On childbearing decisions in East Germany during the 1990s. The impact of young adults' personal considerations on the timing of the transition to parenthood.

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Abstract. This paper presents results from a recently conducted dissertation study on the psychological determinants of fertility differentials in East Germany in the 1990s. We test the power of psychological covariates in an event-history model of first birth intensities and examine their impact against other groups of covariates.

In order to structure our investigation and to relate it to current theory and research in fertility studies, we draw on a recent theoretical framework for fertility by de Bruijn (1999). Results convincingly show that psychological covariates (wishes and fears, coping-styles) do matter as explaining factors of the transition to parenthood in multi-covariate models. We find evidence that it is justified to grant a central place to people's personal considerations in an integrative macro-micro-model of fertility. A crucial point of our discussion deals with the strong sex-differentials in our results and we discuss them as indications of particular gender relations in East Germany.

1. Introduction

When the fall of the Berlin Wall on November 9, 1989 initiated the termination of the GDR, it also triggered a number of swift changes in demographic behavior in this region. Immediate and unprecedented shifts occurred in the number of births, deaths, migratory movements, marriages, and divorces. Many reflections have been made since about the general character of these changes, and one finds a true "post-unification" discourse in the German social sciences (cf. the volumes by Bien et al. 1994, Bertram et al. 1994, Sackmann et al., 2000, or Häder & Häder, 1998). With regard to demographic changes in the demography of fertility and family formation after unification, we find only a handful of research centers in Germany that come up with substantive research in a systematic way on (cf. the publication by Roloff & Dorbritz, 1999, and Dorbritz, 1998, from the Federal Institute for Population Research, BIB, by Kreyenfeld, 2001, 2003, Hank, 2002, from the Max-Planck-Institute for Demographic Research, and by Sackmann, 1999, and Weymann et al., 1999, from the University of Bremen).

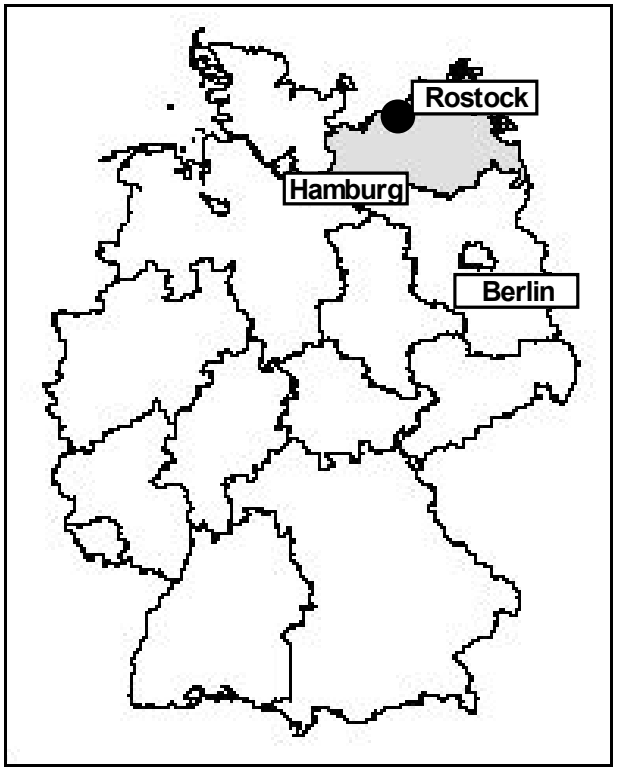
This paper originates with the results of that prior research in this field, but wants to investigate the psychological in-depth factors which determine whether young adults opted for parenthood in this peculiar societal situation—or not. We exploit unique in-depth information on personal considerations of a relatively small sample of men and women of Rostock in order to gain insight into the potential causal mechanisms of fertility differentials in the East German population. Our purpose is to investigate the role various psychological characteristics of people play in their childbearing decisions during a period of profound societal change.

2. The demographic situation of Rostock and East Germany after German unification

Our inquiry into the childbearing behavior of East Germans takes place in the city of Rostock in the province of Mecklenburg-West Pomerania (Mecklenburg-Vorpommern). With a population of about 200,000 inhabitants and located in the northeastern part of

Germany (Figure 1), it is situated at a relative distance to Germany's main conurbations (although both Hamburg and Berlin are only a 2-hour-drive away). The former economic motors of the Mecklenburg region and, especially, of Rostock were the shipyards, fish docks, and the international harbor. However, all of these industries have reduced their activities after unification. To some extent, the old characteristics of the region have been revived, with a stronger focus on its tourist, scenic, and agricultural Hanseatic charm, however.

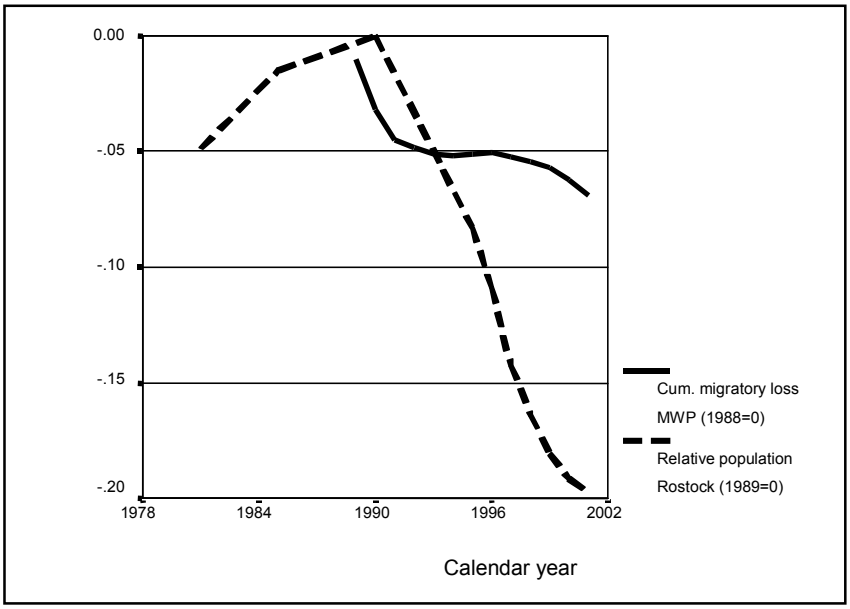
Figure 1. The location of Mecklenburg-West Pomerania and Rostock



Demographically, Mecklenburg-West Pomerania (MWP) witnessed in many respects the same developments as the rest of the former GDR. As elsewhere, this region (including Rostock) experienced a population drain due to emigration and a fall of birth rates. For MWP it was perhaps even more extreme than for the rest of the former GDR. The population dropped from its highest level for more than 50 years in 1989 (1,980,000) to its lowest level of the same time span within the first 13 years following unification ((1,745,000 in 2002, source: Statistisches Landesamt MWP).

The city of Rostock faced a similar fate. Its population declined from 248,000 in 1989, its highest level, to a low in 2001 of 199,000 (Figure 2). The population of Rostock has now (in 2003) declined to its 1970 levels.[1] Evidently, with such large-scale population shifts, any research on the social characteristics of people in this region needs to consider the possible impact of selective emigration from the area under study.

Figure 2. Relative population losses of Mecklenburg-West Pomerania and Rostock, 1980-2001. Source: Statistisches Bundesamt.



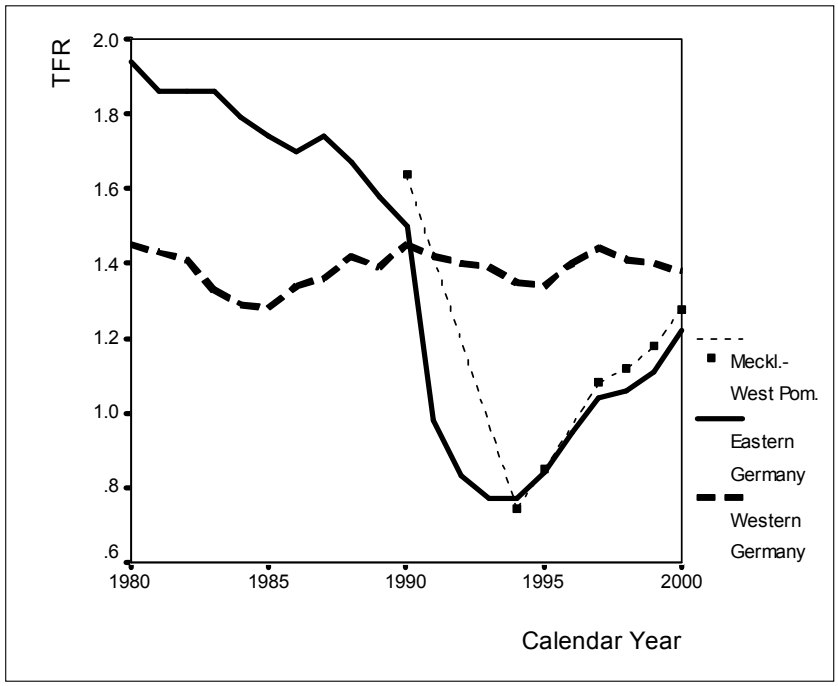
From the economic point of view, statistics reveal that Rostock and MWP fall slightly below the average of the former GDR provinces: With an unemployment rate of 18.2 percent in 2002, Rostock is slightly better off than its province (20.0 percent; this compares to 18.6 percent for the eastern provinces as a whole). Regarding its economic output and density of work places, MWP enjoys a position that is comparable to the rest of the "Neue Bundesländer" (the new federal states).

