Eastern Europe, set the stage for fundamental changes in family behavior. In Western Europe, the rise of feminist and liberal social movements eroded many of the constraints of the institution of marriage (McDonald 2006; Cherlin 2009). Premarital sexual intercourse lost its stigmatization, relationships became less rigid, and women gained greater independence. In many countries divorce restrictions were relaxed, resulting in rapidly increasing divorce rates in the late 1960s and 1970s (McDonald

2006). Thus, changes that took place during this period laid the groundwork for the liberalization of attitudes toward nonmarital childbearing, but do not necessarily explain the underlying individual reasons for increases in the behavior itself.

We acknowledge that social change was not experienced uniformly across Europe, especially in Eastern Europe. Nonetheless, cultural, economic, and social developments throughout the socialist period did lead to a similar liberalization of the institution of marriage in the East (Gerber and Berman 2010). During and after World War II, the Soviet state encouraged women to participate in the labor force, thereby leading to a type of economic independence for women and a pseudo-equality with men, at least in the public sphere of work (Kon 1995). Soviet women developed a type of feminism, although it differed from that in the West and emphasized distinct gender roles (Zhurzhenko 2001). Divorce legislation in the Soviet Union was liberalized in the mid-1960s, and divorce rates increased steadily until they were as high as if not higher than in most Western countries (Council of Europe 2006). The "sexual revolution," however, did not occur in the Soviet Union until the late 1980s and early 1990s, when public discussions and displays of sexuality increased and sexualized images flooded advertising, mass media, and film (Kon 1995). Taken as a whole, these movements led to an attitudinal shift that later opened the door for an increase in childbearing within cohabitation.

Although social and ideational changes throughout Europe were important for altering societal norms about nonmarital childbearing, these changes were not sufficient to bring about the rapid increase in childbearing within cohabitation. Had they been sufficient, we would see evidence that those individuals most likely to adopt new social values—the highly educated—would be the most likely to give birth in a cohabiting union. This is where the explanations of the second demographic transition falter. The SDT focuses primarily on the economic development of the postwar period that led to an increase in material standards and higher incomes, resulting in a movement towards post-materialism. The SDT fails to incorporate changing economic constraints and conditions, especially those of the 1980s and 1990s, characterized by advances in technology, deregulation, and the globalization of economies (Mills and Blossfeld 2005; McDonald 2006). The rewards of this new economic system have included higher living standards and increased consumption. However, some people, generally the least educated and skilled, have had to struggle with reduced job security, diminished wage protection, and uncertain pensions (McDonald 2006). Overall, these circumstances have led to greater risk and a less predictable future, especially among young people entering the labor market.

In order to cope with changing labor markets and increasing uncertainty, some young people have adopted new strategies, for example prolonged education (Kohler, Billari, and Ortega 2002; McLanahan 2004). In fact,

education has become increasingly essential for successfully negotiating the new globalized and technologically oriented labor force, and in some countries the increasing returns to education may have made it more difficult for persons with less education to achieve employment stability (Kohler, Billari, and Ortega 2002; Newell and Reilly 1999). Given these conditions, the educational gradient, understood as a proxy for social status, may have become more important for determining individual financial stability. We should note, however, that country-specific institutional settings and welfare regimes may have buffered the effects of economic conditions, thus producing less variation in economic stability by education.

Taken together, new social norms and changes in the marketplace have led to an increase in cohabitation and childbearing within cohabitation. As young people's lives have become more uncertain and the steps to attain economic stability become more difficult to achieve, many young people have begun to postpone family-related events—such as leaving the parental home, marrying, and childbearing (Mills and Blossfeld 2005; Sobotka and Toulemon 2008; Kohler, Billari, and Ortega 2002; McLanahan 2004). In particular, male unemployment, which is often concentrated among the least advantaged, has prompted couples to delay or forgo marriage in favor of cohabitation (Oppenheimer, Kalmijn, and Lim 1997; Oppenheimer 2003). The temporary and reversible nature of cohabitation has provided an alternative to the commitments of marriage, as well as a living situation that reflects uncertainty, whether resulting from job instability and unemployment or prolonged education and the establishment of a career.

