Schmollers Jahrbuch 131 (2011), 213 – 224
Duncker & Humblot, Berlin

Family and Inequality

Leisure-related Opportunity Costs and the Transition to Motherhood – A Panel Analysis

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Abstract

Using data from the German Socio-Economic Panel (1992 – 2009), we analyze the impact of both the quantity and specific types of leisure activity on the risk of the transition to parenthood two years later. With regard to the leisure time budget, neither timing nor level effects are found once third variables (above all, partnership type) are controlled for. Concerning specific types of leisure activity, respondents with a strong preference for out-of-home leisure activities delay having their first child (timing effect), but do not end up with a higher level of childlessness at age 41.

JEL Classifications: J12; J13; J16

1. Introduction

Throughout the last few decades, the menacing vision of an rapid, uncontrolled, growth of the world population has given way to concerns about the steep global decline of birth rates, which, since the 1960's, have leveled off well below the replacement level in most industrialized countries (Morgan, 2003). In order to explain this trend, some scholars claim that changes in the value of children (Hoffman / Hoffman, 1973) have led to smaller families being favored, thereby dampening reproductive behavior. Whereas children undoubtedly imply a host of values which cannot be substituted easily for gratifications from other life domains (Nauck, 2007), it may rather be the costs of parenthood that have led many couples to refrain from engaging in reproductive activity. As a consequence of the massive educational expansion in Europe, starting in the 1960's, that particularly benefited women, issues regarding how to combine children and career have become more pronounced as women's work aspirations and opportunities have been increasing over time, resulting in a marked rise in opportunity costs of children (e.g., loss of income and human capital) (Blossfeld / Huinink, 1991). In the present study, we examine the role of a pre-

viously neglected type of opportunity cost, namely leisure-related opportunity costs. First we present some theoretical considerations about the hypothesized associations between leisure and fertility and discuss potential moderators. Next, we describe the sample, measures and the methodological approach used in the present study. Subsequently, findings from longitudinal survival analyses, based on SOEP data covering a period from 1992 to 2009, are reported. The last section provides a summary of the main findings and a discussion of the main conclusions.

Theoretical Background

Obviously, paid labor is not the only activity that competes for time with family roles. As early as the beginning of the 20th Century, the economist Lujo Brentano pointed out that the modern dawn of prosperity in the Industrial Era had not paved the way for a baby boom but, in contrast, entailed a variety of new "pleasures" that compete with the love of children: "The increase of new inventions and discoveries, of trade and travel, the general spread of education and culture have widened the circle of interests and the tastes of both men and women, have increased their requirements and made many new pleasures accessible to them" (Brentano, 1910, 376). These pleasures are certainly not limited to monetary resources but may also include valued leisure activities; hence, it can be hypothesized that a high leisure orientation tends to interfere with both fertility intentions and behavior. Although it could be claimed that the effect of leisure orientation is redundant in that it is captured by the impact of employment status or work orientation, research on the work-leisure relation shows that there is no simple positive or negative correlation between the two constructs (Gupta et al., 2009; Snir/Harpaz, 2002) as is assumed in spillover or compensation models. Hence, we hypothesize that anticipated loss of leisure time implies opportunity costs which affect individuals' fertility decisions, irrespective of actual labor force participation.

Hypothesis 1: The more time an individual spends on leisure activities, the lower the risk of the transition to parenthood becomes (Leisure Quantity Hypothesis).

Existing research on the association between leisure and fertility behavior has primarily focused on the impact of parenthood on individuals' leisure time budgets. Unsurprisingly, it has been found that the transition to parenthood imposes considerable constraints on parents' leisure time budget, especially for mothers (e.g., Bittman/Wajcman, 2000), as well as on the frequency of couples' joint leisure activities (Kalmijn/Bernasco, 2001). However, the reverse causal direction has been the subject of only very few studies. Nomaguchi (2006) reported evidence of a negative effect of weekly hours spent on leisure activities two years previously (t-2) on the risk of a first birth (at year t). How-

ever, the generalizability of these findings is not unequivocal because of the relatively small sample comprising *N*=184 Japanese women. Heaton/Jacobson/Holland (1999) found that respondents who anticipated that parenthood was going to interfere with their time for leisure and social activities were more likely to remain childless over a 6-year period. In sum, there is still a gap in the literature on the nature of the leisure-fertility association that needs to be filled by research based on large, national samples.