With regard to fertility, we observe a spectacular drop in the Total Fertility Rate (TFR) of MWP during the first half of the 1990s. It is followed by a recovery to the traditionally slightly higher fertility rate of MWP as compared to the rest of East

[1] The fact that the surrounding district (Bad Doberan) gained about 25,000 inhabitants since unification

Germany (Figure 3).[2] In the next chapter, we elaborate in more detail about what is know so far about the East German fertility decline and about the potential *micro* (= individual level) mechanisms of its development.

Figure 3. Total Fertility Rate of Mecklenburg-West Pomerania compared to East and West Germany, 1980-2000. Sources: Statistisches Bundesamt and Statistisches Landesamt MWP.



reveals that this loss can in part be explained by suburbanization.

[2] During the socialist era, the three most northern districts of the GDR (which make up the province of MWP today) saw a slightly higher fertility level than the GDR as a whole (cf. Mehlan, 1974: 2218, Figure 3, Dinkel, 2000: 16).

3. Explaining fertility changes in East Germany: Macro processes and individual behavior

Our study aims at giving a deeper insight into the mechanisms of fertility decision during this period of drastic societal change. Looking at our study population, we are interested in patterns of fertility differentials between individuals, in particular differences in childbearing timing, and in an explanation of these patterns. Our investigation wants to contribute to a better understanding of the psychological factors that determine the *transition to parenthood in times of societal upheaval*. We expect that, when a formerly "natural matter of course" in terms of a highly standardized reproductive behavior in a socialist regime disintegrates, differences between people's psychological characteristics in terms of readiness and willingness for parenthood become more decisive for their childbearing behavior (Lesthaeghe & Vanderhoeft, 1997).

From a sociological viewpoint, we know some fundamental features of the East German fertility changes. We learn that more than a decade after unification many demographic rates seem to point to an adaptation to patterns in West Germany (such as the postponement of the entry age of parenthood), whereas other still develop in a substantially different way compared to West Germany such as the transition rates to second births and the share of out-of-wedlock births (Kreyenfeld, 2003).

Most often, the economic turmoil and subsequent economic uncertainties and relative deprivation of the East Germans have been given as explanations for these phenomena. An empirical investigations by Klein et al. (1996) with individual biographical data, however, suggests that there is no simple relation between the general unemployment rate or women's personal experience of unemployment and childbearing behavior in East Germany. Kreyenfeld (2001) finds that differentials in *first-birth fertility* between socio-economic groups of women are much less pronounced in East Germany than they are in West Germany, but they bear a strong impact on the differences in second birth rates. According to her analysis, this impact is only due to the fact that highly educated women also live more frequently with partners that have a high education. When controlling also for the education of men, "in the decision to have a second child, the

woman's employment is basically of no importance, while the man's economic situation is more decisive" (Kreyenfeld, 2001: 206), namely then a higher "earning potential" of the partner supports the transition to a second child while a low education basically forecloses it.

However, for the case of the East German fertility slump, several authors have correctly pointed out that "to a large extent, the question remains unsolved as to *how* the structural shift of fertility processes occurs after unification" (Sackmann, 1999: 191; our translation and italics). The application of *psychological data* in order to address this question has been scarce so far. In recent years, we find not much more than the micro-economic analyses of the East German case by Lechner (2001) and, beyond the context of East Germany, the important conceptual and empirical work on psychological determinants of childbearing by Miller (1992, 1994, 1995) which we regard as crucial for the direction of our own research.

Lechner's analysis (2001) uses data of the German Socio-Economic Panel (GSOEP) in order to explain the different East and West German fertility level after unification. Additionally to subjects' age and birth history, he includes with his analysis scales of personal future expectations, of the future expectations of the respondent's partner, and of personal worries. These measures were derived from simple scales, in which respondents rated their own expectations concerning a job loss as well as their worries about the economic questions, the environment, or peace issues. The same ratings were taken from respondent's partner. Lechner finds that "age, birth history, expectations, and worries can explain almost all differences in birth rates between East and West Germany" (ibid.: 72). However, Lechner's analysis does not elaborate in detail on the rather global "psycho-economic" conjectures and, consequently, has received critique for failing to capture the complex situation of a post-socialist country (Sobotka, 2002).

In work by Miller (1992; Miller & Pasta, 1994), we find crucial evidence for the value of a more sophisticated psychological approach to fertility research in general.[3] From that we take the insight that a person's "own desire, attitudes, and beliefs are dominant [...] predictors" of childbearing intentions (Miller & Pasta, 1994: 243) whereas the

impact of these factors seems to vary substantially between men and women. Miller (1992) finds that the childbearing motivation is, in parts, made up by individual personality traits that form a tendency toward entering into attachments and performing care-taking.

However, also these studies suffer from substantial weaknesses from the viewpoint of our particular study focus. Neither of these studies applies psychological data to prospectively model actual childbearing behavior. Whilst Lechner intends to explain the amount of missed births in East Germany in the early 1990s in general, Miller applies more refined psychological data in order to explain respectively people's childbearing motivations and their child-timing intention by a cross-sectional approach.

By contrast, our study wants to understand psychological mechanisms that predict the actual childbearing behavior of East German men and women in the 1990s. For this purpose, we follow the reflections on the central relevance of a person's personal considerations for the decision for a child and the subsequent behavior as presented in a recent integrative conceptual framework on demographic behavior by de Bruijn (1999) which we explain in the next section.

4. Linking psychology to fertility: An integrated theoretical framework

De Bruijn (1999: 3) introduces his study on the "foundation of demographic behavior" by stating that "the accomplishments of demography in terms of descriptive abilities and statistical and mathematical achievements are not met by an equally sophisticated theoretical fundament". He addresses this situation by suggesting an interpretative framework that we refer to in our study of childbearing dynamics in East Germany. In this paradigm, de Bruijn integrates concepts from various disciplines (such as psychology, sociology, demography, or anthropology) and adopts a micro-perspective to describe individual behavior as it unfolds in an embedding social context.

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[3] Empirically, this research is US-based.

The central concept of his paradigm is particularly relevant for our research question. It consists in a well-defined description of fertility-related *personal considerations.* In this paradigm, personal considerations unfold in a given social context and before the respective individual background of a person, but they can also be regarded as a specific outcome of these embedding factors. Thus, it is legitimate to perform a study which focuses (i) on the differential relevance of different aspects of personal considerations on behavior as well as (ii) on testing the relative relevance of considerations when weighed against factors of the social context *in general.* This is the trajectory we want to pursue in our study.

4.1 Social context

De Bruijn assumes that the social context of individual actors can be conceptualized by institutions which he considers to be formal or informal bodies of society. They consist of "more or less coherent sets of *rules* which provide individuals not only with *guidance for behavior* in recurrent situations, but also with *meanings* to interpret the world and their own position in it" (ibid.: 182; italics in original). That is, whatever we regard as relevant in the societal context "must be expressed in terms that bear relevance to the individual agents" (ibid.: 181). This "cognitive-institutional approach" to society suggests that it might be useful to look at the rules that people in a given context apply when they make up their mind about a certain issue. These rules are objective in that they trigger fertility behavior without being affected substantially by various life-course processes at the individual level. They are subjective as well in that they are conceivable and perceived by the actor.

Let us examine this notion in more detail for the social institutions that we consider relevant for the setup of our fertility study. We start with the most basic demographic features of people, namely age and sex. These features are not determinants of behavior themselves, but shorthand terms of informal social institutions (de Bruijn, ibid.: 149ff.). Examples of such institutions are the notions of (and rules for) "teenagers", "young women", "adult men", etc., which bear different meanings from society to society. In the case of East Germany, we expect a different meaning of age when it comes to

childbearing than for West Germany, because of the societal promotion of a much earlier transition to parenthood in life if we compare the two German regions. We suppose that the social rule of early childbirth has weakened during the 1990s and the picture for age will not be so unambiguous anymore as it has been during socialist times.

Another example on this line is the interaction of age with sex. We assume that different rules exist for men and women at different stages of their life course. Whilst for women the notion of a "biological clock" is typically strong (i.e., the knowledge that there are clear biological limits to childbearing), we can expect such guidelines to be weaker for men.

A standard variable in fertility studies is people's educational attainment. We have to include this information into our analysis because we assume that individuals share different general systems of meanings and life-goals according to their educational level (Schulze, 1995). Highly educated people might be expected to attach a higher importance to their job career, but also to self-development and self-actualization. "Education must pay off" is a frequently heard rule in this context. Bearing in mind the massive increase of retraining and schooling in new branches, which the East German population underwent after unification, we can expect a strong impact of the diversifying educational levels on fertility.

4.2 Personal considerations

Whilst the former elements of the theoretical deliberations clearly do not bear too much novelty for demographers or sociologists, the fertility model of de Bruijn devotes advanced theoretical scrutiny to the concept of *fertility choices*. Choice processes are central to the conceptual framework. Herein, specific *personal considerations* determine people's fertility choices through defined settings of the personal *problem space,* of *motivation processes,* of *personal control beliefs,* and of *styles of decision making* (de Bruijn, 1999: 92ff.). We explain these concepts in more detail and will then show how we derive operationalized covariates for the subsequent analysis (Section 5).

Problem space

De Bruijn conceives of a person's *problem space* as the subjectively constructed and salient part of an individual's set of behavioral options and goals (ibid.: 189). Options and goals within a specific life domain are not thought to be objectively given, although they have clear links with social structure and individual background, but they take shape during a person's process of perception, evaluation, and selection. Basically, it is possible that these processes are undertaken "rationally" by well-informed actors. Nevertheless, he also allows for situations "that are characterized by complete ignorance of behavioral options, [...] where people do not have exactly circumscribed goals, [...] and where people rely on routines or standard rules for behavior and seemingly their only motivation is the 'normalcy' of such standards" (ibid.).