In these circumstances marriage is not necessarily shunned. Indeed for many, marriage has remained a symbol of stability and status (Cherlin 2009). Marriage may be postponed, but most people want to marry and eventually most people do so. Even in Sweden, one of the countries with the most widespread cohabitation and highest levels of childbearing within cohabitation, most people marry sometime in their lives (Andersson and Philipov 2002), and survey data show that the majority of individuals currently living with a partner expect to marry within the next five years (Bernhardt 2004).

If cohabitation is associated with uncertainty, marriage signifies stability, and the least educated have been the most severely affected by economic uncertainty and globalization, then it seems to follow that the least educated would be more likely to cohabit, while the most highly educated would be more likely to marry. This association should become even more pronounced at the birth of a couple's first child, when the stability of marriage and the commitment of two parents may be perceived as especially crucial for childrearing. Perelli-Harris et al. (2010) show that events associated with the childbearing process—conception, birth, and early childrearing—are particularly critical for prompting marriage. In most of Europe, only a small fraction of mothers persistently remain within cohabitation throughout the childbearing

process, indicating that cohabitation is not displacing marriage as the preferred environment for childbearing and rearing. Thus, women in more uncertain situations with fewer social and economic resources should be more likely to have children in cohabiting relationships, while couples with access to more resources and greater opportunities to establish a stable lifestyle should be more likely to give birth within marriage.

The question, then, is why less educated women would want to have children under such uncertain conditions and in such unstable relationships. Studies from the United States and United Kingdom help to shed light on this question, even though conditions in those two countries may differ greatly from those in continental and Nordic Europe. As Edin and Kefalas (2005) show in their extensive qualitative study in Philadelphia, poor women often choose to have a child as a way to find meaning in their lives. These women value children highly and "grab eagerly at the surest source of accomplishment within their reach: becoming a mother" (Edin and Kefalas 2005, p. 46). Even though these women also place a high value on marriage, they often consider their romantic partners economically or socially unsuitable for marriage (see also Anderson 1990). A number of qualitative studies in the UK also assert that young mothers in disadvantaged circumstances build "futures around motherhood, where the opportunities for self-esteem and social respect appear more certain" (Graham and McDermott 2006). Fathers, on the other hand, were the source of "uncertainty and change" (Thomson 2000). Finally, while most individuals in Europe still want children (Goldstein, Lutz, and Testa 2003), cohabiting couples may lack the financial resources to turn their relationship into a marriage (Gibson-Davis, Edin, and McLanahan 2005; Kravdal 1999). Thus, the desire for children coupled with financial obstacles to marriage and less certain relationships produces a negative educational gradient of childbearing within cohabitation.

Conclusion

Our results challenge the assertion that cohabitation, even in countries with high levels of cohabitation, is "indistinguishable from marriage" (Heuveline and Timberlake 2004). The finding that the least educated have higher first birth rates within cohabitation, or alternatively the most educated have higher first birth rates within marriage, suggests that couples with the most resources are able to marry around the time of a first birth, while those with the fewest resources encounter obstacles to marriage. This implies that childbearing within cohabitation may have negative consequences in some countries. Previous research shows that cohabiting relationships in European countries are less stable than marriage (Liefbroer and Dourleijn 2006), and children born within cohabitation are more likely to experience time living in a single-mother household (Heuveline, Timberlake, and Furstenberg

2003). Women who give birth within cohabitation may be at an additional disadvantage if they are more likely to experience union dissolution than married mothers, and if they have less education. Thus, the negative educational gradient of childbearing within cohabitation could result in a negative association between union status and future social, financial, and emotional outcomes. Researchers should seek to determine whether the negative educational gradient of cohabitation at the time of birth produces negative outcomes throughout the life course, or whether country-specific welfare systems and cultural institutions mediate this relationship, thus rendering it less pronounced.

