

Chapter 3

Empirical Analysis

3.1 Data, Method, and Explanatory Variables

3.1.1 Data

The data used in this study come from the German Socio-Economic Panel (GSOEP, DIW 2006), which has several sub-samples. Foreigners in West Germany are overrepresented in the sample called B. This sample includes households with a Turkish, Greek, Spanish, former Yugoslavian, or Italian household head. The original sample size was 1393 in 1984. Sample D, called “immigrants,” was started in 1994/1995. It includes households in which at least one person has moved from abroad to Germany after 1984. The starting size was 522 households. Sample A, called the “West German” sample, contains households with heads of German nationality. Few of the respondents in sample A have an immigration background. The initial sample size was 4,528 households in 1984. In 2002, almost half of the respondents of the initial sample were re-interviewed. Third persons who had moved into and children who had grown up in an existing GSOEP household were added (Haisken-DeNew and Frick 2003).

Since 1984 respondents have been questioned annually. The waves used in our investigation are from 1984 to 2004. The GSOEP also provides retrospective information, such as on childbearing, marriage, immigration, and education. The focus of our study is on women who were born in 1946 to 1983, and who lived in West Germany at any time of the survey. In distinguishing between West Germans on the one hand and immigrants and their children on the other it is not sufficient to use the sub-sample indicator alone, since the possibility of naturalization must also be taken into account. Women in our analysis are, therefore, considered to be West Germans if they were born in Germany and have reported German nationality in each survey year. Accordingly in our study, the people who are classified as immigrants or as having an immigration background are those who have ever reported having a non-German nationality, and/or who were born abroad (even if a change of citizenship took place later). All respondents of sub-samples A, B, and

D who can be defined as being of Turkish, former Yugoslavian (or its successor states in the sample: Croatia, Bosnia-Herzegovina, Macedonia, Slovenia), Greek, Italian, Spanish, or West German origin were included in our analysis.¹

In total, valid biographic information and birth histories for 5,483 women who were born in 1946 to 1983 could be constructed. These are 728 women of the first immigrant generation and 828 women of the second immigrant generation, as well as 3,932 West German non-immigrant women. The focus of the analysis is on women during periods when they have not been married or when they were in a first marriage. A record is censored at the end of a first marriage; the periods of time (duration spells) women may have spent in subsequent marriages are excluded from the analysis.

Three transitions among women living in West Germany are analyzed: the entry into motherhood as well as the transitions to a second and a third child. Naturally, first-generation immigrants who gave birth to one or more children before they moved from their home countries cannot be considered for the respective transitions in West Germany. Therefore, three different sub-samples are used for the respective transitions. The sub-sample for the first child contains 5,261 women in total who are at risk of a first birth in West Germany: 1,369 women with an immigration background (558 women of the first generation, 811 women of the second generation) and 3,892 non-immigrant West Germans. First-generation immigrants who gave birth to a first child before immigration or who were pregnant at immigration are excluded from this analysis (170 first-generation immigrants had at least one birth before the move to Germany).

The sub-sample for the second child contains women who gave birth to the first child in West Germany. Naturally, all mothers whose first births were twins are excluded from the sample for the transition to a second child, but included in the third-child estimations (the risk of a third birth being counted from the twin birth). For the first immigrant generation, this entails including in the sub-sample all women who came childless to West Germany and who gave birth for the first time in Germany. Women are added whose first pregnancy started before the move and who gave birth in West Germany; therefore, the second-child sample is larger than the number of women in the first-child sample who had the first child in West Germany. Finally, women who experienced only one childbirth before they moved in are included in the analysis of the second-birth risk from this time of in-migration (except that women migrating during their second pregnancy are excluded). Moreover, the birth-risk analysis concentrates on women in their first marriages. Therefore, never-married women were excluded, as were the periods preceding a first marriage and any periods after separation among women whose first marriage ended either by divorce or widowhood. The sub-sample for the second-child risk contains 454 first-generation immigrants in total; among them are 407 who gave birth to their first child in West Germany (47 arrived with one child). Meanwhile,

¹Further samples of the GSOEP are not relevant for our analysis, such as sample C that contains East German respondents.

Table 3.1 Overview of the sub-samples

	First child		Second child		Third child	
	Persons	Events	Persons	Events	Persons	Events
First-generation immigrants	558	389	454	361	415	174
Second-generation immigrants	811	304	287	177	172	57
West Germans	3,892	2,018	1,771	1,122	1,099	283

Events: conceptions (counted as nine months before recorded birth)

Differences between person numbers in sub-samples 2 and 3 and events of previous births are due to missing information; exclusion of twin births as well as of unmarried and separated women; inclusion of immigrants moving during pregnancy

Source: Calculations based on GSOEP, 1984–2004

287 women belong to the second generation, and 1,771 West Germans are included in this sample.

The procedure is similar for the transition to a third child: The sub-sample consists of the women who had the second child in West Germany. First-generation immigrants moving to West Germany with two children or during a second pregnancy are included in the sample. Mothers of twins at the second birth are excluded. The sub-sample for the third child consists of 415 women belonging to the first immigrant generation. Among them are 317 women who had their first and second births in West Germany, 40 women who moved with one child and experienced the second birth in West Germany, and 58 first-generation immigrants who arrived with two children. The third-child sample includes 172 second-generation immigrants and 1,099 West Germans (Table 3.1).

Age 15 is chosen as a cutoff point for distinguishing between the immigrant generations: immigrants coming to Germany at age 15 and older are considered to be of the first immigrant generation; while women immigrating at age 4 or under, or who were born in Germany to at least one immigrant parent, are defined as second-generation migrants (cf. Abbasi-Shavazi and McDonald 2002). There are several reasons for using age 15 to distinguish between the migrant generations. First, the basic process time that we use in the analysis – age of the woman – starts with the 15th birthday. Second, a relatively early start of marriage formation in the countries of origin under consideration must be taken into account. Ergöçmen and Eryurt (2004), for example, show that about 8% of women born in the 1950s were married by age 15 in Turkey (the GSOEP also contains women married before age 18, who are also included in our analysis). Third, compulsory school education in Germany generally ends at about age 15 or 16. Hence, persons immigrating at younger ages are assumed to participate in school education in Germany, and are therefore more exposed to the influence of German socialization than older immigrants, who no longer participate in compulsory education.

Concerning second-generation migrants, the GSOEP does not contain enough information to reconstruct whether both of their parents are immigrants for all respondents. Therefore, the group defined as second-generation migrants includes persons with both one and two immigrant parents. No distinction is drawn between second-generation immigrants born in Germany and those who moved during childhood, either (cf. Rumbaut 2004). This choice is related to the small size of

the sample. Thus, the second-generation group includes both women who moved with their parents during childhood and women who were born in West Germany. Therefore, one may not consider all of these persons to be “real” immigrants in the sense that these women migrated themselves and decided to do so on their own. Nevertheless, the term “second-generation (im)migrants” is used here in order to stress any migration background.

Since the focus of this study is on fertility behavior after immigration, conceptions of first-generation immigrants are taken into account only if they occurred after the move to West Germany. Hence, we excluded cases where a birth took place in the same year as immigration as well. The underlying assumption is that these pregnancies may be correlated with the anticipation of the move.

3.1.2 Method

This study analyzes the transitions to a first, second, and third conception leading to a live birth. The first statistical tool used to describe the patterns are Kaplan–Meier survival estimates. These calculations give an estimate of the share of women who have a child of the respective parity, and of how quickly they do so (after any previous birth). A crucial indicator here is the median age at the respective birth. Therefore, this tool can be used even when not all women of the study population have reached an age when childbearing can be assumed to be finished (e.g., Kreyenfeld 2002).

Second, piecewise-linear intensity regression models are estimated as a form of indirect standardization, as suggested by Hoem (1987; cf. Hoem 1993; Blossfeld and Rohwer 1995; Andersson 2004). Monthly information on births, available for births since January 1983, is used. For births occurring before 1983, only yearly data are available. As usual in demography, we impute such births to have occurred in June. In order to calculate the time at the corresponding conception, the birth is backdated by 9 months. Concerning the date at immigration of first-generation migrants, monthly information is used. If this is not available, we have imputed that the immigration took place in January of the year reported (this choice was made in order to minimize the number of first-generation cases where a move possibly took place during pregnancy).

The model can be formalized as follows:

$$\ln \mu_i(t) = y(t) + \sum_k z_k(t - u_{ijk}) + \sum_l \alpha_l x_{ijl} + \sum_m \beta_m w_{ijm}(t),$$

where $\mu_i(t)$ denotes the hazard of a pregnancy leading to a j th birth for individual i at process time t and $y(t)$ represents the baseline log-hazard. The process time for the transition to a first conception is the time since the woman turned 15. For the transition to a second conception, the process time is the number of months since the first birth (age of the first child). Correspondingly, the process time for the

transition to a third conception is the number of months since the second birth. Note that first-generation immigrants contribute to the exposure only from the time of arrival in West Germany.

The end of the respective process time (censoring) is either at the conception of the next order, at a dissolution of the first marital union of the woman, or at the last interview when neither conception nor union dissolution are reported. Return migrants or second-generation migrants who moved abroad are censored when they leave the survey. Thus, return and out-migrants contribute to the analysis during the time they lived in West Germany.

The function $z_k(t-u_{ijk})$ is a linear-spline representation of the impact of a continuously time-varying covariate with the origin u_{ijk} (such as the duration of stay in West Germany for first conceptions to first-generation immigrants and the duration of marriage). The term $w_{ijm}(t)$ represents the effect of a time-varying variable (such as employment). The term x_{ijl} denotes the effect of a time-constant covariate (immigrant generation, country of origin, marital status at migration, birth cohort, educational attainment).

The piecewise-linear spline specification is used in order to account for the log-hazard and the effect of (other) variables that change on a continuous time scale. In contrast to the widespread piecewise-constant approach, the piecewise-linear model specification uses slopes as parameter estimates instead of user-defined time periods. A piecewise-linear specification using a sufficient number of nodes (bend points) can efficiently capture any log-hazard pattern in the data (Kulu 2005; Boyle et al. 2008).

The preparation of the data and the exploratory analyses were carried out in Stata. It mainly follows the example of Kreyenfeld (2001b), but pays special attention to the reconstruction of the immigration background. In order to combine the retrospective and panel data for marital status and the employment history, two modules are applied that are provided by Walke and Kreyenfeld (2006a, b), called *Spellsort* and *Spelljoin*. The intensity regression models have been estimated in the program *aML* (Lillard and Panis 2003). This program allows for the accounting of different entry times of persons to the basic process, for example, and to the representation of time-varying covariates as piecewise-linear splines.

3.1.3 Explanatory Variables

Covariates for the Transition to a First Child

There are three groups of covariates:

- Socio-demographic characteristics for each woman in the sample
- Socio-demographic indicators for the spouse of married women only and
- Information on the immigration background which applies, by definition, to immigrant women only.

The covariates capturing migrant-specific characteristics are as follows: migrant generation, country of origin (for immigrants derived from ever-reported non-German citizenship), and time since arrival for the first generation. First-generation immigrants start becoming at risk of a first conception from the date of their arrival in West Germany (the mean age at immigration is about 20 years), while second-generation immigrants and West German women are at risk from age 15 onwards.

In our analysis, only women who were unmarried or were married for the first time at a first birth or at censoring are considered. The number of women who were married more than once before they had a first conception is negligible. They are included with their first marriage in the analysis. Also, the share of immigrant women living in non-marital unions is negligible. Less than 6% of first-generation immigrants were not married at the time of censoring, and there is no unmarried mother among the first-generation immigrants in our sample (1% of the mothers of the second-generation immigrants are not married, compared to 3% of West German mothers). The vast majority of first-generation immigrants, even in the youngest cohorts of the sample, were married at censoring, whereas the shares of married women are lower among the second generation and West Germans. This may be an indicator for a selection towards family migration of the first generation.