For our study, we can assume that an efficient way to attain an approximation of a respondent's problem space is to directly ask for general personal wishes and fears in life. We can assume that those people who come up with family-related wishes (like having a family) and fears (like losing one's family) even in times of societal upheaval may hold a more family and intimacy-oriented personal *problem space* than those who come up, for instance, with wishes for security or fears of economic loss.[4] In Section 5 we explain our measurement and hypotheses derived from this point in more detail.

Motivation processes

De Bruijn's model of choice proposes a second element to an analysis of determinants of childbearing behavior, namely *motivation processes*.[5] During recent decades, the question of motivation processes has received increased attention also in social psychology (cf. Gollwitzer & Moskovitz, 1996: 361). We will address the question of *sources* of motivation in more detail here.

In an influential paper, Ryan et al. (1996) review relevant findings and conclude that "cultural and interpersonal contexts influence *what* goals people emphasize and stress

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[4] From the viewpoint of the psychology of motivation, family formation falls into the category of "reproduction of intimacy and affiliation" (Reis & Patrick, 1996: 535f., cf. also Huinink: 1995: 139, and Luhmann: 1982: 183ff.).

[5] This refers to the *structure, sources*, and *mechanisms* of motivation, whereas options and goals refer to the *content* of motivation.

within their hierarchy of goals, and which ones are less salient or accentuated." (p. 20f.) They find that, for instance, people who grow up or live in an atmosphere of high control and low warmth are inhibited in their development of more autonomous and self-regulatory goals (ibid.).

These insights, which we can only refer to in abbreviation here, point out to us the relevance of not only asking people directly what they aspire to and disdain, but also to consider in how far they are provided with personal and social resources and which kind of social relations they experience. With the latter we pay heed to recent research that shows that the perceived levels of social support and available resources influence virtually any kind of social behavior (Stroebe & Stroebe, 1996). Variables from this field can be expected to have a great relevance in times of change because the availability of personal resources and relations may compensate for losses in the public or economic sphere. In how far this will impact on the transition to parenthood in times of upheaval, is still unexplored.

Perceived action control

Another element of de Bruijn's model for choice processes is people's *perceived action control*. This is, indeed, a component of many psychological theories of actions (Rotter, 1966, Bandura, 1986, Ajzen, 1991). The underlying idea is that people need to be convinced that they are capable of performing a certain action in order to do so. De Bruijn states that "the perspective of (perceived) control over behavior is particularly relevant with respect to fertility behavior" (de Bruijn, 1999: 191f.). It will be interesting to see what effect subjects' self-efficacy (as perceived action control has also been termed) has on their fertility behavior. A particular feeling of personal strength and optimism might have been demanded to dare entering parenthood in difficult times of social change where people could not rely on formerly provided institutional social security or formerly stable social bonds.

Decision-styles

The last element of de Bruijn's model consists in people's habitual *decision styles*. De Bruijn takes into consideration that people differ in the way in which they apply different strategies in their decision-making. He distinguishes whether they use a well-

informed "rational" strategy, whether they rather follow personal heuristics, or whether they instead follow a norm driven routine behavior. While he leans on the rather analytical staging model of Janis and Man (1977), we will re-interpret this part of the choice process by examining *coping styles* instead. The psychological concept of coping styles is fairly similar to what de Bruijn describes as styles of decision-making, if one just relates them to strenuous or demanding situations. Coping is defined as an individual's flexible and problem-focused behavior when dealing with stress and demand. We assume that family-formation processes have many characteristics of such nature, especially if one considers the societal situation of East Germany in the 1990s. Thus, it appears worthwhile to examine the impact of people's typical behavior in critical situations on their actual childbearing behavior.

Research questions

In sum, we test the power of a set of psychological variables describing personal considerations in a choice process as explanatory covariates in a model of first-birth propensities. Our guiding questions are: To what extent do the psychological variables that we introduced above, contribute to a statistical model of the transition to first birth in East Germany during the 1990s? What power do psychological covariates have when we relate them to social structural covariates? Which psychological variables are particularly valuable, in general, and what sex differences appear, in particular? What can we conclude on the general adequacy of de Bruijn's model for differentials in fertility? What conclusions can we draw on the individual-level mechanisms of childbearing decisions in East Germany in the 1990s, in particular, and on the ambiguous literature concerning the impact of personality traits on fertility, in general?

5. A hazard regression of the transition to parenthood in Rostock, 1985-2003, incorporating psychological covariates

We study the childbearing histories of slightly more than 200 young men and women of Rostock during 1990 to 2003. While acknowledging the very small size of our study sample, we apply an event-history analysis in order to capture the impacts of various

factors on the observed transition rates to parenthood according to our theoretical framework in Section 4. We provide numerical estimations of the influence of psychological and other covariates on childbearing behavior. In each step, we calculate separate models for men and women.

5.1 Data: The Rostock Longitudinal Study in its fourth decade

The data for our empirical investigation stem from an extensive medical-psychological longitudinal survey conducted by the Institute for Medical Psychology of the University of Rostock. The "Rostock Longitudinal Study" (ROLS, Meyer-Probst & Teichmann, 1984) commenced in 1970 with the purpose of investigating the life-long impact of biological, social, and psychological risk factors on human development. The initial sample consisted of 1,000 newborns and their mothers. It was collected in 1970/1971 (age=0) and then reduced to a core sample of 300 children who attended the *Kinderkrippe* (Kindergarten for the very young) in 1972 at age 2. Follow-up studies took place at ages 6 (N=279), 10 (N=268), 14 (N=247), 20 (N=199), and 25 (N=212). Individuals were also followed-up when they had left Rostock.

From the standpoint of our study, German unification can be regarded as a very particular event because a great amount of data had been collected already before the "quasi-experiment" (Bronfenbrenner, 1981) of societal change. The subjects of the sample entered adulthood at the time of unification and had to cope with the various challenges of a quickly changing labor market and education system. In general, the first period after German unification can be described as an orientation period (Zapf, 1994). Some of our respondents opted for new vocational training; others migrated to other places in Germany and Europe (Reis et al., 1996).

A second favorable characteristic of the Rostock Longitudinal Study is given by the fact that its main focus of interest has shifted over the years to include more sociological and psychological items. It now provides a rich selection of interesting data for research on life-course transitions. Table 1 depicts the various waves of the survey. It also includes information on the interview-scheme that the first author performed in 2002/2003 in order to obtain the fertility history of the participants. We want to emphasize the fact

that still, more than 30 years after the start of the study, 70% of the original sample can be contacted which is an extraordinarily high share.

Table 1. **The Rostock Longitudinal Study, 1970-2003.**

	1st wave	2nd wave	3rd wave	4th wave	5th wave	6th wave	7th wave	Phone interviews
Year	1970/71	1972/73	1976/77	1980/81	1984/85	1990/91	1995/96	2002/03
Mean age (subjects)	0	2	6	10	14	20	25	32
N (subjects)	1000	294	279	268	247	199	212	206
% of the 1972 sample	—	100	95	91	84	68	72	70

In an evaluation of the study population characteristics, Reis (1997: 51; our translation) finds that "the development of the study sample follows the trend of the [whole] GDR" as exemplified by increasing salaries over time (age), increasing labor-force participation, etc. The only noteworthy deviation he observes is that it is the most "extreme" cases that tended to drop out of the sample. He concludes that the ROLS data is still a high-quality representative sample for studies of "normal" processes such as childbearing. Table 2 summarizes the basic socio-demographic features of our subjects. We see that by age 25 the typical participant of ROLS has finished his/her education, is employed, lives with a partner, and is childless.

Table 2. Sample characteristics and measures from the 6th and 7th wave of ROLS.

Variable		1990/91	1995/96
Mean age (years)		ca. 20	ca. 25
Sex			
	Male	96 (48.2%)	99 (46.7%)
	Female	103 (51.8%)	113 (53.3 %)
Educational attainment (years in school)			
	Not finished school (7)	4 %	—
	Semi-skilled worker (8)	1.5 %	—
	Skilled worker 8th grade (8)	4 %	5.2 %
	Skilled worker 10th grade (10)	57.8 %	70.8 %
	Technical college (12)	12.6 %	—
	Abitur (high-school) (12)	17.1 %	24.0 %
Occupation			
	Employed	60.8 %	57.5 %
	Self-employed	—	2.8 %
	Military/community service	9.3 %	5.7 %
	At school/college	10.8 %	17.5 %
	Unemployed	5.7 %	4.2 %
	Others/non-classified	2.1 %	5.7 %
Living arrangement			
	With parent(s)	77.4 %	14.2 %
	Alone, own household	9.7 %	23.1 %
	With partner, own household	12.9 %	54.3 %
	Others	—	8.5 %
Has a steady relationship			
	Yes	59.3 %	75.8 %
	No	40.7 %	24.2 %
Has a child			
	Yes	4.5 %	16 %
	No	95.5 %	84 %

For the purpose of our analysis, we select a set of psychological and other measures, which we will describe in more detail, from the sixth and seventh wave of the study in order to explain childbearing behavior in subsequent years. Table 3 shows that altogether 111 first and 30 second births had occurred by the date of the phone interviews to the subjects of our analysis, most of them to women. (Three reported third births are not provided in the table.) We base our investigation on observed transition patterns to a first birth.