The theory of the second demographic transition may explain the emergence of childbearing within cohabitation in a few countries, but it goes too far in assuming that the same underlying process explains a wide range of new family behaviors. Nor does the SDT take account of the possibility that economic constraints may have become more pronounced in the 1980s and 1990s as globalization, deregulation, and economic uncertainty increased, particularly affecting those with the fewest skills and resources. An explanation incorporating the acceptance of new family behaviors, women's empowerment, and recent changes in the labor market that have produced a sense of insecurity better account for the increase in childbearing within cohabitation in Europe. It may also better account for the increase in other regions of the world, where childbearing within cohabitation has also been on the rise.

Notes

Figures in this article are available in color in the electronic edition of the journal.

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1 Germany also conducted a Generations and Gender Survey in 2005. However, we have not used this data set because of the underreporting of partnerships (Kreyenfeld et al. 2010).

2 This model requires that the IIA (Independence of Irrelevant Alternatives) is met. We attempted to conduct Hausman tests to see whether the IIA assumption could be rejected, but the chi-square statistic was often negative.

3 The German and UK classifications deviate somewhat from the suggested ISCED system. For the UK, we include people who received very poor scores on their O-level/GSCE tests in ISCED category 2. In West Germany, we have grouped people with an Abitur who never received a vocational or university degree as ISCED 1 and 2.

4 Increasing the age through which we assume continuous school enrollment does not substantially alter the results.

5 In recent decades, very few people in the UK failed to achieve an ISCED level 3 qualification. As a consequence, the number of observations with low education is small and figures should be interpreted with caution.

References

Anderson, Elijah. 1990. *Streetwise: Race, Class, and Change in an Urban Community*. Chicago: University of Chicago Press.

Andersson, Gunnar and Dimiter Philipov. 2002. "Life-table representations of family dynamics in Sweden, Hungary, and 14 other FFS countries: A project of descriptions of demographic behavior," *Demographic Research* 7: 67–144.

Bernhardt, Eva. 2004. "Cohabitation or marriage? Preferred living arrangements in Sweden," *Austrian Institute for Family Studies*.

Billari, Francesco C., Aart C. Liefbroer, and Dimiter Philipov. 2006. "The postponement of childbearing in Europe: Driving forces and implications," *Vienna Yearbook of Population Research* 1–17.

Brines, Julie and Kara Joyner. 1999. "The ties that bind: Principles of cohesion in cohabitation and marriage," *American Sociological Review* 64: 333–355.

Brown, Susan L. and Alan Booth. 1996. "Cohabitation versus marriage: A comparison of relationship quality," *Journal of Marriage and the Family* 58: 668–678.

Cherlin, Andrew. 2009. *The Marriage-Go-Round: The State of Marriage and the Family in America Today*. New York: Knopf.

Council of Europe. 2006. *Recent Demographic Developments in Europe*. Strasbourg: Council of Europe Publishing.

Edin, Kathryn and Maria Kefalas. 2005. *Promises I Can Keep: Why Poor Women Put Motherhood Before Marriage*. Berkeley and Los Angeles: University of California Press.

Feuerstein, Thomas. 2008. "Entwicklung des Durchschnittsalters von Studierenden und Absolventen an deutschen Hochschulen seit 2000," *Wirtschaft und Statistik Heft* 7: 603–608.

Gerber, Theodore and Danielle Berman. 2010. "Entry to marriage and cohabitation in Russia, 1985–2000: Trends, correlates, and implications for the second demographic transition," *European Journal of Population* 26: 3–31.

Gibson-Davis, Christina M., Kathryn Edin, and Sara McLanahan. 2005. "High hopes but even higher expectations: The retreat from marriage among low-income couples," *Journal of Marriage and the Family* 67: 1301–1312.

Goldstein, Joshua, Wolfgang Lutz, and Maria Rita Testa. 2003. "The emergence of sub-replacement family size ideals in Europe," *Population Research and Policy Review* 22: 479–496.

Graham, Hilary and Elizabeth McDermott. 2006. "Qualitative research and the evidence base of policy: Insights from studies of teenage mothers in the UK," *Journal of Social Policy* 35: 21–37.

Henz, Ursula and Elizabeth Thomson. 2005. "Union stability and stepfamily fertility in Austria, Finland, France and West Germany," *European Journal of Population* 21: 3–29.