Of the first-generation immigrant women in the sample of the first birth, the core sample of our analysis, 66% of the married women have a spouse of the first immigrant generation, 22% were married to a man of the second immigrant generation, and 3% were married to a German at censoring (9% of the women have missing information on the partner's immigration background).

The marital status and marriage situation at the time of migration is reconstructed for the first-generation immigrants; this variable is called "migration process." The first category of this variable contains women who were married before moving to West Germany, and who migrated with the partner in the same year (5% of all first-generation immigrants in the first-birth sub-sample). To fit into this category, both partners must have settled in West Germany at the same time. The second category encompasses first-generation immigrants who were married before the move, but who immigrated at a different time (i.e., earlier or later) than the partner (44% in the first-birth sub-sample); it also includes women married before migration or in the same year, but whose spouse is a West German or second-generation immigrant to West Germany (36%). The women in this category share the experience of spatial separation from the spouse, but in most of the cases the husband had already settled in Germany when his wife migrated. Finally, a category of women is distinguished who were not married at the time of the move (6%; a last category is for women without information on the spouse). In this manner, different forms and phases of migration, as introduced in the immigration overview, are accounted for.

It is possible to identify the partner(s) of each woman, both in marriage and in non-marital cohabitation, because the GSOEP contains information on the household to which she belongs since 1983. Our final analysis, however, includes the

partner's information only for married couples. Although the share of married women in the second immigrant generation is only about 50% in the sample, this is considered sufficient because non-marital births are an exception among these women. Since the panel data containing information on the household the woman belongs to is, however, available only since 1983, our procedure was as follows: a woman married only once is related for the whole duration of the marriage (i.e., also before 1983) to the partner she was sharing a household with during the time of the panel. By contrast, a woman who was divorced or widowed before the time of the panel (i.e., before 1983) cannot be linked to her first spouse (i.e., the covariates capturing information on the spouse have missing values).

As an indicator of the socio-economic background, the school degree of the woman, is used. Several school-degree categories are constructed. "First degree" designates completion of *Hauptschule* (9 years of schooling) or *Realschule* (10 years of schooling) in Germany, or of the completed level of compulsory school education in the respective country of origin. "Second degree" refers to completion of the German *Abitur* or *Fachabitur*, or the equivalent secondary education abroad (a certificate qualifying for entry into college or university). A third category encompasses schooling that cannot be summed up under the previous two categories, but will be combined with first degree in the analysis since the number of the respondents here is very small. The fourth category captures respondents who did not receive any school degree or have never attended school. Finally, there is a very small category for women who were still in school education at censoring. We decided to focus on school-leaving certificates instead of completed apprenticeship or tertiary education (university) because this seems to be more appropriate to the sample. The first-generation immigrants had left school before their move. About 24% ($n = 135$) of the first-generation immigrants in the first-birth sub-sample did not complete school with any degree, compared to 12% of the women of the second generation ($n = 96$) (3% among West Germans, $n = 104$). Some 18% of the women of the first immigrant generation, and 15% of the second generation, completed secondary school education (compared to every fourth West German woman).

Moreover, the employment status of the women is reconstructed as a time-varying covariate. Its categories are "full-time employment," "part-time employment," "non-employed," and "in education." The latter category captures, for example, apprenticeships as well as tertiary education, and only refers to women who have finished school. For the periods of time when a woman is in a marriage, the employment situation of the husband is also reconstructed. The variable is comprised of the same categories as the woman's employment status.

When information on the spouse is available, the partner's educational attainment and employment information are included in the analysis for all the married women, and the partner's country of origin is included in the analysis for immigrant women. For the latter variable, the distinction is drawn between spouses coming from the same country as the woman (78% of all married immigrant women in the first-birth sub-sample), spouses from a different country (4%), and West German partners (6%; missing percentage are due to missing information on spouse's origin).

Moreover, the analysis controls for birth cohort. The four categories of this variable are as follows: “1946–1959,” “1960–1969,” “1970–1979,” and “1980+.” These categories are based on the phases of labor immigration to West Germany and the developments in fertility rates in West Germany, mainly the baby boom in the 1960s and its end at the beginning of the 1970s.

Three variables refer to the socio-cultural background of the women in the sample. The type of the place where the respondent lived at age 15 has the following categories: “large city,” “medium city,” “small town,” and “rural area.” Previous studies show remarkable fertility differentials by municipality type; controlling for this factor greatly reduced fertility differentials between immigrants and non-migrants (e.g., Rumbaut and Weeks 1986).

Religion is captured by the affiliation: “Roman Catholic,” “Protestant” (mainly Lutheran), “Greek Orthodox or other Christian affiliation,” “other religion” (mainly Muslim), and “no affiliation.” The GSOEP asked about the religious affiliation in three waves; in the years 1990, 1997, and 2003. In order to account for changes in the religious affiliation, this variable is constructed as time-varying, assuming that the change took place in the middle between the respective waves. The procedure is similar for the variable that refers to religiosity. The GSOEP asked about the importance of religion three times (1994, 1998, and 1999). The original five groups are combined to two: “(very) important” and “less/not important.” Again, the variable takes into account changes by time. As to religious affiliation, previous studies systematically show a higher fertility of women of Muslim affiliation than for other religions. This coincides with relatively low educational level, low labor-force participation, high in-marriage, and universality of marriage (Abbasi-Shavazi and McDonald 2000; Andersson 2004).

Furthermore, information on the parental backgrounds of the women is taken into account, including school education. For both her mother and father, distinctions are made between having completed basic school education with a degree, and not having obtained any degree or not having attended school at all.

For sample statistics, see Table 3.2. Note: Missing values appear as “n.a.” in the tables; this represents both “no answer” and “not applicable” (as in the case of immigrant-specific covariates).

Covariates for the Transition to a Second Child

The sample for the second child also includes the first-generation immigrants who moved to West Germany with one child. These women are called “move after first birth abroad.” Excluded from this analysis, as well as from the transition to a third child, are unmarried one-child mothers. Regardless of whether these women were never married, got divorced, or were widowed, the number of cases is negligible, and these respondents would constitute a very distinct group. The analysis uses the same covariates as for the first child (except religiosity). In addition, the indicator of the age of the mother at the first birth is used: “younger than 20 years,”

Table 3.2 Sample statistics: transition to a first child – person-months (exposures) and first conceptions (occurrences)

Variable	First-generation Immigrants			Second-generation immigrants			West Germans		
	Exposures	Exp. in %	Occ.	Exposures	Exp. in %	Occ.	Exposures	Exp. in %	Occ.
	31,240.5		389	74,870.0		304	514,199.0		2,018
<i>Women's characteristics</i>									
Country of origin	N.A.								
Turkey	11,186.5	35.8	168	27,546.0	36.8	139			
Yugoslavia	8,608.5	27.6	86	12,454.0	16.6	34			
Greece	3,907.0	12.5	37	12,768.0	17.1	37			
Italy	4,427.5	14.2	64	15,678.0	20.9	67			
Spain	3,111.0	10.0	34	6,424.0	8.6	27			
<i>Birth cohort</i>									
1946–1959	21,452.5	68.7	230	7,847.0	10.5	47	193,807.0	37.7	972
1960–1969	6,900.5	22.1	97	33,458.0	44.7	162	202,937.0	39.5	753
1970–1979	2,761.5	8.8	58	29,115.0	38.9	87	100,846.0	19.6	271
1980+	126.0	0.4	4	4,450.0	5.9	8	16,609.0	3.2	22
<i>School education</i>									
No degree	8,131.0	26.0	82	6,473.0	8.6	28	7,507.0	1.5	20
First or other degree	17,105.0	54.8	234	50,705.0	67.7	234	340,776.0	66.3	1,601
Second degree	5,752.0	18.4	64	16,153.0	21.6	35	158,863.0	30.9	379
In school education	84.0	0.3	1	728.0	1.0	1	2,501.0	0.5	3
N.A.	168.5	0.5	8	811.0	1.1	6	4,552.0	0.9	15
<i>Employment^a</i>									
Full-time	13,276.0	42.5	119	22,638.0	30.2	143	209,639.0	40.8	1,062
Part-time	1,271.0	4.1	11	2,795.0	3.7	11	22,001.0	4.3	101
Non-employed	13,089.5	41.9	226	10,093.0	13.5	122	44,705.0	8.7	481
In education or training	1,643.0	5.3	3	31,633.0	42.3	16	182,574.0	35.5	137
N.A.	1,961.0	6.3	30	7,711.0	10.3	12	55,280.0	10.8	237
<i>Marital status^a</i>									
Unmarried	19,594.5	62.7	49	65,188.0	87.1	71	435,262.0	84.6	710
Married	11,646.0	37.3	340	9,682.0	12.9	233	78,937.0	15.4	1,308
<i>Spouse's characteristics</i>									
<i>Spouse's school education</i>									
No degree	4,927.5	15.8	60	2,323.0	3.1	24	1,779.0	0.3	12
First or other degree	15,607.0	50.0	232	22,039.0	29.4	183	171,505.0	33.4	1,056
Second degree	4,688.5	15.0	59	7,300.0	9.8	57	97,471.0	19.0	427
N.A.	3,579.5	11.5	38	8,994.0	12.0	32	73,111.0	14.2	390
Never married	2,438.0	7.8	0	34,214.0	45.7	8	170,333.0	33.1	133
<i>Spouse's employment^a</i>									
Full-time	9,388.5	30.1	280	5,439.0	7.3	164	50,298.0	9.8	900
Part-time	165.0	0.5	4	322.0	0.4	6	968.0	0.2	9
Unemployed	523.5	1.7	13	1,091.0	1.5	27	2,926.0	0.6	34

(continued)

Table 3.2 (continued)

Variable	First-generation Immigrants			Second-generation immigrants			West Germans		
	Exposures	Exp. in %	Occ.	Exposures	Exp. in %	Occ.	Exposures	Exp. in %	Occ.
In education or training	320.0	1.0	10	672.0	0.9	8	3,780.0	0.7	76
N.A.	1,249.0	4.0	33	2,158.0	2.9	28	20,965.0	4.1	289
Not married	19,594.5	62.7	49	65,188.0	87.1	71	435,262.0	84.6	710
<i>Spouses' origins</i>									
She migrant, he German	1,460.0	4.7	13	5,225.0	7.0	25	N.A.		
Both migrants, from same country	23,525.5	75.3	333	26,369.0	35.2	232	N.A.		
Both migrants, from different countries	1,028.0	3.3	9	2,156.0	2.9	17	N.A.		
She German/he migrant	N.A.			N.A.			20,709.0	4.0	112
Both German	N.A.			N.A.			262,295.0	51.0	1,429
Partner, N.A.	2,789.0	8.9	34	6,906.0	9.2	22	60,862.0	11.8	344
Never married	2,438.0	7.8	0	34,214.0	45.7	8	170,333.0	33.1	133
<i>Migration process</i>									
Married, spouses migrated together	1,429.5	4.6	23	N.A.			N.A.		
Married, spouses migrated separately	5,919.0	18.9	216						
Unmarried at migration	21,103.0	67.6	116						
Partner, N.A.	2,789.0	8.9	34						
<i>Women's socio-cultural background</i>									
<i>Place where woman lived at age 15</i>									
Large city	4,015.0	12.9	88	12,663.0	16.9	57	103,051.0	20.0	410
Medium city	3,505.0	11.2	54	9,357.0	12.5	50	77,080.0	15.0	309
Small town	4,784.0	15.3	104	13,679.0	18.3	75	95,835.0	18.6	404
Rural area	6,765.5	21.7	127	9,201.0	12.3	46	152,001.0	29.6	739
N.A.	12,171.0	39.0	16	29,970.0	40.0	76	86,232.0	16.8	156
<i>Mother's school education</i>									
School degree	8,161.5	26.1	106	30,904.0	41.3	104	448,399.0	87.2	1,806
No school or no degree	11,121.5	35.6	213	37,584.0	50.2	158	3,149.0	0.6	9
N.A.	11,957.5	38.3	70	6,382.0	8.5	42	62,651.0	12.2	203
<i>Father's school education</i>									
School degree	10,016.0	32.1	152	42,876.0	57.3	163	439,895.0	85.5	1,769
No school or no degree	8,169.5	26.2	164	25,223.0	33.7	102	3,308.0	0.6	10
N.A.	13,055.0	41.8	73	6,771.0	9.0	39	70,996.0	13.8	239