Table 3. Observed births in the ROLS.

	1984/85 – 1995/96 age approx. 14 – 25	1995/96 – 2002/03 age approx. 25 – 32	Total
Men			
1st births	6	33	39
2nd births	3	4	7
Women			
1st births	28	44	72
2nd births	13	10	23
Total			
1st births	34	77	111
2nd births	16	14	30

5.2 Methods and measures: Hazard regression, covariates, and hypotheses

5.2.1 The model

We apply a hazard regression (event-history analysis) to model the risk of childbirth to childless individuals over time. A risk (hazard) is defined as the individual probability of experiencing an event at time t under the condition that it has not yet been experienced. For transitions to parenthood, we first need to define a risk population of childless men and women at ages 15 and above. Individuals leave this study population either due to a first birth or censoring. This method accounts for the appropriate time dependency of our process under investigation. Our transition rate model is represented mathematically by

$$\ln \mu_i(t) = y(t) + \sum_k \beta_k x_{ik} + \sum_l \lambda_l z_{il}(t) \qquad (1)$$

where $\mu_i(t)$ is the hazard of occurrence of entry to parenthood at time t for individual i, $y(t)$ captures a baseline hazard that is a function of age, x_k is the kth time constant covariate, and z_l is the lth time varying covariate with β and λ as the corresponding regression parameters.

Our data stem from a long-term panel study. Thus, it is a particular challenge to construct comparable measures for the time-varying covariates given that each wave of

ROLS does not contain exactly the same set of variables and categories. In some cases, we re-construct comparable measures so that they can be used in our model. In the following two sub-sections, we describe the variables that we use in our modeling, and spend some more consideration on how we constructed measures. In addition, we elaborate on hypotheses of the expected impact of the covariate.

5.2.2 Social structural covariates

Our theoretical model from Section 4 suggests that certain characteristics of an individual's social context guide individual behavior and give meaning to people's actions by assigning them different types of social status. We assume that any impact of personal considerations on childbearing behavior is embedded in or triggered by such factors. The first variable of this kind is an individual's age, which we include as our basic time factor. In our study, it also picks up effects of calendar time. This is because our sample is based on a single cohort. In our case, age 20 corresponds to the calendar year 1990/1991, age 25 to 1995/1996, etc. Thus we are not able to disentangle age effects from period effects. Our second basic demographic variable depicts the time-constant sex of any individual. In many cases, we are interested in sex differentials in the impact of our other explanatory variables on childbearing. Thus we most often calculate separate models for men and women, respectively, rather than use sex merely as an independent variable.

We apply two additional measures to approximate people's "social status". First, we use the current educational attainment in years of completed education as a time-varying characteristic. Secondly, we use a measure of the occupational position of the parents of our subjects when they were 14. The latter measure is derived from an ordinal rating that assigns a value of 1 to an unskilled worker and a value of 6 to a parent with a top managerial position and academic education. We add the values of both parents so that the final variable sums up to a maximum value of 12. (In case of missing values, we assume the average value of the population.) We derive a slightly right-skewed distribution with a median value of 6 and a mean of 7.3. It is well documented that people with a high educational attainment tend to differ in their childbearing behavior

from people with a low level of education (e.g. Huinink, 1995). To a large extent, this effect stems from the fact that a longer enrollment in education as such is incompatible with childbearing. In addition, those who invest more time and effort in education and their career will postpone childbearing until he or she is well settled in the work sphere. People with a stronger career-orientation will probably not belong to the early childbearers. Thus, we expect that a higher level of own education is related to a postponement of entry to parenthood. The application of such rules can depend on the socialization in the family of origin. This is why we consider the occupational position of the parents as well.

5.2.3 Covariates of subjects' personal considerations

The main purpose of our study is to examine the role which people's personal considerations play for the transition to parenthood. For these considerations we have created a variety of different variables that describe the aforementioned elements of the choice-of-parenthood process. We group these variables into four clusters which correspond with those of the theoretical paradigm from Section 4.

5.2.3.a Approximating the personal problem space: Desire for intimate relations and fear of losing intimate relations

The first group of variables has been created to depict an approximation of a person's personal problem space (see Section 4). We build variables which describe the expressed relevance of intimate relations for the respondents from their answers to open questions in an interview setting about "the most important desires for and fears from life". From these answers we construct two variables that depict respectively the overall *desire for intimacy* in life and the overall *fear from losing intimacy*. For the former, we summarize answers that contain expressions like "I want a family of my own", "a long-term relationship", or "family harmony" and create a sum score of such expressions, with one point per expression. In our sample, it ranges from 0 to 3. We use the same procedure for the latter variable and describe the overall *fear of losing intimate relationships and affiliation* from a parallel question on the "most important fears in

life". Scoring answers are, for example, expressions of fear of "staying alone/having no mate", "loss of family harmony", and "loss of meaning". Again, the empirical range of this score is from 0 to 3. Analogous measures are available from the wave at age 20 as well as from the one at 25.

One may expect that variables for wishes for and fears of losing intimacy are highly interrelated, but we do find only moderate coefficients around .30. Table 4 depicts this finding and also the low stability of these wishes and fears over a five year period. Answers seem to change with time and might depend strongly on people's current situation or mood.

Table 4. Inter- and intracorrelation of wish for intimacy and fear of losing it.

	wish at age 20	wish at age 25	fear at age 20	fear at age 25
wish at age 20	1			
wish at age 25	0.083	1		
fear at age 20	**0.373**	0.104	1	
fear at age 25	0.105	**0.223**	0.082	1

p<.05 in **bold face**

Consequently, we do not expect strong results for these variables because of their instability over time. As a tendency, however, people who express at least some desire for intimacy or some fear of losing it at some point in their life, may have an earlier start with childbearing than people with a zero value in this covariate because of arguably stronger periods of orientation toward the topic.

5.2.3.b Specific sources for motivational processes: Personal resources and social relations

As we already introduced in Section 4, the level of perceived social support and personal resources will serve to model de Bruijn's notion of motivation processes. We include in our analysis four measures of perceived resources. We have Likert-scale ratings on the extent to which subjects feel supported and backed by (a) their own knowledge and skills, (b) their family, (c) their partner, and (d) their friends when thinking about their current life and future. These ratings range from 1 (low level of

perceived support) to 6 (high level of perceived support). For the perceived support of the partner we include an additional category for subjects who do not have one at the time of the interview. Correlations between the covariates of this type remain consistently weak (below .20) and do not require further consideration.

A related group of variables depicts the perceived quality of respondents' social relations. They are not limited to issues of help by others and social support, but also depict non-instrumental, emotional-affective aspects of social life. For example, they are based on information on the extent to which subjects have contacts with others, are able to exchange views, and experience reciprocity in their interactions. Again, we focus on the role of friends and family, respectively, so that one variable for each group of relations is included in our model (both scales consist of c-values). Also these covariates are not substantially interrelated ($r<.20$).

However, we find one considerable collinearity, namely between resources from and quality of relations with friends. Here, correlation coefficients are significant and assume partly high values ($r=.29$ at age 20 and $r=.79$ at age 25, $p<5\%$).[6] We need to keep this collinearity in mind for the forthcoming analyses.

With regard to hypotheses, we expect that people with high interpersonal resources are also better equipped to master the transition to parenthood and, thus, experience it earlier in their lives. Additionally, people with good social relations (especially, with their families) may set up their own families earlier than others because of the good role-model they experience (effect of social learning, cf. Bandura, 1996, Bernardi, 2002).

5.2.3c Perceived action control: General optimism

For this section, we only add one, admittedly broad, variable that is based on the person's overall rating concerning his or her *general optimism in life*. This covariate describes to what extent respondents are convinced that they can achieve their goals in

[6] This tells us also that peer-related resources consists mainly in the emotional quality of those friendships—and vice versa.

life and how much self-efficacy they experience in life. Whilst not being very refined, we avail ourselves of this general rating at ages 20 and 25. These ratings consist of a Likert scale ranging from not optimistic at all (1) to highly optimistic (5). We expect that a strong degree of personal optimism is required for young East Germans in order to establish an own family during the 1990s, as many shortcomings and hassles of the unfavorable societal situation had to be overcome by people's own initiative.

5.2.3.d Coping styles

We attain a measurement of people's cognitive and conative patterns in decision-requiring situations, i.e., of their coping styles (see Section 4). These patterns are measured by a standard inventory of coping styles (Stressverarbeitungsfragebogen, SVT, see Janke et al., 1997) and were gathered from respondents at the interview wave at age 20. By means of a factor analysis (principal components, Varimax rotation), we distinguish four non-correlated coping styles based on our inventory of 114 different response items. These factors are described in Table 5.

Table 5. Factors of personal coping styles as derived from stress inventory.

Factor name	Description
Withdrawal	Coping by escape. Subjects with high scores tend to withdraw themselves from social contact and to flee from the stressful demand. They also self-accuse and give up more frequently.
Control	Coping by control. Subjects with high scores perform a direct, tackling and straightforward strategy to obtain control over and to react self-responsibly toward a stressful demand.
Rationalization	Coping by rationalization. Subjects with high scores react to stress and demand by persuading themselves that such a situation is unimportant, not really demanding, or not addressing them at all.
Alternatives	Coping by alternatives. Subjects with high scores prefer evasion and diversion when being confronted with stress and demands. They prefer turning toward easier alternatives instead.