The present study aims to extend previous research by considering the effects of both the unspecific leisure time budget and of specific types of leisure activity. We assume that fertility decisions are not only influenced by the overall time budget available for leisure (i.e., the quantity dimension) but also by the specific activities time is spent on. We hypothesize that the critical distinction concerns the degree to which specific activities may be combined with child-rearing. Specifically, we expect home-based activities to be more compatible with parenting chores than out-of-home activities, partly because they require less time (e.g., no travel time) and because they may flexibly be suspended (i.e., by taking a break) and resumed later more easily according to situational childcare demands.

Hypothesis 2: The negative impact of leisure orientation on the risk of having a first child is particularly pronounced for out-of-home leisure activities (Leisure Type Hypothesis).

A more general research question concerns the presence of timing versus level effects. It could be reasoned that the transition to parenthood is only temporarily delayed because the preference for time-consuming (out-of-home) leisure activities is highest at younger age when the risk of a first child being born is particularly high. In some cases, postponed fertility plans may be revitalized once again later on, once fertility motives have gained priority over the preference for this type of leisure activity.

We expect the negative impact of leisure to be especially pronounced for women because child-rearing affects their leisure more than men's (Bittman/Wajcman, 2000); hence, we restrict our analyses to a female sample. Moreover, the analyses are confined to the birth of first children because it is reasonable to assume that opportunity costs are higher for childless individuals than for those who have already become parents.

2. Method

Data and Analyzed Sample

The analyses that will be presented here are based on longitudinal data from the German Socio-Economic Panel (Wagner et al., 2007), Waves I (1992) through Wave Z (2009), because prior to 1992, leisure time use was not routi-

nely assessed. As our main independent variables, leisure time budget and leisure activities, were considered in lagged form (see below), the period of observation for the birth of first children spans the years 1994 through 2009; the first two waves (1992 and 1993) only serve as a source of covariate information. The unbalanced panel sample for which there is information on births of first children and leisure comprises a total of $n = 4{,}170$ women aged 17 to 41 years, all of whom were childless, according to their biographic data, the first time they were observed. To reduce potential selection biases, respondents without a partner were also included in the sample (for a sample description, see Table 1 in the appendix).

Table 1

Descriptive Statistics

	Women		Men	
	M	*SD*	*M*	*SD*
Quantity of leisure				
Weekly hours of leisure	19.97	12.65	21.74	14.33
Types of leisure				
Out-of-home activities (score)	2.38	0.47	2.44	0.48
Home-based activities (score)	2.34	0.80	2.74	0.81
Controls				
Age	26.99	6.00	28.43	6.39
Educational level	12.74	2.51	12.41	2.51
Employment index	6.34	5.40	6.89	5.43
Weighted household income (EUR)	1993.15	1082.26	1990.04	1102.40
General life satisfaction	7.21	1.67	7.09	1.70
In education	0.46		0.41	
Type of union				
Marriage	0.19		0.15	
Cohabitation	0.21		0.17	
Separate households	0.28		0.23	
No partner	0.32		0.46	
Informal child care available	0.73		0.78	
Place of residence: West Germany	0.78		0.75	

Source: SOEP (Waves I–Z, 1992–2009, own calculations)

Analytical Approach

In order to take advantage of the panel data, discrete-time event history analyses were used (Allison, 1982; Singer / Willett, 2003). The data are arranged in such a way that each calendar year represents a single episode (person-years). The period of observation ends when an individual's first child is born or in the case of right-censoring (or if panel attrition occurs).