(continued)

Table 3.2 (continued)

Variable	First-generation Immigrants			Second-generation immigrants			West Germans		
	Exposures	Exp. in %	Occ.	Exposures	Exp. in %	Occ.	Exposures	Exp. in %	Occ.
Religious affiliation^a									
Catholic	5,687.5	18.2	99	20,337.0	27.2	86	172,803.0	33.6	779
Protestant	139.0	0.4	3	766.0	1.0	3	172,112.0	33.5	750
Greek or other Christian	3,603.0	11.5	58	11,892.0	15.9	41	6,749.0	1.3	35
Other religion	6,200.0	19.8	134	20,903.0	27.9	115	856.0	0.2	7
No affiliation	1,323.0	4.2	16	2,724.0	3.6	10	50,856.0	9.9	161
N.A.	14,288.0	45.7	79	18,248.0	24.4	49	110,823.0	21.6	286
Importance of religion^a									
(Very) important	9,561.5	30.6	199	31,397.0	41.9	162	130,216.0	25.3	640
Less or not important	3,934.5	12.6	65	17,458.0	23.3	67	217,179.0	42.2	896
N.A.	17,744.5	56.8	125	26,015.0	34.7	75	166,804.0	32.4	482

^aTime-varying covariate

Source: Calculations based on GSOEP, 1984–2004; event: first conception

“20–24 years,” “25–29 years,” “30–34 years,” and “35+ years.” In addition, the analysis controls for the sex of the first child (for sample statistics, see Table 3.3).

Covariates for the Transition to a Third Child

The analysis uses the same covariates as for the second child. Regarding the first-generation immigrants, the following two groups are distinguished: The first group consists of the women who delivered the first child in West Germany and of women who moved after having the first birth in their country of origin; these women had the second child in West Germany. The second group includes the women who arrived with two children in West Germany. The age of the mother at the previous birth refers to parity 2. The analyses also control for the sex of the first two children, but do not include employment spells since the case and event numbers are too small for time-varying covariates (for sample statistics, see Table 3.4).

The GSOEP contains, of course, more variables that would be of interest for the research question of our study. It may, for example, be possible to imagine indicators for whether an immigrant woman has ever been gainfully employed in her life, or whether she has a command of the German language. However, the variables under consideration would have caused problems for our analysis. Either the respective question was asked of one of the sub-groups only, or the response rates turned out to be too low for the sample drawn here. Another problem is that some of the variables of possible interest are not asked in each survey year. Since the respective covariate may have changed in time, it is not possible to correctly estimate its impact on childbearing (anticipatory analysis, cf. Hoem and Kreyenfeld 2006a, b).

Table 3.3 Sample statistics: transition to a second child – person-months (exposures) and first conceptions (occurrences)

Variable	First-generation Immigrants			Second-generation immigrants			West Germans		
	Exposures	Exp. in %	Occ.	Exposures	Exp. in %	Occ.	Exposures	Exp. in %	Occ.
Total	22,111.2		361	12,331.0		177	101,130.0		1,122
First birth in Germany	20,362.2	92.1	321	N.A.			N.A.		
Move after first birth abroad	1,749.0	7.9	40	N.A.			N.A.		
<i>Women's characteristics</i>									
Country of origin							N.A.		
Turkey	7,931.5	35.9	156	5,639.0	45.7	80			
Yugoslavia	6,202.5	28.1	86	1,198.0	9.7	13			
Greece	1,809.0	8.2	35	1,502.0	12.2	20			
Italy	4,060.2	18.4	60	2,888.0	23.4	45			
Spain	2,108.0	9.5	24	1,104.0	9.0	19			
Birth cohort									
1946–1959	14,546.5	65.8	237	2,143.0	17.4	35	63,271.0	62.6	615
1960–1969	4,841.8	21.9	83	7,304.0	59.2	100	31,741.0	31.4	408
1970+	2,722.8	12.3	41	2,884.0	23.4	42	6,118.0	6.0	99
School education									
No degree	5,578.7	25.2	107	2,753.0	22.3	36	694.0	0.7	12
First or other degree	13,240.4	59.9	200	8,605.0	69.8	129	86,762.0	85.8	919
Second degree	2,735.0	12.4	46	812.0	6.6	8	13,251.0	13.1	185
N.A.	557.2	3.4	8	161.0	1.3	4	423.0	0.4	6
Employment ^a									
Full-time	6,901.0	31.2	91	3,508.0	28.4	43	17,720.0	17.5	114
Part-time	1,398.0	6.3	22	1,229.0	10.0	13	18,745.0	18.5	145
Non-employed	12,789.2	57.8	231	7,038.0	57.1	117	58,534.0	57.9	809
In education or training	84.0	0.4	2	81.0	0.7	0	721.0	0.7	5
N.A.	939.0	4.2	15	475.0	3.9	4	5,410.0	5.3	49
Age at first birth in years									
<20	4,089.8	18.5	90	2,268.0	18.4	46	12,059.0	11.9	142
20–24	12,159.2	55.0	206	6,198.0	50.3	90	37,222.0	36.8	429
25–29	4,025.2	18.2	59	3,199.0	25.9	36	37,260.0	36.8	415
30–34	1,561.0	7.1	4	631.0	5.1	4	11,104.0	11.0	127
35+	276.0	1.2	2	35.0	0.3	1	3,485.0	3.4	9
<i>Spouse's characteristics</i>									
Spouse's school education									
No degree	3,476.7	15.7	58	749.0	6.1	16	776.0	0.8	6
First or other degree	13,205.7	59.7	223	8,410.0	68.2	122	63,058.0	62.4	661
Second degree	3,634.7	16.4	59	2,085.0	16.9	32	18,683.0	18.5	269
N.A.	1,794.2	8.1	21	1,087.0	8.8	7	18,613.0	18.4	186

(continued)

Table 3.3 (continued)

Variable	First-generation Immigrants			Second-generation immigrants			West Germans		
	Exposures	Exp. in %	Occ.	Exposures	Exp. in %	Occ.	Exposures	Exp. in %	Occ.
<i>Spouse's employment^a</i>									
Full-time	18,582.9	84.0	313	9,229.0	74.8	146	73,874.0	73.0	836
Part-time	144.0	0.7	3	208.0	1.7	1	685.0	0.7	12
Non-employed	970.2	4.4	16	1,287.0	10.4	21	3,737.0	3.7	33
In education or training	379.2	1.7	3	186.0	1.5	1	2,133.0	2.1	33
N.A.	2,035.0	9.2	26	1,421.0	11.5	8	20,701.0	20.5	208
<i>Migration background</i>									
<i>Spouses' origins</i>									
She migrant, he German	991.0	4.5	7	1,147.0	9.3	9	N.A.		
Both migrants, from same country	19,056.2	86.2	326	9,794.0	79.4	157	N.A.		
Both migrants, from different countries	410.0	1.9	7	451.0	3.7	6	N.A.		
She German/he migrant	N.A.			N.A.			5,032.0	5.0	63
Both German Partner, N.A.	N.A.			N.A.			78,920.0	78.0	890
Partner, N.A.	1,654.0	7.5	21	939.0	7.6	5	17,178.0	17.0	169
<i>Migration process</i>									
Married, spouses migrated together	2,155.2	9.7	28				N.A.		
Married, spouses migrated separately	11,961.0	54.1	228						
Unmarried at migration	6,341.0	28.7	84						
Partner, N.A.	1,654.0	7.5	21						
<i>Women's socio-cultural background</i>									
<i>Place where woman lived at age 15</i>									
Large city	4,363.3	19.7	76	2,209.0	17.9	36	22,545.0	22.3	214
Medium city	2,797.8	12.7	48	1,965.0	15.9	30	16,329.0	16.1	168
Small town	6,802.8	30.8	99	3,494.0	28.3	43	21,057.0	20.8	227
Rural area	7,148.2	32.3	129	2,067.0	16.8	27	36,957.0	36.5	450
N.A.	999.0	4.5	9	2,596.0	21.1	41	4,242.0	4.2	63
<i>Mother's school education</i>									
School degree	6,328.0	28.6	87	4,541.0	36.8	54	90,460.0	89.4	1,026
No school or no degree	11,729.2	53.0	214	5,921.0	48.0	95	314.0	0.3	7
N.A.	4,054.0	18.3	60	1,869.0	15.2	28	10,356.0	10.2	89
<i>Father's school education</i>									
School degree	8,686.2	39.3	128	6,372.0	51.7	90	88,782.0	87.8	1,008
	9,376.2	42.4	171	4,411.0	35.8	63	714.0	0.7	4

(continued)

Table 3.3 (continued)

Variable	First-generation Immigrants			Second-generation immigrants			West Germans		
	Exposures	Exp. in %	Occ.	Exposures	Exp. in %	Occ.	Exposures	Exp. in %	Occ.
No school or no degree									
N.A.	4,048.8	18.3	62	1,548.0	12.6	24	11,634.0	11.5	110
Religious affiliation ^a									
Catholic	7,130.5	32.2	88	3,528.0	28.6	54	38,794.0	38.4	483
Protestant	369.0	1.7	2	204.0	1.7	1	37,205.0	36.8	427
Greek or other Christian	3,489.0	15.8	60	1,861.0	15.1	22	2,329.0	2.3	20
Other religion	6,419.4	29.0	132	4,747.0	38.5	71	245.0	0.2	3
No affiliation	1,076.0	4.9	12	313.0	2.5	9	9,688.0	9.6	63
N.A.	3,627.3	16.4	67	1,678.0	13.6	20	12,869.0	12.7	126
Sex of first child									
Boy	10,732.0	48.5	171	7,316.0	59.3	96	49,776.0	49.2	570
Girl	11,316.2	51.2	189	5,015.0	40.7	81	51,274.0	50.7	551
N.A.	63.0	0.3	1	0.0			80.0	0.1	1

^aTime-varying covariate

Source: Calculations based on GSOEP, 1984–2004; event: second conception

3.2 Introductory Description of the Sample

Before we turn to the analyses of the first three parities, this section gives an introductory description of the sample. Since it is hypothesized that immigrant women in West Germany are a selected group regarding family migration, the section begins with information about first marriages. A brief look at the completed family size follows.