Assuming that parenthood now and then has been a burdensome and demanding endeavor, we assume that people with a high value in control are more prone to realizing parenthood earlier than others. Those who have more avoiding coping styles

arguably look for easier alternatives instead, in particular when facing the potential hardships of parenthood in societally difficult times.

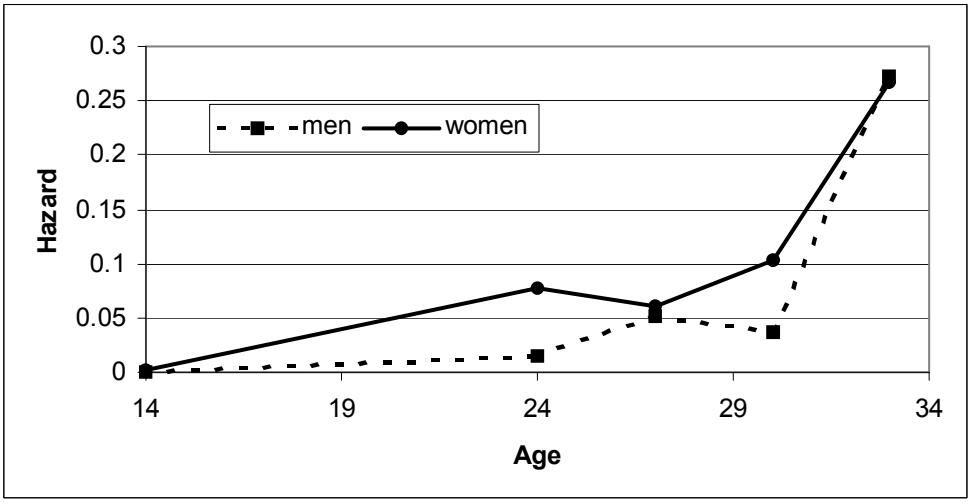
5.3 Results I: Social structure, personal considerations, and the transition to parenthood

We begin with the analysis of transitions to first birth by depicting the impact of age, sex, and educational characteristics (Section 5.3.1). This provides a simple baseline for our analysis, and allows us to detect whether first-birth patterns in our sample correspond to those observed elsewhere for East Germany or not. Due to our small sample size, we need to be reassured that the basic patterns of the childbearing dynamics of our subjects do not deviate too much from standard patterns. In Section 5.3.2, we then introduce various models in order to investigate the impact of the different variables describing personal considerations. Data on these characteristics were collected only at ages 20 and 25. That is, we restrict the models to childbearing propensities at ages 20 to 32, and will not study the childbearing of teenagers.

5.3.1 Some baselines

To commence our empirical analyses, we examine how subjects' risk of first birth changes with age (Figure 4). We find that the risk increases from a very low level at ages below 20. For men, the risk is lower than for women during the whole age frame of our study, but tend to catch up with that of women at the higher ages. This reflects that men normally become parents at higher ages than women. The age pattern also reflects effects of calendar time: The increase in first-birth intensities at the upper ages coincides with a general increase in fertility in East Germany towards the end of our study period.

Figure 5. First birth intensities, by age, for men and women.



Next, we include our two socio-economic variables into our model, and obtain significantly positive effects that the low education of our female subjects and the low occupational status of their parents have on entry into motherhood (Table 6). These effects appear to be more blurry for men. For them, it seems that the occupation of their parents has the same impact (p=.13 for the lower group), but for their current educational attainment none of the effects reaches significance at the levels we use (1%, 5%, or 10%). This blurry results is also supported by the Loglikelihood Ratio Test which shows a significant contribution to the fit of the model only for women—but not for men.

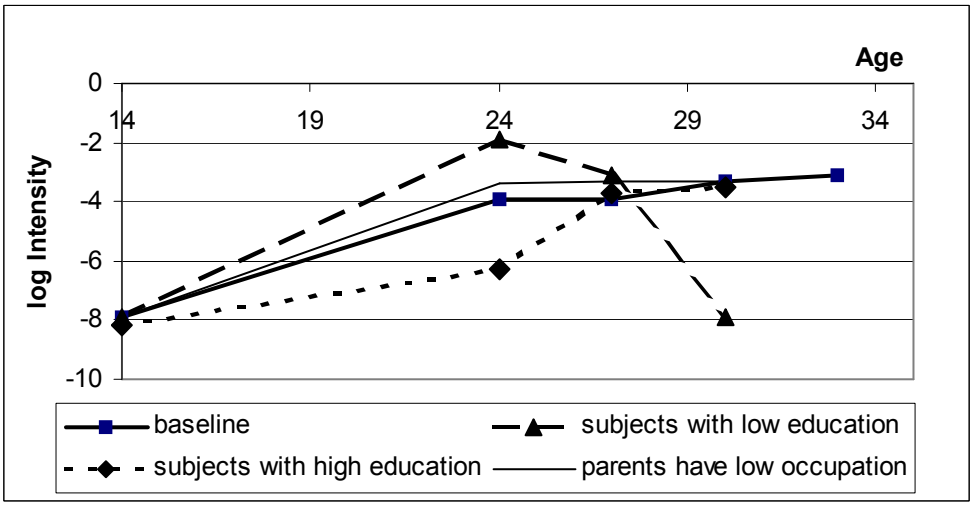
Table 6. Relative risk of first birth, by educational variables, controlled for age.

	Men		Women	
	coeff.	*p*	*coeff.*	*p*
Model improvement by including educational variables	.307		.000	
Individuals' current education				
low	2.42	.21	**6.11**	**.01**
average	1		1	
high	1.75	.24	**0.57**	**.10**
Parents' occupational status				
low	1.94	.13	**1.80**	**.04**
average	1		1	
high	1.22	.69	1.03	.93

* significant at 10 % level, ** significant at 5 % level, *** significant at 1 % level

In order to get more details of the nature of these relationships, we calculate the interaction effects of educational characteristics and age. Figure 5 depicts the age-dependency of the effects that low and high own education and low parental occupation have on first-birth risks (here for the whole sample of both men and women). It shows that persons with low education experience a relatively steep increase in their risk of first birth until their mid-twenties, whereas the highly educated have a reduced risk at their younger ages and then catch up in birth intensities. The impact of low parental occupational status is slightly positive over the whole age spell.

Figure 5. Age dependence of the impact of educational factors on first-birth fertility, controlled for sex.



5.3.2 The impact of personal considerations on first-birth intensities

In this section, we analyze the impact of the variables of our four clusters of *personal considerations* on first-birth risks at ages 20 and above. The main purpose is to single out those psycho-social variables within each cluster that have an important impact on childbearing behavior. An integrative model as well as interpretations, and discussions of the results are provided in Section 5.4.

In a first step, we develop models in which we subject all (groups of) variables (as of Section 5.2.3.a-d) to an individual test for their impact on first birth risks, while controlling for the effect of age. We present models for men and women separately throughout the analysis. In this selection process, we focus on the statistical significance of the effects but we also interpret trends due to the small size of our data set. In a study such as ours, we do not want to be bounded by significance levels alone, but must leave some room also for qualitative judgement. We will keep an eye on potential collinearities among the covariates in this section, too.

5.3.2a The impact of personal wishes and fears

The results for our first cluster of variables, namely personal wishes and fears in life, are given in Table 7. The model improvement when adding the entire group of variables to a basic model with only age is not significant when we estimate models separately for men and women. The p-values of the Loglikelihood Ratio Tests (LLRT) are 0.40 and 0.52, respectively. As we expected, the impact of expressed wishes and fears (although merged into a sum score) remains weak.

In more detail, we find that the impact on first-birth risks by a high desire for intimacy apparently is slightly (that is, non-significantly) negative and that a high fear of losing intimacy holds a positive trend (also non-significant). The weak trends for the desire-variable are similar for men and women, whereas the negative trend of the fear-variable seems to be more clear for men than for women. The former counter-intuitive finding that a desire for intimate relationships does not increase the risk of first birth is rather surprising but corresponds to previous analyses of childbearing until age 25 (von der Lippe et al., 2002). The latter effect, in contrast, points in the expected direction saying that those who are explicitly afraid of losing intimate relations tend to reproduce them by childbirth earlier.

Both variables may still be confounded, however, with many other things. First and foremost, we have not yet controlled for whether respondents are currently in a relationship (and experience intimacy) or not. For this reason, we decide to keep both variable which are only moderately correlated (see above) for further examination in a more inclusive model.

Table 7. Relative risk of first birth. Impact of desires and fears, controlled for age.

	Men		Women	
	coeff.	*p*	*coeff.*	*p*
Model improvement by variables (LLRT p-value)		.401		.520
Desire for intimacy				
low	1.00	ref.	1.00	ref.
high	0.69	.36	0.77	.35
Fear of losing intimacy				
low	1.00	ref.	1.00	ref.
high	1.63	.23	1.28	.41

5.3.2.b The impact of processes of social motivation

The inclusion of four scales on perceived individual resources increases the fit of the basic model with only age substantially for men (p=.058), whereas this is not the case for women (p=.271). However, none of the single variables achieves results at an adequate level of significance. But we find some trends in the form of hints (see Table 8).

Table 8. Relative risks of first birth. Impact of personal resources, controlled for age.