Heuveline, Patrick and Jeffrey M. Timberlake. 2004. "The role of cohabitation in family formation: the United States in comparative perspective," *Journal of Marriage and the Family* 66: 1214–1230.

Heuveline, Patrick, Jeffrey M. Timberlake, and Frank F. Furstenberg, Jr. 2003. "Shifting child-rearing to single mothers: results from 17 Western countries," *Population and Development Review* 29: 47–71.

Hobcraft, John and Kathleen Kiernan. 2001. "Childhood poverty, early motherhood and adult social exclusion," *British Journal of Sociology* 52: 495–517.

Hoem, Jan and Dora Kostova. 2008. "Early traces of the second demographic transition in Bulgaria: A joint analysis of marital and non-marital union formation, 1960–2004," *Population Studies* 62: 1–13.

Hoem, Jan M., Aiva Jasilioniene, Dora Kostova, and Cornelia Muresan. 2009. "Traces of the second demographic transition in selected countries in Central and Eastern Europe: union formation as a demographic manifestation," *European Journal of Population* 25: 123–156.

Houle, Rene and Vladimir Shkolnikov. 2005. "Low response rates in the cities of Moscow and Sankt-Peterburg and GGS-Census comparisons of basic distributions." Max Planck

Institute for Demographic Research working document provided with the GGS data file for Russia.

Inglehart, Ronald. 1990. *Culture Shift in Advanced Industrial Society*. Princeton, NJ: Princeton University Press.

ISCED. 1997. International Standard Classification of Education «http://www.unesco.org/ education/information/nfsunesco/doc/isced_1997.htm».

Kennedy, Sheela and Larry Bumpass. 2008. "Cohabitation and children's living arrangements: New estimates from the United States," *Demographic Research* 19: 1663–1692.

Kenney, Catherine T. and Sara S. McLanahan. 2006. "Why are cohabiting relationships more violent than marriages?," *Demography* 43: 127–140.

Kiernan, Kathleen. 2004. "Unmarried cohabitation and parenthood: Here to stay? European perspectives," in D. P. Moynihan, Timothy M. Smeeding, and Lee Rainwater (eds.), *The Future of the Family*. New York: Russell Sage Foundation.

Kohler, Hans-Peter, Francesco C. Billari, and Jose Antonio Ortega. 2002. "The emergence of lowest-low fertility in Europe during the 1990s," *Population and Development Review* 28: 641–680.

Kon, Igor Semenovich. 1995. *The Sexual Revolution in Russia: From the Age of the Czars to Today*. New York: The Free Press.

Konietzka, Dirk and Michaela Kreyenfeld. 2002. "Women's employment and non-marital childbearing: A comparison between East and West Germany in the 1990s," *Population -E* 57: 331–358.

Kravdal, Oystein. 1999 "Does marriage require a stronger economic underpinning than informal cohabitation?," *Population Studies* 53: 63–80

Kreyenfeld, Michaela, Anne Hornung, Karolin Kubisch, and Ina Jaschinski. 2010. "Fertility and union histories from German GGS data: some critical reflections," Max Planck Institute for Demographic Research, Rostock.

Kytir, Josef and Rainer Münz. 1986. "Illegitimität in Österreich," *Demografische Informationen*.

Laslett, Peter, Karla Oosterveen, and Richard M. Smith. 1980. *Bastardy and its Comparative History*. London: Edward Arnold.

Lesthaeghe, Ron J. and Lisa Neidert 2006. "The second demographic transition in the United States: Exception or textbook example?," *Population and Development Review* 32: 669–698.

Lesthaeghe, Ron and Johan Surkyn. 2002. "New forms of household formation in Central and Eastern Europe: Are they related to newly emerging value orientations?," Interface Demography (SOCO) Vrije Universiteit Brussel, Brussels, Belgium.

Lichter, Daniel T., Deborah Roempke Graefe, and J. Brian Brown. 2003. "Is marriage a panacea? Union formation among economically disadvantaged unwed mothers," *Social Problems* 50: 60–86.

Liefbroer, Aart C. and Edith Dourleijn. 2006. "Unmarried cohabitation and union stability: Testing the role of diffusion using data from 16 European countries " *Demography* 43: 203–221.