3.2.1 Marriage

Table 3.5 displays the share of women in the sample who were unmarried at censoring. Note that, for first-generation immigrants, no distinction is made between women who were, and who were not, already married at the time of the move (this will be specified in the following chapters). Nevertheless, the overview shows that first-generation immigrants in the sample have, overall, a very high share of women ever married. Almost all women (98%) of the Spanish first generation are married at censoring, and the lowest share is seen among women of Greek background (94%). When comparing first-generation migrants by their motherhood status at the time of the move, it is apparent that women with at least one child are also the ones most likely to be married. This reflects the strong

Table 3.4 Sample statistics: transition to a third child – person-months (exposures) and first conceptions (occurrences)

Variable	First-generation Immigrants			Second-generation immigrants			West Germans		
	Exposures	Exp. in %	Occ.	Exposures	Exp. in %	Occ.	Exposures	Exp. in %	Occ.
Total	41,946.5		174	1,1328		57	111,420.5		283
Second birth in Germany (total)	36,153.0	86.2	149						
First birth in Germany	31,660.5	75.5	131						
Move after first birth	4,492.5	10.7	18						
Move after second birth abroad	5,789.5	13.8	24						
<i>Women's characteristics</i>									
Country of origin							N.A.		
Turkey	11,901.0	28.4	100	3,866.5	34.1	30			
Yugoslavia	15,179.5	36.2	25	797.5	7.0	6			
Greece	5,276.0	12.6	15	1,801.0	15.9	4			
Italy	6,647.0	15.8	27	3,163.0	27.9	13			
Spain	2,943.0	7.0	7	1,699.5	15.0	4			
Birth cohort									
1946–1959	34,323.0	81.8	123	3,772.5	33.3	11	83,943.5	75.3	168
1960–1969	5,809.0	13.8	37	6,024.0	53.2	33	24,748.0	22.2	99
1970+	1,814.5	4.3	14	1,531.0	13.5	13	2,729.0	2.4	16
School education									
No degree	12,998.5	31.0	65	2,498.5	22.1	11	729.0	0.7	6
First or other degree	22,713.5	54.1	89	8,419.0	74.3	42	97,066.0	87.1	231
Second degree	4,985.0	11.9	14	371.0	3.3	2	13,321.5	12.0	45
N.A.	1,249.5	3.0	6	39.0	0.3	2	304.0	0.3	1
Age at second birth in years									
<25	18,505.5	44.1	105	5,249.5	46.3	40	28,984.0	26.0	105
25–29	17,374.5	41.4	59	4,361.0	38.5	17	51,550.5	46.3	113
30+	6,066.5	14.5	10	1,717.0	15.2	0	30,886.0	27.7	65
<i>Spouse's characteristic</i>									
Spouse's school education									
No degree	5,140.5	12.3	33	1,189.0	10.5	4	376.5	0.3	3
First or other degree	28,552.5	68.1	104	8,001.0	70.6	37	72,338.0	64.9	158
Second degree	5,784.5	13.8	22	1,801.5	15.9	14	23,791.5	21.4	75
N.A.	2,469.0	5.9	15	336.0	3.0	2	14,914.5	13.4	47
<i>Migration background</i>									
Spouses' origins									
She migrant, he German	816.5	1.9	1	427.0	3.8	3	N.A.		
Both migrants, from same country	38,002.0	90.6	158	9,968.5	88.0	50	N.A.		
Both migrants, from different countries	809.0	1.9	2	688.0	6.1	2	N.A.		

(continued)

Table 3.4 (continued)

Variable	First-generation Immigrants			Second-generation immigrants			West Germans		
	Exposures	Exp. in %	Occ.	Exposures	Exp. in %	Occ.	Exposures	Exp. in %	Occ.
She German/he migrant	N.A.			N.A.			4,937.0	4.4	17
Both German Partner, N.A.	N.A.			N.A.			92,782.5	83.3	223
	2,319.0	5.5	13	244.0	2.2	2	13,701.0	12.3	43
Migration process				N.A.			N.A.		
Married, spouses migrated together	5,747.5	13.7	9						
Married, spouses migrated separately	24,740.0	59.0	120						
Unmarried at migration Partner, N.A.	9,140.0	21.8	32						
	2,319.0	5.5	13						
<i>Women's socio-cultural background</i>									
Place where woman lived at age 15									
Large city	5,821.0	13.9	41	1,958.0	17.3	12	19,977.5	17.9	57
Medium city	5,516.0	13.2	19	2,648.0	23.4	5	17,690.5	15.9	37
Small town	12,385.0	29.5	50	2,959.5	26.1	14	23,747.5	21.3	62
Rural area	17,629.5	42.0	62	2,185.0	19.3	10	48,049.0	43.1	115
N.A.	595.0	1.4	2	1,577.0	13.9	16	1,956.0	1.8	12
Mother's school education									
School degree	11,552.5	27.5	34	3,458.0	30.5	14	103,542.5	92.9	263
No school or no degree	25,754.5	61.4	113	6,393.0	56.4	32	615.0	0.6	0
N.A.	4,639.5	11.1	27	1,476.5	13.0	11	7,263.0	6.5	20
Father's school education									
School degree	15,699.5	37.4	51	5,203.0	45.9	28	101,701.0	91.3	255
No school or no degree	20,931.0	49.9	92	4,844.0	42.8	20	506.0	0.5	1
N.A.	5,316.0	12.7	31	1,280.5	11.3	9	9,213.5	8.3	27
Religious affiliation ^a									
Catholic	15,498.0	36.9	38	4,854.5	42.9	13	49,174.5	44.1	134
Protestant	173.0	0.4	1	209.0	1.8	0	44,075.5	39.6	113
Greek or other Christian	8,001.0	19.1	21	1,971.0	17.4	5	2,228.5	2.0	5
Other religion	11,767.0	28.1	80	3,371.0	29.8	32	141.5	0.1	1
No affiliation	1,879.0	4.5	6	259.0	2.3	1	7,391.0	6.6	9
N.A.	4,628.5	11.0	28	663.0	5.9	6	8,409.5	7.5	21
Sex of first and second child									
2 boys	9,381.5	22.4	55	2,768.0	24.4	16	28,262.0	25.4	81
2 girls	9,673.0	23.1	50	2,460.5	21.7	21	25,989.0	23.3	70
Boy + girl	22,831.0	54.4	69	6,099.0	53.8	20	57,141.5	51.3	132
N.A.	61.0	0.1	0	0.0			28.0	0.0	0

^aTime-varying covariate

Source: Calculations based on GSOEP, 1984–2004; event: third conception

Table 3.5 Share of women unmarried at censoring, per country of origin – %

	Turkey	Yugoslavia	Greece	Italy	Spain	West Germany
						36.0
<i>First-generation immigrants</i>						
Total	3.9	5.9	6.2	5.5	2.0	
Childless at move	5.0	8.3	7.6	5.6	2.2	
1+ child at move	0.0	0.0	0.0	5.0	0.0	
<i>Second-generation immigrants</i>						
	41.8	68.3	56.9	43.0	53.5	

Source: Calculations based on GSOEP, 1984–2004

Table 3.6 Share of women unmarried at censoring, in respective birth cohort – %

	Total	1946–1959	1960–1969	1970–1979	1980+
<i>First-generation immigrants</i>					
Total	4.7	0.9	12.15	9.2	0.0
Childless at move	5.9	0.9	14.1	10.0	0.0
1+ child at move	0.6	0.8	0.0	0.0	0.0
<i>Second-generation immigrants</i>					
	49.5	14.3	40.2	60.0	84.6
<i>West Germans</i>	36.0	10.1	36.8	62.2	92.1

Source: Calculations based on GSOEP, 1984–2004

Table 3.7 Mean age at first marriage, in respective birth cohort – years

	Total	1946–1959	1960–1969	1970–1979	1980+
<i>First-generation immigrants</i>					
Total	21.8	22.6	20.6	20.0	18.6
Childless at move	22.6	24.0	20.7	20.1	18.4
1+ child at move	19.3	19.2	19.8	19.1	19.7
<i>Second-generation immigrants</i>					
	21.4	21.6	21.6	21.3	19.8
<i>West Germans</i>	24.3	23.5	25.2	24.5	21.2

Source: Calculations based on GSOEP, 1984–2004

association between marriage and childbearing, the relatively high levels of marriage in general in the respective countries of origin, and probably also the legal conditions for international migration. By contrast, 36% of the West German women in the sample had not (yet) been married at censoring.

The share of unmarried women is higher among the second migrant generation. This, however, is related to the relatively young birth cohorts of this group. Table 3.6 shows that the highest shares of never- or not-yet-married women are to be found in the younger cohorts. When comparing the share of married women of the second generation to that of the first immigrant generation in the respective birth cohorts, the levels are lower for the descendants of migrants, and resemble approximately the marriage shares of West Germans.

The differences in the shares of married women are accompanied by differences in the mean ages at first marriage. Except for the cohorts born before 1960, first-generation immigrants were the youngest at marriage, and West Germans the oldest; while the mean age at first marriage among the second generation lies in between (see Table 3.7).

Table 3.8 Mean age at first marriage, per country of origin – years

	Turkey	Yugoslavia	Greece	Italy	Spain	West Germany
						24.3
<i>First-generation immigrants</i>						
Total	20.9	22.3	22.7	22.0	24.3	
Childless at move	21.5	23.4	23.3	22.6	24.8	
1+ child at move	18.6	19.8	20.4	19.2	19.9	
<i>Second-generation immigrants</i>	20.6	22.0	22.5	22.1	21.8	

Source: Calculations based on GSOEP, 1984–2004

Table 3.8 gives an overview of the mean age at marriage for the respective countries of origin. The pattern of age differences between first-generation immigrants is repeated in the second generation: women of Turkish background marry the earliest, whereas Greeks and Spaniards marry the latest. The only exception are second-generation migrants of Spanish descent, who marry earlier than women of the first immigrant generation.

3.2.2 Completed Family Size

More than half of the women in the sample drawn for this analysis can still be considered within their reproductive life span, i.e., they had not yet reached age 40 by censoring in 2002. In general, fertility studies use age 40 in estimating a woman’s completed number of children (cf. Kreyenfeld 2001a). At censoring, 27% of the whole sample had reached age 40 ($n = 1,475$) when we include the whole first immigrant generation. When only those women of the first immigrant generation who were childless at the move are taken into account, this share is 26% ($n = 1,377$). Among the total first-generation group, 40% had reached age 40 at censoring, 33% of those first-generation immigrants who were childless at move, 4% of the second-generation migrants, and 30% of the West Germans.

Since the sample is relatively young and small, age 35 may be used in order to get an approximate overview of the total number of children born to each woman. At censoring, 43% of the sample had reached age 35 ($n = 2,302$). When only those women of the first immigrant generation who were childless at the move are taken into account, this share is 41% ($n = 2,178$). Among the total first immigrant generation, 58% had reached age 35 at censoring, compared to 52% of the first generation who were childless at the time of the move, 14% of the second generation, and 46% of the West Germans in the sample.

Table 3.9 shows a dominance of the two-child family among immigrant women and West Germans, alike. About 40% of the women have two children at age 35. Whereas the share of women with no children or only one child is smaller among immigrants than among West Germans, migrants are more likely to have more than two children. The share of women who have three and more children is highest (57%) among those who moved to West Germany when they had already at least one child.

Table 3.10 displays the number of children ever born by country of origin. Since the sample is very small, especially for the second generation, these numbers should

Table 3.9 Completed number of children – %

	0	1	2	3+
<i>At age 35</i>				
First-generation immigrants				
Total	11.6	10.4	38.6	39.5
Childless at move	16.5	12.7	38.5	32.3
1+ child at move	N.A.	4.8	38.7	56.5
Second generation	8.6	22.2	42.7	26.5
West Germans	17.9	24.7	39.0	18.5
<i>At age 40</i>				
First generation				
Total	6.7	8.8	43.0	41.6
Childless at move	10.2	10.8	45.2	33.9
1+ child at move	N.A.	5.1	38.8	56.1
Second-generation immigrants	13.9	11.1	47.2	27.8
West Germans	15.8	22.8	41.0	20.4

Source: Calculations based on GSOEP, 1984–2004

be regarded merely as trend indicators. Whereas first-generation immigrants from Turkey and Italy have the highest shares of women with more than two children, the two-child family dominates among women from the former Yugoslavia, Greece, and Spain. For the second generation, there appears to be a trend towards a smaller family size among all five groups.