	Men		Women	
	coeff.	*p*	*coeff.*	*p*
Model improvement by variables (LLRT p-value)		**.058**		.271
Resources self				
low	1.00	ref.	1.00	ref.
average	1.61	.74	0.81	.76
high	2.35	.54	0.67	.45
Resources family				
low	1.00	ref.	1.00	ref,
average	1.39	.95	2.37	.41
high	1.10	.83	0.80	.43
Resources partner				
no partner	1.00		1.00	
low	0.77	.96	0.87	.87
high	2.75	.85	1.65	.59
Resources peers				
low	1.00		1.00	
average & high	0.95	.92	0.81	.47

Evidently, different types of personal resources have different impacts on first birth risks (by tendency), and some of these tendencies differ between men and women. Whilst the resources from the family and from friends stay, all in all, rather unclear and blurry, it seems that for men and women the impact of self-centered resources appears to be, interestingly, right opposite. Men who report to feel strongly equipped by own skills and knowledge become fathers earlier than others, whereas women with such properties become mothers later (all by tendency).

The effect of a well-functioning partnership indicates an expected relation. Particularly for men to have good resources from a partnership seems to be positively related to the transition to parenthood. This trend seems to be slightly clearer than for women. Interestingly, to have a non-supportive partnership seems to be less favorable for a

transition to parenthood than not having a partner at all. However, all of these findings need to be tested when we control for other variables, too. We decide to exclude the second and the forth resource variable, and will resume the test for the other two at a later stage of the analysis.

We also test two scales on the perceived quality of social relations in a basic model (Table 9). This procedure does not yield a significantly better fit; however we find an indication of some relevance for women as opposed to men ($LLRT_{women}$: p = .147 and $LLRT_{men}$: p = .969). This finding is also reflected by the single results. For women, a good quality of social relations with their family of origin as well as with their peers appear to decrease somewhat their transition risk. Since the difference to the weak findings for men is quite interesting and the finding contradicts our hypotheses, we decide to follow up on these results in our further steps.

Table 9. Relative risks of first birth. Impact of the quality of social relations, controlled for age.

	Men		Women	
	coeff.	*p*	*coeff.*	*p.*
Model improvement by variables (LLRT p-value)		.969	.	.147
Quality of relations to family of origin				
Low	1.00	ref.	1.00	ref.
average & high	0.92	.82	0.72	.19
Quality of relations to peers and friends				
Low	1.00	ref.	1.00	ref.
average & high	1.02	.96	0.76	.26

5.3.2.c The impact of general action control (optimism)

This single variable capturing the general personal optimism in life, which we interpreted as an approximation to self-efficacy and general action control, turns out to have a strong significant impact, particularly on men. Higher levels of personal

optimism increase the risk of first birth for men, while the relative risk of women seems to peak at an average level of optimism (Table 10). Since we find that optimism is somewhat correlated with many other covariates, we decide to examine these initial findings in more detail in what follows.

Table 10. Relative risks of first birth. Impact of personal optimism, controlled for age.

	Men		**Women**	
	coeff.	*p*	*coeff.*	*p*
Model improvement		.118		**.092**
Personal optimism				
low	1.00	ref.	1.00	ref.
average	2.18	.16	1.60	.22
high	**2.91**	**.07**	0.84	.70

5.3.2.d The impact of personal coping styles

Finally, the personal style of dealing with stress and demands does not increase, at first glance, the overall fit of the basic first-birth model (LLRTs: $p > .2$). However, we find two single significant effects for men and one significant effect for women (Table 11).

Table 11. Relative risk of first birth. Impact of coping styles, controlled for age.

	Men		Women	
	coeff.	*p*	*coeff.*	*p*
Model improvement by coping-styles		.212		.467
Coping by withdrawal				
low	1.00	ref.	1.00	ref.
average	0.49	.12	1.75	.12
high	**0.17**	**.05**	1.58	.38
Coping by control				
low	1.00	ref.	1.00	ref.
average	1.24	.66	1.21	.64
high	0.94	.96	1.48	.42
Coping by rationalization				
low	1.00	ref.	1.00	ref.
average	0.90	.66	1.28	.53
high	0.91	.54	**2.02**	**.09**
Coping by alternatives				
low	1.00	ref.	1.00	ref.
average	**0.38**	**.10**	0.94	.72
high	0.66	.56	0.56	.28

Men's coping style "withdrawal" is clearly negatively related to first-birth risks; habitual escapers have a reduced risk of transition to fatherhood as compared to other people. The women in our study, by contrast, display a pattern in this variable that rather suggests an increased risk of childbirth for higher values of "withdrawal" from problems (by tendency). Whilst we find no effects for coping by "control", women who are strong "rationalizers" seem to have a significantly higher first-birth risk (no effect for men). Finally, the habitual "easy-alternative"-seekers have a lower risk of first birth, and this applies to both women and men. For our further modeling, we focus on the impact of coping by "withdrawal", "rationalization", and "alternatives" since we found significant effects for these variables, and we leave "control" aside.

5.4 Results II: An integrated model

Bringing our results together, we estimate two additional integrative models on the first-birth transitions of young Rostockers aged 20-32. In a first model, we include all personal-consideration variables that we deemed relevant and selected from Section 5.3.2, and add them to the age baseline (Model I). Secondly, we calculate the effects of social-psychological variables as they appear when we control for the effect of educational covariates (Model II).

Note some particularities we established in our model building. The first particularity is due to the small sample size, which potentially will results in an overspecification of our model if we try to introduce too many explanatory variables. A model based on too few events and too many covariates will largely result in insignificant estimates. In our case, we limit the number of included covariates by our initial screening of Section 5.3.2. Furthermore, we will report the significance of estimated relative risks at four different levels: 1%, 5%, 10%, and 30%. The latter is very high, but we discuss also trend patterns that appear informative, believing that a larger data set would have provided more favorable significance estimates.

For the second particularity, we pay attention to potential collinearities among the covariates. Therefore, we will first display correlations between the variables we include, in order to better understand the shifting of estimates and significance levels. Table 12 provides these correlation coefficients. Note that we only show the *highest* correlations we find between two variables. As each covariate was measured at least twice (at age 20 and age 25), there are always two potential collinearities.

Table 12. Highest observed correlations between relevant covariates for men and women aged 20 to 32 (in display only correlations with p<.20. A p<.05 is highlighted in bold face)

	Educ. attain..	Occup. status of par.	Wish for int. rel.	Fear of losing int. rel.	Res. self	Res. partner	Soc. relat. fam. of orig.	Optim-ism	Coping by withdr.	Coping by rational	Coping by altern.
Educ. attainm.	1.000										
Occup. stat. of par.	**M .401** **F .318**	1.000									
Wish for int. rel.		M .150	1.000								
Fear of losing int. rel.		**M .200**	**M .349** **F .390**	1.000							
Res. self	M .175 F .189	M .154		M .128 F .-160	1.000						
Res. partner		F -.138	**M .203** **F -.271**	**F -.207**	**M .250**	1.000					
Soc. relat. fam. of orig.	F .171	**M .162**	M .141 F .119	F .122	M .137	M .174 **F .221**	1.000				
Optimism	M .171 **F .179**	**F .137**	**M .196** F -174	M -.181 **F .195**	**M .249** **F .452**	**M .209** **F .214**	**M .323** F .127	1.000			
Coping by withdr.			**M .203**	**M .155** **F .190**	**M -.288** F -.162	**M -.279** F .169	M -.148	**M -.297** **F -.206**	1.000		
Coping by rational.			M -.151 F -.136	M -.157 F -.164	M .163	**M -.223** **F .200**		M .148		1.000	
Coping by altern.	**M -.314** **F -.204**		**M -.214** F -.132				M .178	M .090	**M -.216** **F .198**		1.000

M=men; W= women

Results show that correlations are low to weak throughout sexes, variables and times, thus we hardly need to consider them for the further event-history models. Only for two cases, we find a correlation of r>.40, namely in the cases of educational attainment and parental occupation (r=.40 for men), and for optimism and self-related resources (r=.45 for women). We reflect upon the possible consequences for the interpretation of results in the later paragraphs. We now display the main results for Model I and II in Table 13.

Table 13. Relative risks of first birth, by social-structural and psychological variables, controlled for age.

	Model I						Model II					
	Men			Women			Men			Women		
	coeff.	*p-value*	*sign.*	*coeff.*	*p-value*	*sign.*	*coeff.*	*p-value*	*sign.*	*coeff.*	*p-value*	*sign.*
Current educational attainment												
low							0.68	0.73		**5.02**	**0.02**	**
average							1	ref.		1	ref.	
high							1.59	0.39		**0.46**	**0.10**	*
Occupational status of parents												
low							1.21	0.75		**1.60**	**0.14**	(*)
av.							1	ref.		1	ref.	
high							0.99	0.99		0.88	0.76	
Wish for intimacy												
low	1	ref.		1	ref.		1	ref.		1	ref.	
high	**0.44**	**0.16**	(*)	0.97	0.94		**0.44**	**0.20**	(*)	0.82	0.58	
Fear of losing intimacy												
low	1	ref.		1	ref.		1	ref.		1	ref.	
high	**2.30**	**0.10**	*	**1.55**	**0.29**	(*)	**2.35**	**0.13**	(*)	**1.72**	**0.20**	(*)
Personal resource: Self												
low	1	ref.		1	ref.		1	ref.		1	ref.	
average	1.37	0.86		1.39	0.61		1.44	0.87		1.32	0.69	
high	1.57	0.57		0.72	0.55		1.66	0.80		0.87	0.80	
Personal resource: Partner												
no partner	1	ref.		1	ref.		1	ref.		1	ref.	
low	0.86	0.83		0.71	0.57		0.84	0.83		0.72	0.61	
high	**2.39**	**0.16**	(*)	1.65	0.44		**2.45**	**0.21**	(*)	1.62	0.49	
Quality of social relations: Family of Origin												
low	1	ref.		1	ref.		1	ref.		1	ref.	
average	0.72	0.72		**0.68**	**0.21**	(*)	0.64	0.41		0.71	0.30	
Personal optimism												
low	1	ref.		1	ref.		1	ref.		1	ref.	
average	1.79	0.46		1.31	0.51		1.90	0.44		1.56	0.33	
high	1.79	0.46		0.62	0.36		1.98	0.41		0.80	0.69	
Coping by withdrawal												
low	1	ref.		1	ref.		1	ref.		1	ref.	
average	**0.46**	**0.19**	(*)	1.53	0.38		**0.39**	**0.15**	(*)	1.62	0.38	
high	**0.19**	**0.09**	*	1.19	0.74		**0.20**	**0.11**	(*)	0.96	0.95	
Coping by rationalization												
low	1	ref.		1	ref.		1	ref.		1	ref.	
average	0.66	0.55		0.95	0.91		0.69	0.64		0.94	0.89	
high	0.48	0.40		**1.61**	**0.28**	(*)	**0.41**	**0.27**	(*)	1.38	0.48	