One strength of discrete-time survival analyses is that timing effects can be explicitly modeled with ease by simple interaction terms between a covariate and the process time indicator (e.g., different age categories; cf. Singer / Willett, 2003, 451 – 460). This enables us to determine whether leisure time affects the risk of the transition to first-time parenthood in specific phases only or rather across all age groups. In order to avoid bias from listwise deletion of missing values, multiple imputation (Rubin, 1996) was used, with five imputations yielding estimates for missing information on leisure indicators and covariates; the reported pattern of effects was, however, largely reproducible when using listwise deletion of missing values.

Measures

The dependent variable is the transition to parenthood; in order to capture the time-bound nature of fertility, *process time* was modeled by seven age group dummy indicators (17 – 19, 20 – 22, 23 – 25, 26 – 28, 29 – 31, 32 – 34, omitted: 35 – 41 years); in the analyses focusing on different types of leisure activity, the first two age categories were collapsed to compensate for the smaller sample size and, thus, to increase the statistical power to detect timing effects.

With regard to the focal explanatory variable, the quantitative dimension of the leisure time budget was assessed in all waves across the period of observation (1993 through 2007). The wording of the corresponding indicator was "How many hours do you spend on hobbies and other leisure activities on a typical workday?" In order to get an estimate of the average weekly leisure time budget, workday leisure hours were multiplied by five (assuming a five-day working week) and added to the Saturday and Sunday time budgets. The two types of leisure activities were assessed by two scale scores based on multiple indicators (five response categories: 5 = *daily*, 4 = *at least once per week*, 3 = *at least once per month*, 2 = *less frequently*, 1 = *never*). Out-of-home activities (five items covering ten specific activities) are represented by the frequency of attending cultural events (opera, theater, exhibitions, and concerts) and entertainment facilities (going to the movies, attending pop and jazz concerts, going to a disco), attending sport events, going out to eat and drink, and going on excursions. In 1995, 1998, and 2003, all indicators were assessed; in 1992,

1994, 1996, 1997, 1999, and 2001, short versions of the out-of-home activities scale were used comprising the first two indicators. Home-based activities (three items covering five activities) comprise activities at home (doing handicrafts, doing household repairs, and gardening), maintenance of a car or motorbike, and private use of a personal computer. In order to reduce potential bias from reverse causation, all leisure time indicators, concerning quantity and time use, were modeled as time lagged (t-2).

The remaining covariates were coded as follows: in order to identify *period effects*, the serial number of the panel wave was controlled. *Level of education* was based on the CASMIN classification, comprising ten categories (Brauns / Steinmann, 1999); to each category we assigned the years of schooling usually required to obtain the respective degree. *Educational status* was measured by a dummy variable (time-lagged, t-2) which is coded as 1 if the subject is currently enrolled in the educational system (secondary education or vocational training and tertiary education, respectively). In an *employment index*, the number of months the respondent was employed full-time per year (with months of part-time employment weighted by the factor 0.5) were summed (t-2). *Weighted household income* (at t-2) was computed according to the revised OECD scale. *Type of partnership* was assessed by means of a categorical variable with one of the following four values: married, unmarried couple (nonmarital unions with a shared household), 'living apart together' (unmarried, separate households) and single (i.e., no partner). Availability of *informal childcare* was considered as a dummy variable (lagged, t-2) coded 1 if the respondent's mother or father lived either in the respondent's household or in the vicinity. Moreover, *general life satisfaction* was assessed by one indicator (t-2). The dummy indicator for *East vs. West Germany* was based on the current place of residence. All covariates, except educational status, were modeled as time-varying and lagged as noted above (for descriptive statistics, see table 1).

3. Results

The Quantitative Dimension: Leisure Time Budget

The first series of survival models refers to the impact of the quantitative dimension of leisure on family formation (see table 2). As can be seen in model 1, the transition rate to the first birth is curvilinear with a maximum between age 29 and 31. Model 1 also illustrates a negative effect of the leisure time budget on the hazard rate of first births; this effect disappears once various covariates are controlled for (see model 2). Supplementary analyses show that partnership type largely accounts for the effect; specifically, the less leisure-oriented respondents are underrepresented in the more committed relationships where the highest transition rates to parenthood are found. Moreover, we can find no evidence of timing effects (i.e., interaction effects between weekly hours of leisure and age categories; results not shown).