The higher-than-average number of children ever born among first-generation immigrants coincides with an earlier entry into motherhood (see Table 3.11). The mean age at first conception is 21.7 years for the first generation in total. Of this group, the women who were childless at the move started family formation about 2 years later than the women who moved after having at least one child. Women of the second migrant generation have a mean age at first conception of 22.8 years, and the highest mean age is calculated for West German women, at 24.9 years of age. The pattern is similar for the subsequent conceptions.

Comparing the birth cohorts, there appears to be a trend towards a slightly declining age at entry into motherhood among younger cohorts of the first immigrant generation, whereas the first conception took place later among the younger cohorts of the second generation and the West Germans (see Table 3.12). This pattern is similar for the second and the third conceptions.

3.3 Results: Transition to a First Child

This section opens with the presentation of Kaplan–Meier survival estimates for the transition to a first child; the event under study is a first conception leading to a live birth. The results of the piecewise-linear intensity models, which were achieved by stepwise modeling, are then presented. First, a comparison between immigrants and West Germans (3,892 women) is drawn, and second, the immigrant groups (558 first-generation and 811 second-generation migrants) are compared. (The main results of the analysis of the transition to motherhood have been published in Milewski 2007).

Table 3.10 Completed number of children at age 35, per country of origin – %

	0	1	2	3+
<i>Turkey</i>				
First-generation immigrants				
Total	12.2	6.1	23.0	58.8
Childless at move	18.8	7.3	26.0	47.9
1+ child at move	N.A.	3.9	17.3	78.9
Second-generation immigrants	7.9	23.7	34.2	34.2
<i>Yugoslavia</i>				
First-generation immigrants				
Total	13.3	11.7	51.6	23.4
Childless at move	20.2	15.5	46.4	17.9
1+ child at move	N.A.	4.6	61.4	34.1
Second-generation immigrants	23.1	38.5	23.1	15.4
<i>Greece</i>				
First-generation immigrants				
Total	13.3	11.1	46.7	28.9
Childless at move	17.1	11.4	42.9	28.6
1+ child at move	N.A.	10.0	60.0	30.0
Second-generation immigrants	15.0	20.0	50.0	15.0
<i>Italy</i>				
First-generation immigrants				
Total	4.8	12.9	38.7	43.6
Childless at move	6.4	14.9	42.6	36.2
1+ child at move	N.A.	6.7	26.7	66.7
Second-generation immigrants	3.0	21.2	42.4	33.3
<i>Spain</i>				
First-generation immigrants				
Total	12.5	18.8	46.9	21.9
Childless at move	13.8	20.7	44.8	20.7
1+ child at move	N.A.	0.0	66.7	33.3
Second-generation immigrants	0.0	7.7	76.9	15.4
<i>West Germans</i>	17.9	24.7	39.0	18.5

Source: Calculations based on GSOEP, 1984–2004

3.3.1 Kaplan–Meier Survival Estimates

Figures 3.1 and 3.2 display the transition to a first child by immigrant generation, compared to West German women (see also Table 3.13). The basic process time of the first-generation group is time since arrival in West Germany (not age, because first-generation immigrants arrived in West Germany at different ages). For second-generation migrants and West Germans, the basic process time is the time since the woman turned age 15. The estimates are based on the duration-specific probabilities of women having a child when living in West Germany. The differences between second-generation migrants and West Germans are significant.

These calculations give an estimate of the share of women who become mothers, and how quickly they do so. Fifty percent of first-generation immigrants become mothers after a stay of 3.4 years in West Germany. The median age at entry into

Table 3.11 Mean age at first, second, and third conception, per country of origin – years

	Total	Turkey	Yugoslavia	Greece	Italy	Spain	West Germany
<i>First conception</i>							
							24.9
First-generation immigrants							
Total	21.7	21.0	21.9	22.5	22.4	23.5	
Childless at move	22.4	21.5	23.0	22.9	22.8	24.1	
1+ child at move	20.1	19.6	20.0	21.2	23.9	19.4	
Second-generation immigrants	22.8	22.0	23.0	23.6	21.0	22.8	
<i>Second conception</i>							
							27.8
First-generation immigrants							
Total	25.1	24.2	25.5	25.1	26.0	27.3	
Childless at move	25.9	25.0	26.5	25.5	27.0	27.8	
1+ child at move	23.3	22.4	24.2	23.9	23.3	24.2	
Second-generation immigrants	25.7	25.3	24.5	25.7	26.2	26.8	
<i>Third conception</i>							
							30.0
First-generation immigrants							
Total	27.8	27.1	28.1	27.9	29.6	29.5	
Childless at move	28.7	28.2	28.3	27.6	31.4	30.1	
1+ child at move	26.4	25.5	26.4	29.0	28.4	25.8	
Second-generation immigrants	27.8	27.8	27.9	24.5	27.0	31.6	

Source: Calculations based on GSOEP, 1984–2004

Table 3.12 Mean age at first, second, and third conception, per birth cohort

	Total	1946–1959	1960–1969	1970–1979
<i>First conception</i>				
First-generation immigrants				
Total	21.7	22.0	21.6	20.8
Childless at move	22.4	23.1	21.9	21.0
1+ child at move	20.1	20.0	20.5	19.0
Second-generation immigrants	22.8	22.1	23.1	22.9
West Germans	24.9	24.2	26.1	24.7
<i>Second conception</i>				
First-generation immigrants				
Total	25.1	25.3	24.8	24.2
Childless at move	25.9	26.6	25.0	24.4
1+ child at move	23.3	23.2	24.1	22.4
Second-generation immigrants	25.7	25.4	26.1	25.1
West Germans	27.8	27.4	28.8	26.7
<i>Third conception</i>				
First-generation immigrants				
Total	27.8	27.9	27.8	26.7
Childless at move	28.7	29.2	28.2	26.9
1+ child at move	26.4	26.4	26.3	25.4
Second-generation immigrants	27.8	27.7	28.5	26.1
West Germans	30.0	30.6	29.5	27.8

Source: Calculations based on GSOEP, 1984–2004

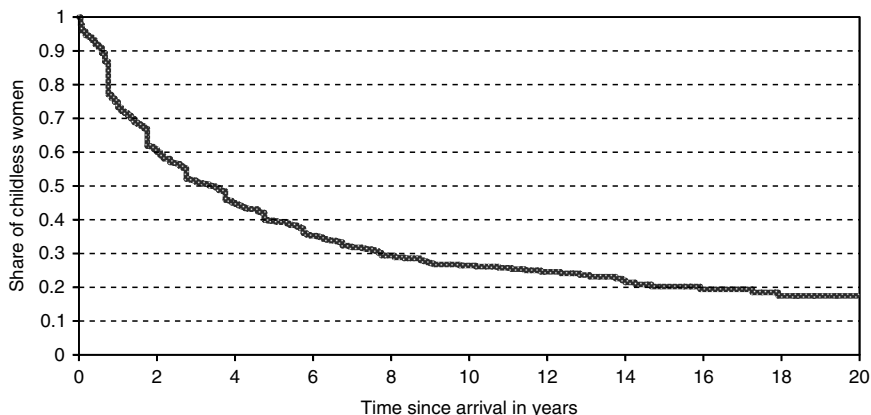


Fig. 3.1 Transition to a first child, first-generation immigrants
Source: Calculations based on GSOEP, 1984–2004.
Note: Kaplan-Meier survival estimates; event: first conception.

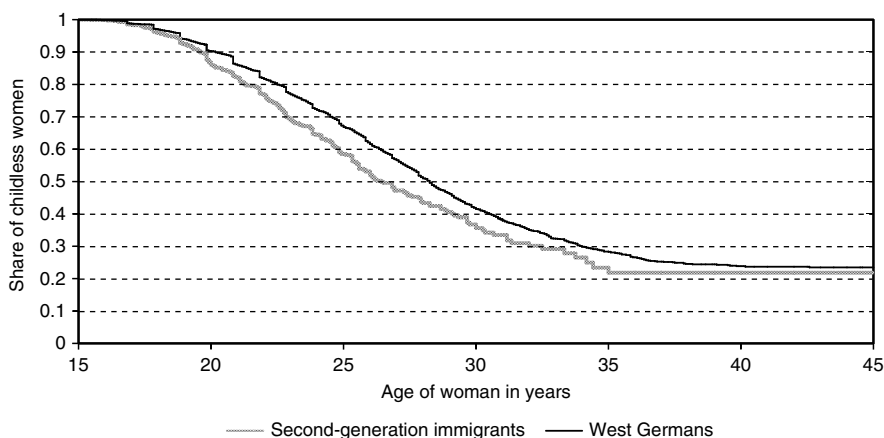


Fig. 3.2 Transition to a first child, second-generation immigrants and West Germans
Source: Calculations based on GSOEP, 1984–2004.
Note: Kaplan-Meier survival estimates; event: first conception.
 Log-rank test and Wilcoxon test: $p < 0.001$.

motherhood of second-generation migrants is 26.4 years. The family formation of immigrant children starts earlier than that of West Germans; half of the West German women enter motherhood about 2 years later than women of the second migrant generation (median age: 28.2 years).

The level of ultimate childlessness is as follows: first-generation immigrants have the lowest level of childlessness, at about 18%; while the share of women who remain childless is 22% among second-generation migrants, and 24% among West Germans.

Table 3.13 Share of childlessness and median age at first-time motherhood by immigrant generation and country of origin

	N	Share of childless women in %	Median in years
			<i>Time since arrival</i>
<i>First-generation immigrants (total)</i>	558	17.5	3.4
Turkey	237	15.5	2.5
Yugoslavia	132	24.6	3.8
Greece	53	20.9	4.2
Italy	90	16.8	3.6
Spain	46	16.3	4.6
			<i>Age</i>
<i>Second-generation immigrants (total)</i>	811	21.8	26.4
Turkey	335	23.5	24.5
Yugoslavia	126	37.9	29.7
Greece	123	33.5	30.0
Italy	156	10.0	26.2
Spain	71	13.9	25.8
<i>West Germans</i>	3,892	23.5	28.2

Source: Calculations based on GSOEP, 1984–2004; Kaplan–Meier survival estimates; event: first conception

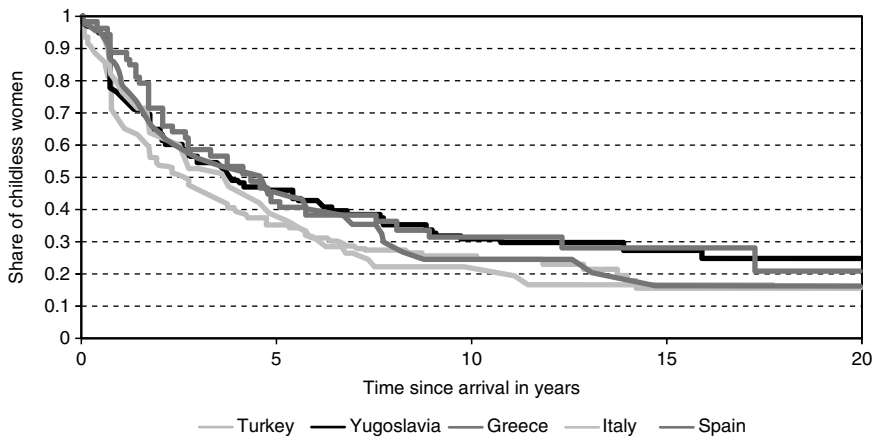


Fig. 3.3 Transition to a first child of first-generation immigrants by country of origin

Source: Calculations based on GSOEP, 1984–2004.

Note: Kaplan-Meier survival estimates; event: first conception

Log-rank test: n.s., Wilcoxon test: $p = 0.029$.