Coping by alternatives												
low	1	ref.		1	ref.		1	ref.		1	ref.	
average	**0.49**	**0.18**	**(*)**	0.91	0.80		0.54	0.40		0.73	0.49	
high	0.72	0.62		**0.57**	**0.27**	**(*)**	0.86	0.83		**0.42**	**0.11**	**(*)**

Bold relative risks: *** = p<.001; ** = p<.05; * = p< .10; (*) = p< .30;

One of the immediate impressions from Table 13 is that various psychological factors clearly matter in explaining differential childbearing behavior in East Germany in the 1990s. Although our theoretical model and the literature give a certain primacy to social structural variables, we find strong evidence for the relevance of psychological factors. In order to give a numerical documentation on these judgements of relevance, Table 14 displays in more detail to what extent the LLRT shows relevant impacts on the model fit between several different models.

Table 14. Model improvement by step-wise inclusion of different clusters of variables (p<10% in bold face).

Model improvement (LLRT p-value)	... the age baseline	... a model with age baseline and educational variables	... a model with age baseline and personal consideration
Including personal considerations to ...	**Men: .025** Women: .117	**Men: .053** Women: .131	—
Including educational variables to ...	Men: .307 **Women: .000**	—	Men: .709 **Women: .001**

This table gives an interesting insight. Comparing the values for men and women, it seems that for men personal considerations are more clearly relevant for understanding their transition to parenthood. LLRT-estimates are throughout significant, while they are not so much for women. However, for women their educational background clearly and significantly matters, while the LLRT rejects its relevance for men. We conclude that, at least for men of our East German sample, fertility choices depend clearly on differences in their personal considerations. The model for women suggest, by contrast, that even during a strong societal change there remains a stronger relevance of age and social class than for men.

However, our results highlight also details concerning this rather general finding. We now go through the single findings for each variable (cluster) point by point.

The impact of socio-economic variables

Aside from the expected standard findings for sex[7] and age[8], we find an interesting sex-specific result for the impact of educational attainment on the transition to parenthood. Our initial pattern (see Section 5.3.1) of the impact of educational attainment was that of a (statistically significant) negative correlation of the education level with first-birth risks of women, and a (nearly significant) U-shaped pattern for men with higher propensities of entry into fatherhood for lowly educated and highly educated men (cf. Table 6). For a low occupational status of the parents we found the same results, again with statistical significance only for women.

After the inclusion of the psychological covariates into the model, the negative correlations of the level of education and of parental occupation status with childbearing risks remain intact for women (the estimates of relative risks are significant on a 15% level, see Model II, Table 13). For men, by contrast, all patterns disappear entirely, only a slight and non-significant tendency of a positive impact of high education with childbearing remains.

From these empirical findings, we argue that low a education or a low occupational status of the parents translate more clearly for men into behavioral traits which slow down childbearing behavior, whereas this is not the case for women. We find more evidence on the nature of this connection in the table of correlations (Table 12). Looking at the correlations of educational attainment or parental occupation with psychological covariates we see two things. First, these correlations are, in total, about two third stronger for men than those of women if counting the significant correlations only.

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[7] In their 20s, women have a constantly higher risk of first birth than men who catch up in the early 30s, though.

[8] The risk of first birth is constantly increasing until the early 30s. We find some plateau effect (that is, no increase) between ages 24 and 27 (that is, between 1994 and 1997) for women and ages 27 and 30 (that is, between 1997 and 2000) for men.

Secondly, looking at the significant correlations again, lowly educated men seem to have also a lower fear of losing intimacy, a less resourceful partnership, and a higher coping-style alternatives, all of which are factors that reduce childbearing risks. We conclude that for men the effect of education is interwoven with personal considerations more strongly than it is for women. The initially observed U-shape is in reality a trend toward a positive correlation which is concealed by collinearities. In conventional demographic analyses, such characteristics are unobservable. When we control for them, we find support for the finding that education of men and women in Germany has a differential effect on their family formation (cf. Kreyenfeld, 2001).

What do these findings tell us about the family formation of young adults in East Germany during the 1990s? Apparently, social structural variables have a relevance for the understanding of women's fertility differentials also during the post-unification period, as we expected from the literature. Women from a higher social class (i.e., those with a high education of their own or a high occupational status of their parents) have a clearly decreased childbirth risk compared to others. This is interesting for two reasons. Firstly, in view of the evidence that the impact of educational differences on women's childbearing behavior has mainly emerged after the end of socialism in transition countries (Koytcheva, 2003; Kantorova, 2003). And secondly, we know that the postponement or renunciation of early childbearing plays a crucial role in the fertility slump in East Germany during the 1990s, as elsewhere in Central and Eastern Europe. Our findings suggest that highly educated women contributed more strongly to these developments than any other group of women. This is not as evident when it comes to the fertility behavior of men where their consideration play the stronger role. For men, one needs to scrutinize any conclusion on the impact of educational characteristics on their transition to fatherhood as this seems to be related more strongly to other personal characteristics.

Impact of the personal problem space: Wishes and fears

Our results for the variables which approximate people's personal problem space, namely desires and fears, present evidence of the peculiar character that the transition to

parenthood can assume on the level of individual considerations. Whilst we did not expect too clear results for these rather shaky variables, and the initial results (Table 7 in Section 5.3.2a) were limited to trends only, we find that results gain power when we control for all other covariates. We attain statistically significant results for the impact of a desire for intimacy (for men) and of the fear of losing it (for both sexes). Effects are stable regardless of whether we control only for other psychological covariates or also for educational covariates (Model I and II), but the control of other psychological measures seems to be the decisive factor due to interrelations with the fear-covariate.

We can say that for men the expression of a desire for intimacy considerably lowers the first birth risk, but only if we control for other psychological covariates. At first glance, this is a counter-intuitive finding which requires further examination. A way to understand this result is that high values in the covariate (that is, present wishes for intimacy) reflect something like a general family-orientation or receptiveness of subjects to the family-topic. Of course, to express something like this will always be interwoven with many other factors: a person's current moods and recently experienced events, or personal strengths and deficits, to name only some. This is why in the first part of the analysis our results stays weak.

The fact that results get clearer and stronger when we control for other factors shows, however, that we indeed catch a central category with our comparably simple variable. We argue that men who are more receptive to the idea of family-formation may be those who have acted particularly cautiously and responsibly concerning the subjectively relevant field of reproductive behavior when facing the peak of the societal upheaval. Why only men? Taking into consideration that we still find a lot of notions of male breadwinnership and male "responsibility" for a family in men's perceptions in East Germany (von der Lippe & Fuhrer, 2004), these *responsible* East German men may have seen many good reasons to also *responsibly* postpone (at least) family formation in the mid 1990s in East Germany—given that it was an important issue for them. This

behavior may be reflected by the negative impact of a desire for intimate relations on first-birth risks.[9]

The latter finding on the increasing impact of fear of losing intimacy on the first-birth risks seems to repeat the Freudian idea that "our fears belong to our strongest engines". At least with respect to the transition to parenthood, it appears that the engine of fertility is powered to a non-negligible extent by that fuel: Men and women who are particularly afraid of losing intimate relations clearly opt for parenthood. Again, this impact attains particular significance when we control for other interwoven factors. To some extent, this topic has previously been touched by work that indicates that especially fear of loneliness in old age are important motivations for childbearing (von Rosenstiel et al., 1986). Also a recently conducted qualitative investigation on subjects from the same study reveals that the fear and disapproval of remaining childless (in that case, from men) belong to the strongest and most emotional concerns of childless respondents when they think about the own intentions of family-formation (von der Lippe & Fuhrer, 2004).

The motivational processes: Impact of personal resources and social relations

This group of variables traced the potential sources of childbearing motivation back to people's resources and social relations. When examining the covariates that measure the impact of personal resources on the timing of parenthood, we find sex-differential effects. Whilst effects do not attain statistical significance (but one exception), the consistency of sex-differentials within the trends give us interesting insights into the arguable motivational processes for childbearing in East Germany in the 1990s.