Table 2

Logistic Regression Estimates for Women's Transition to First Birth, Predicted by Quantity and Types of Leisure (Logit Coefficients with Standard Errors in Parentheses)

	Model			
	1	2	3	4
Process time indicators				
Age 17 – 19	-1.23**	0.94**		
	(.26)	(.29)		
Age 20 – 22	-.49**	1.16**	1.40**	1.53**
	(.14)	(.18)	(.22)	(.23)
Age 23 – 25	.04	.95**	1.25**	1.37**
	(.13)	(.14)	(.18)	(.19)
Age 26 – 28	0.65**	1.11**	1.22**	1.32**
	(.12)	(.13)	(.17)	(.18)
Age 29 – 31	0.80**	1.08**	1.17**	1.20**
	(.12)	(.13)	(.17)	(.18)
Age 32 – 34	.66**	0.82**	.98**	1.08**
	(.13)	(.13)	(.18)	(.19)
Age 35 – 41 (reference)	-	-	-	-
Leisure activities				
Weekly hours of leisure (t-2)	-.01**	-.00	-.00	-.00
	(.00)	(.00)	(.00)	(.00)
Out-of-home activities score (t-2)	-	-	.16	1.30**
			(.10)	(.31)
Interaction effects				
Age 17 – 22 × out-of-home leisure	-	-	-	-1.99**
				(.39)
Age 23 – 25 × out-of-home leisure	-	-	-	-1.53**
				(.38)
Age 26 – 28 × out-of-home leisure	-	-	-	-1.17**
				(.36)
Age 29 – 31 × out-of-home leisure	-	-	-	-.65^{+}
				(.38)
Age 32 – 34 × out-of-home leisure	-	-	-	-.97*
				(.42)
n (persons)	4170		3342	
n (person-years)	18749		11096	
n (birth events)	1006		655	
Pseudo-r² (Nagelkerke)	.049	.204	.209	.217

Source: SOEP (birth events from waves 1995 – 2009 in models 1 & 2 and from waves 1992, 1994, 1996 – 2001, 2003 & 2005 in models 3 & 4)

Notes: $^{+}p < .10$; * $p < .05$; ** $p < .01$; in models 2 – 4, we control for period effects (panel wave), place of residence (West vs. East Germany), educational level, educational status (t-2), employment index (t-2), logged weighted household income (t-2), availability of informal childcare (t-2), partnership status (marital union, nonmarital cohabitation, separate households, no partner), general life satisfaction (t-2).

Types of Leisure Activity

Similar to the findings for leisure quantity, we find no level effect for either home-based or for out-of-home activities when controls are introduced (model 3). Additional analyses (model 4) reveal that the effect of out-of-home leisure activities varies over time. Phase-specific timing effects are indicated by the significant 'out-of-home leisure activities × age group' interaction terms. In all age categories, except age 29–31, clear delaying effects of involvement in out-of-home activities on the propensity to start a family can be observed. The main effect of out-of-home activities (b = 1.30) refers to the age category 35–41 (reference); the positive sign indicates an elevated hazard of falling pregnant for the leisure-oriented older respondents. An alternative specification in which the reference category is set to the first age group (not shown) reveals that, compared to the younger respondents, older women engaging in out-of-home activities exhibit catch-up effects with regard to the transition to parenthood towards the end of their fertile period (all interaction effects except with the age group 17–22 are positive and significant).

Timing Versus Level Effects

In order to obtain an estimate of level effects, survival curves for the transition to parenthood were computed for women with a high versus low preference for out-of-home leisure activities (i.e., those in the upper vs. lowest quartile of the distribution). Contrary to our expectations, figure 1 shows that, despite the early delaying of parenthood among the women who frequently engage in out-of-home activities, this group exhibits a precipitously accelerated rate of first births during the middle years. Both groups end up with a similar level of childlessness towards the end of their fertile period. Hence, with regard to first births, the delaying impact of leisure on the transition to parenthood does not ultimately translate into a sustainable level effect.