The next two figures display the survival estimates for first- and second-generation immigrants by country background (Figs. 3.3 and 3.4, Table 3.13). Among first-generation immigrants, the earliest and highest transitions to a first child are observed for women from Turkey (16% childlessness), whereas women from the

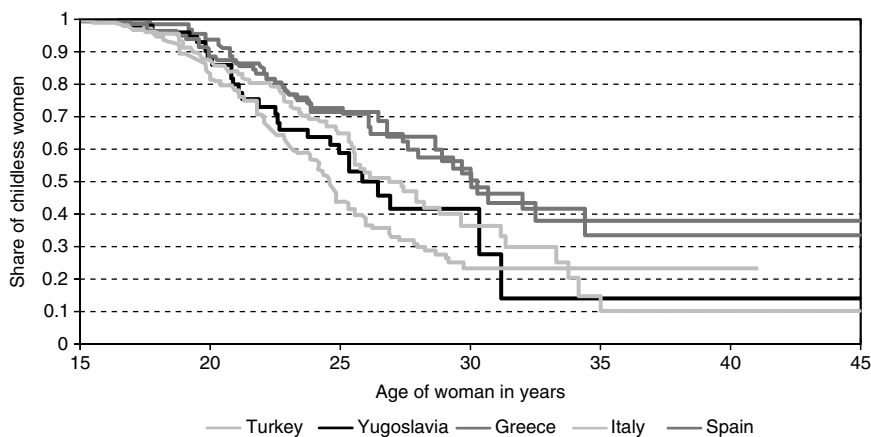


Fig. 3.4 Transition to a first child of second-generation immigrants by country of origin

Source: Calculations based on GSOEP, 1984–2004.

Note: Kaplan-Meier survival estimates; event: first conception.

Log-rank test and Wilcoxon test: $p < 0.001$.

former Yugoslavia and Greeks have the highest levels of childlessness (25% and 21% respectively). These correspond to a relatively late entry into motherhood.

Among second-generation migrants, Yugoslavians and Greeks have the highest levels of childlessness. At 38% and 34%, these shares exceed the corresponding levels of the first immigrant generation from Yugoslavia and Greece, respectively. Women of these groups also have the highest median age at first-time motherhood, about 30 years old. In contrast to first-generation immigrants, the lowest levels of childlessness are estimated for women of Italian and Spanish descent. At 10% and 14%, these shares are lower than the shares of childless women among the first generation. In line with the first generation, women of Turkish background are the youngest mothers in the sample of the second generation; their median age at first conception is 26 years. Their share of childlessness remains, however, on an intermediate level in the sample.

3.3.2 Immigrant Generation and Baseline Intensity (Age of the Woman)

Our presentation now turns to the intensity-regression analysis with the age of the woman as process time.

Model 1.1: In a first step, we ask whether or not there are differences between women of the first and second immigrant generations and West Germans in order to provide an initial answer to the hypothesis of socialization. Remember that if socialization is important for family formation, the first-conception risks are

Table 3.14 Factors influencing the transition to a first child: immigrant generation and stay duration – relative risks for categorical variables and slope estimates for continuous variables

Variable	Model 1.1	Model 1.2
West German	1	1
<i>Immigrant generation</i>		
First generation	2.53***	
Second generation	1.23***	1.25***
First generation:		
<i>Time since arrival in years (slope)^a</i>		
Intercept		1.813***
0–1		0
1–2		–0.050***
2–5		–0.024***
5+		–0.009***
<i>Age in years (slope)</i>		
15–20	0.042***	0.042***
20–25	0.005***	0.006***
25–30	0.003*	0.004***
30–35	–0.009***	–0.008***
35–45	–0.030***	–0.030***
<i>Constant</i>		
Log-likelihood	–17,133.71	–17,035.35

Significance: * = 10%; ** = 5%; *** = 1%

^aPiecewise-linear spline for first-generation immigrants

Source: Calculations based on GSOEP, 1984–2004; event: first conception

supposed to be higher for first-generation immigrants than for the second generation. The results of the Kaplan–Meier survival estimates point in this direction. Model 1.1 in Table 3.14 displays a comparison between the two immigrant generations and West Germans, controlling for the age of the woman (baseline intensity; Fig. 3.5 displays the number of births per 1,000 person-years for the immigrant generations and West Germans).

The first-birth risks for the first immigrant generation are highly elevated: it is 2.5 times higher than that of West Germans. The corresponding transition rates are smaller, but are still elevated for the second generation, too, compared to West Germans (about 20% higher). These differences are significant.

3.3.3 Stay Duration of First-Generation Immigrants

Model 1.2: One of the guiding hypotheses of studies of immigrant fertility is the disruption hypothesis for first-generation immigrants, which suggests that the transition to a first child may be hampered by the migration process and related difficulties. To check the validity of this hypothesis, the second step in the modeling process replaces the constant risk for first-generation immigrants by a risk that varies by time since arrival in West Germany (see Table 3.14). Contrary to the



Fig. 3.5 Transition to a first child – baseline intensity

Source: Calculations based on GSOEP, 1984–2004.

Note: Piecewise-linear intensity estimation (Model 1.1); event: first conception.

disruption hypothesis, a jump in conception risks appears immediately following immigration, followed by slightly declining levels in subsequent years. Although the transition rates decline by stay duration, they remain significantly above the risks of West Germans. This is suggestive of a childbearing behavior that adapts somewhat (but not fully) towards the country of destination (see Fig. 3.6).

Note that women moving to West Germany while pregnant are excluded from this analysis. Even without them, the effect of arriving in the new country on first-birth behavior is very strong. The spline representation of the time since arrival is piecewise-linear in order to identify easily sufficient bend points. However, one must be careful here with the assumptions that were used when we constructed the variables. Since the month of birth was imputed as appearing in the middle of a calendar year for respondents with missing information, and the month at immigration at the beginning of a calendar year for respondents of the first immigrant-generation with missing information, the intervals between the respective bend points must not be smaller than 1 year in general. Note that first-generation immigrants are assumed to have a constant risk between their arrival in West Germany and the end of the first year of stay, represented by the zero coefficient at duration 0–1 in Table 3.14. Technically speaking, we have frozen the value between the respective nodes at 0 by default.

3.3.4 Marriage Duration

Model 1.3: In the third step of the analysis, the hypothesis of the interrelation of events is tested by also including marital status and marriage duration as a control

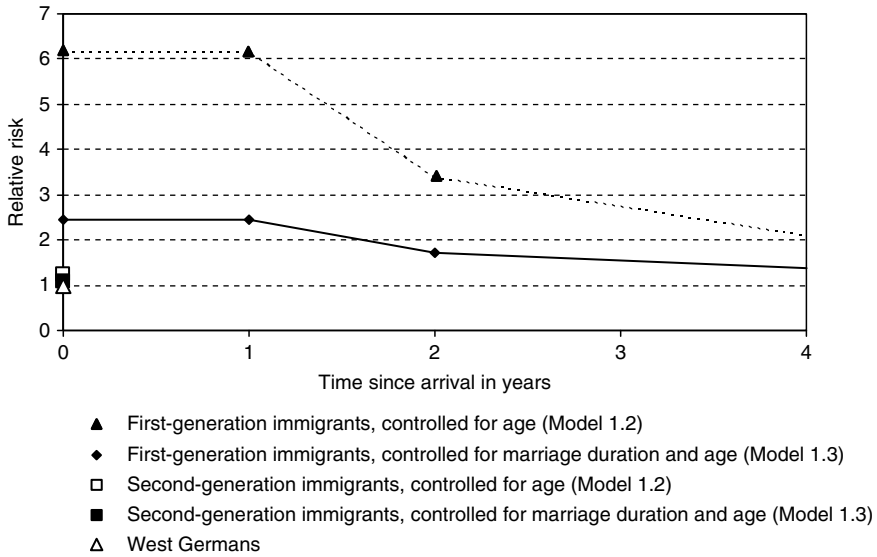


Fig. 3.6 Transition to a first child by time since arrival, relative risks – Models 1.2 and 1.3

Source: Calculations based on GSOEP, 1984–2004.

Note: Piecewise-linear intensity estimation, event: first conception.

process (cf. Hoem and Nedoluzhko 2008). As seen in Sect. 3.2, marriage is more frequent and takes place earlier among the first-generation immigrants in the sample than among the second generation and West Germans. Controlling for marriage duration reduces the high first-birth risks right after immigration by about 60%.² When we take marital status and marriage duration into account, first-birth risks of second-generation immigrants are not significantly different from those of West Germans, whereas the transition rates of first-generation immigrants remain significantly higher (see Table 3.15). Figure 3.6 displays the effect of stay duration of first-generation immigrants on the first-child transition as relative risks, both without and with control for marriage duration.³ The transition to a first marriage and to a first conception are processes endogeneous to each other, as the first-conception rates are much elevated mainly in the first year of a first marriage.

²Example for the calculation of a relative-risk difference between Models 1.2 and 1.3 (see Table 3.15) at duration 0–1: $\exp(0.902-1.813) = 0.4$.

³Example for the calculation of a relative risk for a continuous time-varying covariate in Model 1.3 (see Table 3.15): relative risk of marriage duration at the 1-year node: $\exp((1-0) * 0.033 + 2.386) = 11.2$.

Table 3.15 Factors influencing the transition to a first child: stay duration and marriage duration – relative risks for categorical variables and slope estimates for continuous variables

Variable	Model 1.2	Model 1.3
West German	1	1
<i>Immigrant generation</i>		
Second generation	1.25***	1.07
First generation:		
<i>Time since arrival in years (slope)^a</i>		
Intercept	1.813***	0.902***
0–1	0	0
1–2	–0.050***	–0.030**
2–5	–0.024***	–0.010*
5+	–0.009***	–0.007**
<i>Marriage duration in years (slope)^b</i>		
Intercept		2.386***
0–1		0.033***
1–2		–0.023***
2–5		–0.008***
5+		–0.009***
Reference unmarried		0
Constant	–7.90***	–7.67***
Log-likelihood	–17,035.35	–15,336.73

Significance: * = 10%; ** = 5%; *** = 1%; controlled for age of the woman

^aPiecewise-linear spline for first-generation immigrants

^bPiecewise-linear spline for married women

Source: Calculations based on GSOEP, 1984–2004; event: first conception

3.3.5 Women's Characteristics

Cohort

Models 1.4: In the next steps in our investigation, we include the woman's educational attainment and a birth-cohort indicator (Model 1.4A, see Table 3.16). Neither of them adds much of an explanation to the fertility differentials between first-generation immigrants and West Germans.