First, two of the resource variables ('peers' and 'family') were excluded from the final models I and II because of their weak impact at the initial stage of the analysis. When experimentally including them in the final models we also did not find any increase of

[9] Another way to interpret this finding is to assume that people desire what is most distant from realization. Are those men who express desire maybe the most lonely ones? Table 12 of the correlations of covariates gives a different impression on this issue. Desiring for intimacy seems to be (weakly) positively correlated with a resourceful partnership for men, whereas for women it is (slightly) the opposite. This finding supports our interpretation given above.

effects (not shown here). We can say that the perception of the own abilities and of the strength and dependability of the partnership clearly outweigh the relevance of friends and parents.[10]

For the variable that depicts perceived resources that are rooted in an individual's own skills and knowledge, results show a somewhat opposing trend for men and women (men's risk of first child appears to increase and women's to decrease with higher values in this variable). In Model I which controls for other psychological variables, the levels of significance of these findings seem to move slightly to more favorable values, but stay far from statistical significance. Apparently, self-centered resources are (i) relatively strongly correlated with other psychological characteristics (in particular with optimism and partnership resources in our sample) and (ii) point into different directions with respect to the impact on childbearing risks for men and women. We will resume this evidence and reflect in more detail upon this finding when we talk about the results personal optimism.

Concerning the impact of resources that are rooted in a person's current partnership, we find that patterns for men and women are more clear and to some extent parallel. There is a very clear positive effect of such resources on entry into parenthood for men (significant only in models I and II), and a parallel trend for women. This suggests that the former benefit more strongly from a good-quality partnership than the latter with regard to the transition to parenthood. As a tendency, however, for both sexes it seems to be more unfavorable for the transition to parenthood to have a low-resource partnership than having none at all. Interestingly, all coefficient-estimates do not change considerable if we control for all the other covariates or not, but the p-values get more significant the more we control. This means that there are certain collinearities with other covariates which, however, do not lead into suppression or distortion effects.

In sum of these effects, we can say that for men in East Germany in the 1990s, to hold good resources is a clear indicator of an increased risk for parenthood whereas this picture is not equally clear for women.

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[10] The fact that a potential start of a family is clearly perceived as a highly personal project determined by oneself and the partner, wheras all other influences appear irrelevant, was found as characteristic for East

When extending the resource covariates by an assessment of the emotional quality of social ties, we find only one result that is worth interpreting. Whilst the impact of the relations to peers stays week, women with high quality of social relations to their family of origin have a decreased risk of entry to parenthood. The simple model from Section 5.3.2 (Table 9) revealed this finding as a trend, and when controlling for all other covariates we confirm this initial finding by statistical significance. Results for men do not reach significance.

Evidently, women who feel that they experience close ties to their family of origin are less inclined to become a parent. This is an unexpected finding as we expected that people may tend to reproduce good experiences more readily. But apparently, in particular women with such relations showing a deficit, are more prone to start their own family earlier—maybe to compensate for negative experiences or to separate clearly from their parents. At this part of the analysis we can only speculate about the reasons for this finding, but can certainly state that we do not find the expected "simple" learning effect like "good home leads to early fertility".

Perceived action control: optimism and self-efficacy

Regarding the impact of personal optimism on first birth risk, we initially found a significantly positive effect of personal optimism on first-birth risks for men, and this confirmed our hypothesis that a large amount of optimism was required in order to start a family in East Germany during the 1990s. For women we observed that the highest risks appeared for those who expressed average levels of optimism. That is, women who were neither very effusive nor very desperate about their own situation had the highest propensities to become a mother. In particular, during the 1990s it appeared that strongly future-oriented and optimistic women more often refrained from the early-parenthood option than others, perhaps in order to pursue a career or other means of life explorations instead. For men, we did not find any indications of that kind.

German men by a qualitative study (von der Lippe & Fuhrer, 2004).

The statistical significance of these findings vanishes when we control for other covariates, but the trends of the coefficients as well as the difference between men and women remain. When we remember the moderate correlation of optimism with self-centered resources (see Table 12) and then compare the findings for both variables, we obtain a clearer picture. For men it seems to be self-reliance and general personal strength that makes them more prone (attractive?) to family-formation. The more their motivation in life is self-centered, and the more internal action-control and self-efficacy they perceive or foresee in their life, the earlier they tend to experience a transition to parenthood. For women, by contrast, we diagnose a clear normalcy effect. For those who hold an average degree of these features in their motivation and action-control, the risk for transition to motherhood is increased while for the highly self-reliant and self-controlled group the risk is reduced. Maybe the latter group is that of women who orient toward personal careers in the job sphere, which is known to affect women's timing of family-formation more so than men's (reference).

Decision-styles in difficult situations: The impact of coping styles

We applied four scales of individual coping-styles in our models in order to understand how habitual behavior-styles that people show in stressful situations, affect childbearing decisions in the difficult societal situation of East Germany in the 1990s. We dropped one of these scales ("control") in the course of the analysis because it did not show any effects in the initial results. Regarding the effects of the three most relevant coping styles ("withdrawal", "rationalization", and "alternatives"), we find that all patterns differ by gender.

For a habitual "coping by withdrawal", we find that men who have a high tendency to react with withdrawal towards problems (that is, to give up) have a clearly reduced risk of entry into fatherhood. For women, the group with a moderate behavior on this dimension tends toward the highest childbearing propensity. This result is robust and even slightly clearer the more we control for other covariates. For the second relevant coping style ("coping by rationalization") we find that initial trends of sex-differential impact get clearly sharpened the more we control for other covariates. Here, we see that

that women who rationalize their difficulties (that is, persuade themselves of their simplicity of a situation), experience a higher first-birth risk than other women, whereas for men high values in this habitual behavior style decrease the propensity of transition into fatherhood. For the third relevant coping style ("coping by alternatives") the picture is a slightly different one. Being more clearly correlated with education (that is, coping by evasion and diversion seems to be a typical behavior of men with lower education) the initially observed negative proportional relation with childbearing risks disappear when we control for educational factors. For women, by contrast, the effect of this behavioral trait gets clearer the more we control for other factors. Women who tend to react to stress and demand by looking for more easily rewarding alternatives do not belong to the early mothers in East Germany in the 1990s.

In sum, we argue that coping-styles are quite central remain relevant for our model of first births in East Germany in the 1990s, especially when we control for all the other potential factors. That is, we can say that these habitual styles are remaining and persistent differences in people's choice for parenthood which are not otherwise explainable. The fact that their impact on childbearing behavior is so much different for men and women, requires additional consideration though. From our perspective, it points out that it is not adequate or sufficient to talk about general issues of *the* personal requirements for *parenthood*, but that it will be more adequate to discuss *motherhood* and *fatherhood* separately and in contrast. There are different expectations, demands, and necessities for men and women in East Germany with regard to parenthood and we find them reflected in our results.

The behavior decisive for men's transition to fatherhood seems to be not to run away from difficulties nor to give up in the face of difficulties. Men who tend to pity themselves, hide from problems, or otherwise withdraw from burdens were not particularly likely to experience fatherhood during the post-unification period. Neither were so (lowly educated) men and women who seek for an "easy way out" of difficult demands. These patterns are in line with our hypothesis. But for women there is one surprisingly different picture. Women who rationalize stress and demand clearly opted for motherhood. Apparently, seeing things through rose-colored spectacles is a purposeful behavior for women with regard to childbearing—but not so for men.

IDEA: Different behavioral patterns men/women <--> different gender roles for family formation/partnership.

6. Conclusion: Personal considerations and the determinants of the transition to parenthood

Our event-history analysis of patterns in the transition to parenthood of young Rostockers during the 1990s yields a number of insights into the sex-specific roles of the various psychological and non-psychological determinants of childbearing behavior. First, we conclude that psychological covariates indeed matter as explanatory variables in multivariate models of the transition to parenthood. The models that we calculated for the transition to fatherhood and to motherhood provide some results that are common to the two sexes. More interesting, however, is that so many psycho-social covariates tend to reveal contrasting effects for the behavior of men and women.

From our analyses of the impact personal considerations have on entry into fatherhood during the 1990s, we found that men who are more optimistic than others, and who address difficult problems rather than hide away in self-pity or elusive self-doubt become fathers earlier than others. Likewise, men who are endowed with good resources rooted in their own skills as well as in their partnership are more likely to become fathers than other men.

For women, the patterns appear to be quite different. For many of our variables we find that women with an average level of personal resources had a higher propensity to become a mother during the post-unification period than other women had. Our interpretation of the effects that low personal resources have on entry into motherhood might be quite similar to our interpretations for men. More interesting, however, is that women with high personal resources experienced a reduced propensity to become a mother during the early post-socialist period in East Germany. We take this as an indication that these women were particularly prone to pursue other arenas of life that

perhaps were conceived as incompatible with (early) motherhood in the new societal context of the Federal Republic of Germany.

Young adults have an increased risk of transition to parenthood if the quality and content of their personal considerations correspond to the demands and opportunities that parenthood entail in a specific societal situation. For East Germany after unification, the societal upheaval had a very different impact on the behavior of men and women concerning their family-formation process. For men, it appears that resourceful and optimistic problem-solvers with supportive intimate relationships were more prone to fatherhood than were other men. For women, we find instead that less ego-centered individuals with an average level of personal resources had the highest propensity to become a mother.

As a concluding remark, our work contributes to the general research on dynamics of childbearing behavior. Our investigation reveals that the focus of the usual socio-demographic approaches to childbearing needs to be widened in order to allow for a deeper understanding of the conditions, processes, and consequences of individual choices in relation to childbearing behavior. Perhaps our study could be seen as a first step toward a desirable future direction of fertility studies that we would like to label, in a somewhat invoking tone, a *gender-specific psychological theory of life course decision-making in individualized societies*.

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Note

1. When including only the most relevant psychological variables, we attain a value of $LLRT_{Men}$: p= .005 and $LLRT_{Women}$: p=.040; see the analysis in von der Lippe, forthcoming.

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