McDonald, Peter. 2006. "Low fertility and the state: The efficacy of policy," *Population and Development Review* 32: 485–510.

McLanahan, Sara. 2004. "Diverging destinies: How children are faring under the second demographic transition," *Demography* 41: 607–627.

Mills, Melinda and Hans-Peter Blossfeld. 2005. "Globalization, uncertainty, and the early life course: A theoretical framework," in Hans Peter Blossfeld, Erik Klijzing, Melinda Mills and Karin Kurz (eds.), *Globalization, Uncertainty and Youth in Society*. Oxon, ON: Routledge.

Mitterauer, Michael. 1983. *Ledige Mütter. Zur Geschichte illegitimer Geburten in Europa*. München: Beck.

Newell, Andrew and Barry Reilly 1999. "Rates of return to educational qualifications in the transitional economies," *Education Economics* 7: 67–84.

Oppenheimer, Valerie K. 2003. "Cohabiting and marriage during young men's career-development process," *Demography* 40: 127–149.

Oppenheimer, Valerie Kincade, Matthijs Kalmijn, and Nelson Lim. 1997. "Men's career development and marriage timing during a period of rising inequality," *Demography* 34: 311–330.

Perelli-Harris, Brienna et al. 2010. "The increase in fertility in cohabitation across Europe: Examining the intersection between union status and childbearing." Rostock, MPIDR Working Paper WP-2009-021.

Perelli-Harris, Brienna and Theodore P. Gerber. 2011. "Nonmarital childbearing in Russia: Second demographic transition or pattern of disadvantage?," *Demography*.

Perelli-Harris, Brienna, Michaela Kreyenfeld, and Karolin Kubisch. 2009. "The harmonized histories," *Max Planck Institute for Demographic Research Working Paper*. Rostock, Germany.

Raley, R. Kelly. 2001. "Increasing fertility in cohabiting unions: Evidence for the second demographic transition in the United States," *Demography* 38: 59–66.

Raymo, James. 2003. "Educational attainment and the transition to first marriage among Japanese women," *Demography* 40: 83–103.

Rindfuss, Ronald R., S. Philip Morgan, and Kate Offutt. 1996. "Education and the changing age pattern of American fertility: 1963–1989," *Demography* 33: 277–290.

Sobotka, Tomáš. 2008. "Overview Chapter 6: The diverse faces of the second demographic transition in Europe," *Demographic Research* 19: 171–224.

Sobotka, Tomáš and Laurent Toulemon. 2008. "Overview Chapter 4: Changing family and partnership behavior: Common trends and persistent diversity across Europe," *Demographic Research* 19: 85–138.

Surkyn, Johan and Ron Lesthaeghe. 2004. "Value orientations and the second demographic transition (SDT) in Northern, Western, and Southern Europe: An update," *Demographic Research*, Special Collection 3(3): 45–86.

Thomson, Rachel. 2000. "Dream on: the logic of sexual practice," *Journal of Youth Studies* 3: 407–427.

Trost, Jan. 1978. "A renewed social institution: Non-marital cohabitation " *Acta Sociologica* 21: 303–315.

Upchurch, Dawn M., Lee A. Lillard, and Constantijn W. A. Panis. 2002. "Nonmarital childbearing: Influences of education, marriage, and fertility," *Demography* 39: 311–329.

van de Kaa, Dirk. 2001. "Postmodern fertility preferences: From changing value orientation to new behavior," *Global Fertility Transition. Supplement to Population and Development Review* 27: 290–338.

Ventura, Stephanie. 2009. "Changing patterns of nonmarital childbearing in the United States," Division of Vital Statistics.

Weaklim, David L. 2002. "The effects of education on political opinions: An international study," *International Journal of Public Opinion Research* 13: 141–157.

Zakharov, Sergei. 2008. "Russian Federation: From the first to second demographic transition," *Demographic Research* 19: 907–972.

Zhurzhenko, Tatiana. 2001. "Free market ideology and new women's identities in post-socialist Ukraine," *The European Journal of Women's Studies* 8: 29–49.