In a preliminary analysis, an indicator for the immigration cohort of first-generation immigrants was used (not displayed here). The estimates showed higher first-birth risks for first-generation immigrants who had moved since 1980 than for women who immigrated between the 1960s and 1980. The results were significant and interesting only when we did not control for stay duration and marriage duration. Hence, we decided to include the birth cohort (and not the immigration cohort) as a covariate and this variable applies to all women in the sample. For second-generation immigrants, the first-birth risks are slightly enlarged when we control for birth cohort. This suggests that they may be overrepresented in cohorts that have lower fertility. The second migrant generation in the sample is a “younger” study population than the first immigrant generation and West Germans. Almost 50% of the second generation were born in the 1970s and 1980s, whereas these shares are only about 15 and 27% for first-generation immigrants and West

Table 3.16 Factors influencing the transition to a first child: women’s characteristics – relative risks for categorical variables and slope estimates for continuous variables

Variable	Model 1.4A	Model 1.4B
West German	1	1
<i>Immigrant generation</i>		
Second generation	1.08	1.06
First generation:		
<i>Time since arrival in years (slope)^a</i>		
Intercept	0.935***	0.652***
0–1	0	0
1–2	–0.030**	–0.023*
2–5	–0.011*	–0.009
5+	–0.008**	–0.007**
<i>Marriage duration in years (slope)^b</i>		
Intercept	2.326***	2.190***
0–1	0.033***	0.034***
1–2	–0.023***	–0.022***
2–5	–0.009***	–0.008***
5+	–0.010***	–0.009***
Reference: unmarried	0	0
<i>Birth cohort</i>		
1946–1959	1	1
1960–1969	1.02	1.05
1970–1979	0.97	1.02
1980+	0.86	0.98
<i>School education</i>		
No degree	0.90	0.86
First or other degree	1	1
Second degree	0.66***	0.76***
In education	0.74	0.87
N.A.	0.95	0.84
<i>Employment^c</i>		
Full-time		1
Part-time		0.99
Non-employed		1.65***
In education or training ^d		0.46***
N.A.		1.73***
<i>Constant</i>	–7.574***	–7.366***
Log-likelihood	–15,299.74	–15,150.99

Significance: * = 10%; ** = 5%; *** = 1%; controlled for age of the woman

^aPiecewise-linear spline for first-generation immigrants

^bPiecewise-linear spline for married women

^cTime-varying covariate

^dConditional covariate for persons who have finished school education

Source: Calculations based on GSOEP, 1984–2004; event: first conception

German women, respectively. Women of the birth cohorts 1970–1979 and 1980+ have significantly lower first-birth risks than women who were born before 1970 (this step of the analysis is not displayed here; see Table A1 for the sample composition and Table 3.2 for the occurrences and exposure time).

Educational Attainment

For the second migrant generation, educational attainment matters also (*Model 1.4A*). Controlling for this covariate reduces fertility risks and differentials, which indicates compositional differences (results of stepwise modeling are not displayed here, for the composition of the sample and test statistics see Tables A2–A11). In general, both immigrant women and West Germans show the same behavior as revealed in the preliminary steps of the analysis: the first-child risks are significantly lower if a woman has a higher educational attainment than if a woman “only” has a first school certificate.

Employment

So far, the transition rates for first-generation immigrants remain high shortly after arrival. In *Model 1.4B* (see Table 3.16), the employment status is added. This covariate decreases the transition rates of first-generation immigrants by 25%. The important status here is non-employment, which increases the transition to motherhood by about 65% compared to women who work either full- or part-time. The effect is similar for immigrants and West Germans.

3.3.6 Partner’s Characteristics

Model 1.5: This step adds to the analysis the partner’s educational attainment for married women. Controlling for the partner’s educational attainment, first-child risks are slightly reduced for first-generation immigrants; however, adding the partner’s school education does not change the results for the second migrant generation. This indicates that the composition of the first-generation group is different from that of the second generation; namely, that spouses without school degrees are overrepresented in the first immigrant generation (see Table A6). The decrease in fertility differentials is explained by the category of women married to a man who has not obtained any school degree. The first-child risk among this group is almost 40% higher than among women with a spouse who has a first school certificate.

This model also controls for the employment status of the husband, which, however, hardly affects the first-birth risks of any of the three groups. It is the employment status of the woman that remains crucial (see Table 3.17 and Fig. 3.7).

3.3.7 Immigration Background

The next steps control for factors that apply to immigrant women only (conditional covariates; see Table 3.18).

Table 3.17 Factors influencing the transition to a first child: spouse’s characteristics – relative risks for categorical variables and slope estimates for continuous variables

Variable	Model 1.5
West German	1
<i>Immigrant generation</i>	
Second generation	1.04
First generation:	
<i>Time since arrival in years (slope)^a</i>	
Intercept	0.604***
0–1	0
1–2	–0.021
2–5	–0.010
5+	–0.007**
<i>Spouse’s school education^b</i>	
No degree	1.40***
First or other degree	1
Second degree	1.05
In education	N.A.
N.A.	0.98
<i>Spouse’s employment^c</i>	
Full-time	1
Part-time	0.65
Non-employed	0.52
In education or training ^d	0.63
N.A.	1.37
<i>Constant</i>	–7.388***
Log-likelihood	–15,143.59

Significance: * = 10%; ** = 5%; *** = 1%; controlled for age, birth cohort, education, and employment of the woman and marriage duration

^aPiecewise-linear spline for first-generation immigrants

^bConditional spline for married women

^cTime-varying covariate

^dConditional covariate for persons who have finished school education

Source: Calculations based on GSOEP, 1984–2004; event: first conception

Woman’s Country of Origin

Model 1.6: We test differences by country of origin in Model 1.6A (see Table 3.18). Initially, we had run the models testing the effect of each of the countries of origin interacting with the immigrant generation compared to West Germans. Then, tests were conducted to see whether or not there are differences between the migrant groups. Differences by country of origin cannot be found for first-generation immigrants after controlling for the duration of stay and the duration of marriage. When looking at second-generation immigrants and comparing women of Turkish, Yugoslavian, Greek, Italian, and Spanish descent, small differences are found only for women of Turkish descent. There are no differences between women from the Southern and Southeastern European (SSEE) countries. Therefore, the categories of

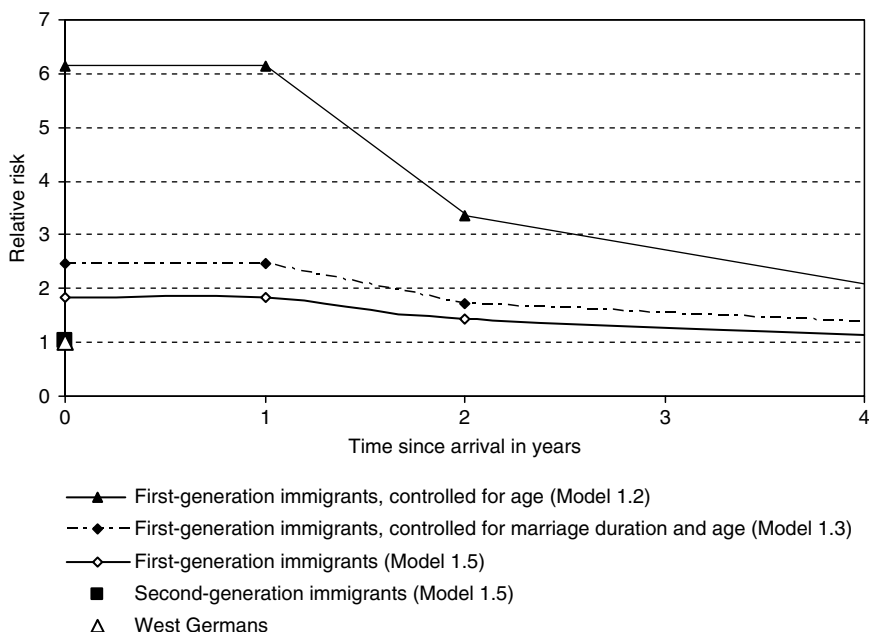


Fig. 3.7 Transition to a first child by time since arrival, relative risks – Models 1.2, 1.3, and 1.5
Source: Calculations based on GSOEP, 1984–2004.
Note: Piecewise-linear intensity estimation; event: first conception.

the variable referring to the country of origin are combined as follows: “Turkish” and “Southern/Southeastern European.” However, taking the covariates from the previous models into account, these differences do not remain significant.

Spouse’s Country of Origin and Migration Process

Model 1.6B: The next steps take into account the partner’s country of origin among immigrant women, and the marital status of the first-generation immigrants at the time of the move. These steps apply to married women only (conditional covariates). Neither of them contributes significantly to explaining first-child differentials between the groups, though one may see a trend here: women who are married to a husband from a different country or to a West German have elevated transition rates compared to immigrant women in an origin-homogeneous marriage (Model 1.6B, see Table 3.18).

First-generation immigrants who moved at a different point in time than their partners also have higher transition rates than women who moved with their husbands (results of stepwise modeling not displayed here). However, since there is probably an overlap with the category for which information on the husband’s

Table 3.18 Migrant-specific factors influencing the transition to a first child – relative risks for categorical variables and slope estimates for continuous variables

Variable	Model 1.6A	Model 1.6B
West German	1	1
<i>Immigrant generation and country of origin</i>		
First generation, Turkey:		
<i>Time since arrival in years (slope)^a</i>		
Intercept	0.591***	0.595***
0–1	0	0
1–2	–0.021	–0.020
2–5	–0.010*	–0.010
5+	–0.007**	–0.007**
First generation, SSEE ^b	1.03	1.03
Second generation, Turkey ^c	1.14	1.16
Second generation, SSEE ^b	0.87	0.83
<i>Spouse's origin^d</i>		
Migrant from same country		1
Migrant from different country or German		1.16
N.A.		0.82
Log-likelihood	–15,142.76	–15,141.14

Note: Significance: * = 10%; ** = 5%; *** = 1%; controlled for age, birth cohort, school education, employment status of the woman; school education, employment of spouse; marriage duration

^aPiecewise-linear spline for first-generation immigrants from Turkey relative to West Germans

^bSSEE (Southern and Southeastern Europe): Yugoslavia, Greece, Italy, Spain relative to Turkey

^cTurkish-descent women relative to West Germans

^dConditional covariate for married immigrant women

Source: Calculations based on GSOEP, 1984–2004; event: first conception

immigration history is not available, the effect of the categories with missing information become significant; therefore, the model including these three factors together may be overspecified (see Table A12).

Note that West German women are the reference category in Models 1.6A–B for first- and second-generation immigrants from Turkey, whereas the estimates for the other immigrant groups are calculated relative to the respective immigrant generation from Turkey. For second-generation migrants, for example, read Model 1.6B as follows: the first-conception risk of a second-generation immigrant from a Southern/Southeastern European country who is married to a man of the same origin is 17% lower than for a second-generation migrant of Turkish descent who is married to a Turkish man (though these differences are not significant).

3.3.8 Further Covariates

Further control variables have been included in this analysis; their impact on first-birth behavior is, however, hardly important. A covariate often used in fertility studies in general, and particularly in studies on international migration, is religious

affiliation. Our analysis showed that the religious affiliation does not reveal significant differences by religion for immigrants to West Germany (cf. Mayer and Riphahn 2000). This probably results from a high correlation between the country of origin and religious affiliation. Other indicators for cultural background, such as religiosity and type of place where the woman lived at age 15, were also used in the analysis. However, as each of these variables had a large share of missing answers, they are not included here in the final model. The results of the additional variables that are not included in the final model are displayed in Table A13.

3.3.9 Intermediate Conclusion

Before turning to the transitions to subsequent births, we present a short summary of the results of the first child. The analysis reveals that it is important to distinguish between the immigrant generations. The first-birth risk among first-generation immigrants who move to West Germany when childless is 2.5 times higher than the corresponding risk among West Germans. Second-generation immigrants living in Germany have only 1.2 times higher transition rates to first births compared to West Germans.

The marriage status is the most important covariate for both immigrant generations. It stresses the endogeneity of first marriage and first child (Baizan et al. 2003). The socio-demographic characteristics of the partner matter little, however. For first-generation immigrants, the hypothesis of interrelated events is proven: migration, marriage, and a first pregnancy follow in short sequence. As the transition to a first pregnancy is much elevated in the first year following immigration, the hypothesis of fertility disruption shortly after immigration cannot be proven.

So far, the question of the impact of socialization cannot be answered in full when analyzing only the transition to a first birth. The elevated transition rates of first-generation immigrants can be attributed to selection, or, more specifically, to the interrelation of events, rather than to the influence of socialization. This is because the risks are elevated mainly shortly after immigration, and fertility differentials in the respective countries of origin are not reflected in the first-birth risks of first-generation immigrants in West Germany.