4. Discussion

In the present study, effects of both quantity and types of leisure on the transition to parenthood were examined. Bearing in mind that leisure serves as an important means to the construction of personal identity (Shaw et al., 1995), it seems plausible, and almost inevitable, that leisure may sometimes compete for time with family goals such as parenthood. However, the analyses suggest that the type of leisure activity has to be taken into account. Although the amount of leisure time (irrespective of the activities it is spent on) was associated with a small increase in the level of women's childlessness bivariately, this effect disappeared once partnership type was controlled for; hence, the effect cannot

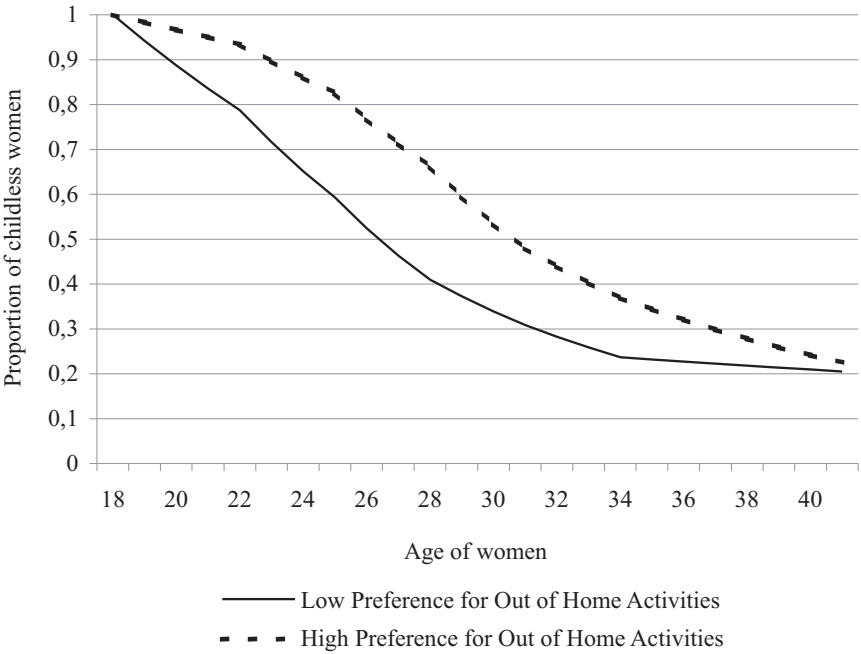

Figure 1: Predicted Survival Curves for the Transition to First Births among Women with Low vs. High Preferences for Out-of-home Leisure Activities

be assumed to be causal. Turning from unspecific leisure time budget to specific leisure activities, we find a strong delaying effect of out-of-home activities (e.g., going to the movies) on the transition to parenthood. However, a comparison of the survival curves of women with high versus low preference for out-of-home activities reveals that, although women in the former group tend to start a family at a later age, they end up with a similar proportion of childlessness towards the end of their fertile period, owing to catch-up effects. It would, however, be premature to claim that leisure has no lasting impact on completed fertility. It is likely that, even though the delaying of parenthood may not lead to a deficit in first births, it definitely shortens the time frame for higher parity births, something we could not address with the analyses presented here. In any event, it seems sensible to complement analyses of the leisure time budget by also looking at specific types of leisure activity.

Strikingly, the impact of leisure outlined appears to be independent of respondents' educational background and income potential. However, we remain cautious about a strictly causal interpretation of this effect because, although we control for various third variables, we cannot completely rule out the possibility that there is unobserved heterogeneity (e.g., personality traits, degree of urbanization) that affects both leisure-related and fertility behavior. After all,

we believe that our analyses support the notion of leisure-related opportunity costs of parenthood, thereby substantially extending the economic perspective, which focuses on monetary opportunity costs resulting from forgone earnings. Hence, we think that couples' leisure time deserves more attention in fertility research than it has received so far.

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