Among first-generation immigrants from Turkey, the former Yugoslavia, Greece, Italy, and Spain, first-birth risks decrease as the duration of stay increases. This suggests that immigrants adapt to the behavior at destination with increasing length of stay. It may be speculated that the group of first-generation immigrants consists of two sub-groups with different behavioral patterns; women with immediate intentions to found a family (marriage migrants) and those who may wish to establish themselves after the move before having a child. This is supported by the fact that the fertility levels of first-generation migrants decline after controlling for socio-economic characteristics. In addition, we find the shares of childless immigrants much higher than those in the respective countries of origin, which again stresses the importance of adaptive behavior at destination.

As for second-generation immigrants, their fertility behavior may be placed within the context of adaptation rather than socialization. The first-birth risks of the second generation reflect the fertility differences between the respective countries of origin; women of Turkish background in West Germany have higher first-birth risks than women of Southern and Southeastern European background. This can be traced back, however, to the compositional differences of the second immigrant generation in West Germany in terms of their schooling and labor-force participation. The latter observation confirms the hypothesis of compositional differences between the immigrant groups and West Germans.

3.4 Results: Transition to a Second Child

The analysis of the transition to a second child follows the same procedure as that of the first child. The sample used in this analysis includes women whose first birth took place in Germany, and first-generation immigrants who had the first birth only before they immigrated. The sub-sample of the first immigrant generation consists of 454 one-child mothers in total: 407 women whose first birth took place in Germany (who migrated either before or during first pregnancy), and 47 women who moved with one child. The sub-sample of the second migrant generation consists of 287 women, while the West German sub-sample includes 1,771 respondents.

3.4.1 Kaplan–Meier Survival Estimates

The basic time process is the time since the first birth, i.e., the age of the first child. Figure 3.8 shows the Kaplan–Meier survival estimates comparing the immigrant generations to West Germans (see also Table 3.19). The sample contains two groups of first-generation immigrants: the first category, called “total,” captures all first-generation immigrants in this sample, the second group contains only the women who had their first birth in West Germany. Due to the small number of cases in the category of immigrants who moved with one child, a separate calculation for them is not appropriate. Therefore, the calculations were done for the total first-generation group, and for the first generation that includes only the women with the first birth in Germany.

Regardless which of the first-generation indicators is used, the result is the same: first-generation immigrants have the highest frequency of a second child in the sample, and this is significantly different from the frequency among West Germans ($p < 0.001$). About 90% of one-child mothers of the first immigrant generation also have a second child. The progression to a second child is significantly lower among the second generation than among the first generation ($p = 0.029$); 81% of second-generation migrants have a second child. The lowest share of second births is

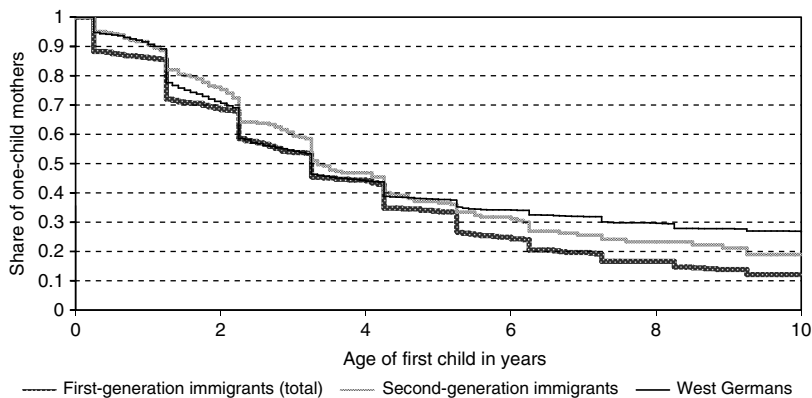


Fig. 3.8 Transition to a second child, first- and second-generation immigrants and West Germans. The stair-case patterns that appear in the figure are due to the imputation of the months of births for missing values. Since we imputed June for all missing values, the difference between the occurrences of the first and second births are full years in the cases where the months of the first and the second births are missing
 Source: Calculations based on GSOEP, 1984–2004.
 Note Kaplan-Meier survival estimates; event: second conception.
 Log-rank-test: $p < 0.001$, Wilcoxon-test: $p = 0.024$.

Table 3.19 Share of one-child mothers and median age at second conception

	N	Share of one-child mothers in %	Median age of first child in years
<i>First-generation immigrants (total)^a</i>	454	9.6	3.2
<i>First-generation immigrants with first birth in West Germany</i>	407	10.9	3.2
Turkey	176	6.9	2.7
SSEE ^b	231	13.7	3.6
<i>Second-generation immigrants (total)</i>	287	19.0	3.3
Turkey	133	22.5	3.5
SSEE ^b	154	17.5	3.3
<i>West Germans</i>	1,771	24.9	3.2

^aImmigrants with first birth in West Germany and with first birth before move

^bSSEE (Southern and Southeastern Europe): Yugoslavia, Greece, Italy, Spain

Source: Calculations based on GSOEP, 1984–2004; Kaplan–Meier survival estimates; event: second conception

observed for West Germans; 75% of German one-child mothers have a second birth. However, the difference between the second generation and West Germans is not significant. The groups hardly differ in the median age of the first child when the mother has the second conception: the first child is 3.2 and 3.3 years old, respectively, at second conception (see Table 3.19).

Comparing the first-generation immigrants in total by country background, the highest shares of second births are observed for women from Turkey and Greece,

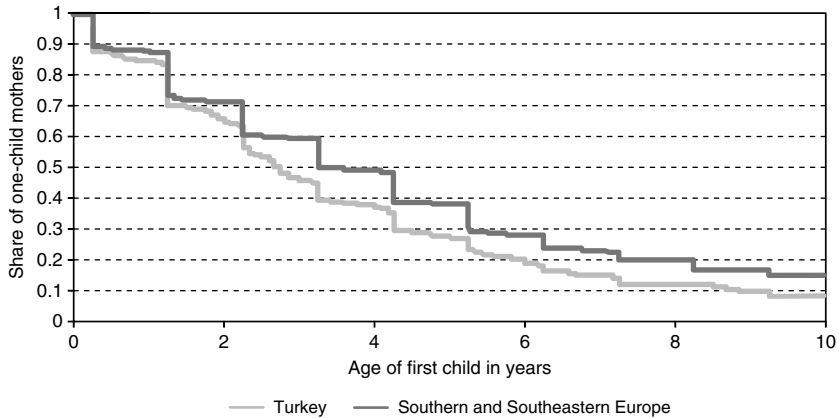


Fig. 3.9 Transition to a second child of first-generation immigrants by country of origin. The stair-case patterns that appear in the figure are due to the imputation of the months of births for missing values. Since we imputed June for all missing values, the difference between the occurrences of the first and second births are full years in the cases where the months of the first and the second births are missing
Source: Calculations based on GSOEP, 1984–2004.
Note: Kaplan-Meier survival estimates; event: second conception.
 Log-rank test: $p = 0.008$, Wilcoxon test: $p = 0.03$.

with more than 90%. Meanwhile, 82% of Spanish mothers have a second child. The highest second-child shares correspond to the lowest median ages at second conception (under 3 years). As is observed for the first child, the patterns vary between the immigrant generations: women of Spanish background are the most likely to have a second birth, whereas women of Yugoslavian, Turkish, and Greek descent less frequently have a second child (It is, however, important to note that the sample is relatively small for the second generation. The number of events is about 20 each for the Yugoslavian, Greek, and Spanish groups). Therefore, Figs. 3.9 and 3.10 display the survival estimates by immigrant generation and a combined country background.

3.4.2 Immigrant Generation and Baseline Intensity (Age of the First Child)

Model 2.1: Our first step in the intensity-regression analysis is to compare the main groups under consideration, controlling for the age of the first child only (see Fig. 3.11). As in the case of the first-birth analysis, the working hypothesis of socialization is that there are differences in the second-birth transition between first-generation immigrants and West Germans, but less so between the second generation and West Germans. Model 2.1 in Table 3.20 tends to verify this hypothesis.

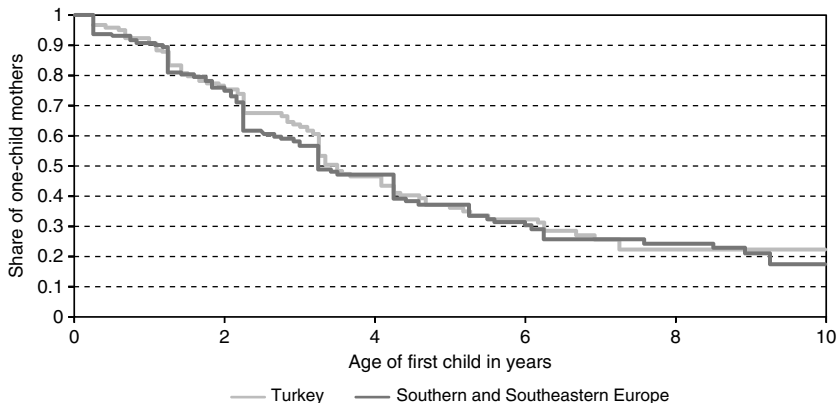


Fig. 3.10 Transition to a second child of second-generation immigrants by country of origin. The stair-case patterns that appear in the figure are due to the imputation of the months of births for missing values. Since we imputed June for all missing values, the difference between the occurrences of the first and second births are full years in the cases where the months of the first and the second births are missing
Source: Calculations based on GSOEP, 1984–2004.
Note: Kaplan-Meier survival estimates; event: second conception. Log-rank test and Wilcoxon test: n.s.

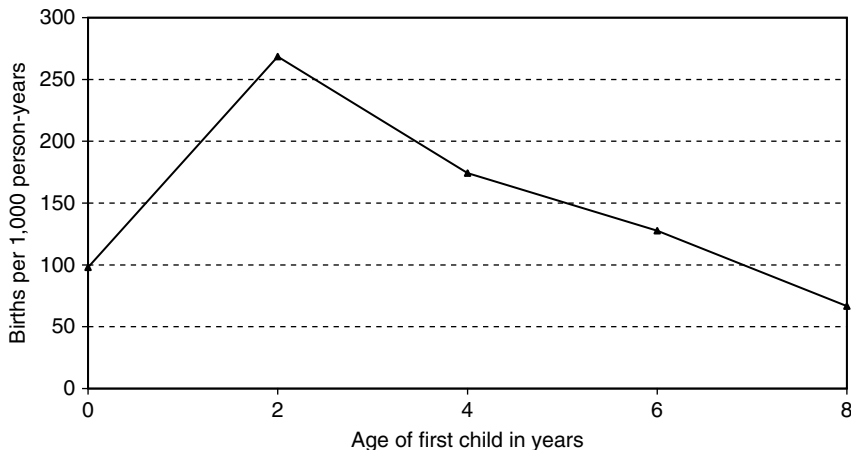


Fig. 3.11 Transition to a second child – baseline intensity
Source: Calculations based on GSOEP, 1984–2004.
Note: Piecewise-linear intensity estimation (Model 2.1); event: second conception.

Whereas there are no significant differences in second-birth rates between second-generation women and West Germans, first-generation immigrants have a 31% elevated second-birth risk compared to West Germans.

Table 3.20 Factors influencing the transition to a second child: immigrant generation and timing of first birth and move – relative risks

Variable	Model 2.1	Model 2.2
West German	1	1
<i>Immigrant generation</i>		
First generation (total)	1.31***	
<i>First generation with first birth abroad</i>		1.96***
<i>First generation with first birth in West Germany</i>		1.26***
Second generation	1.03	1.03
<i>Age of first child in years (slope)</i>		
0–2	0.042***	0.042***
2–4	–0.018***	–0.018***
4–6	–0.013**	–0.013**
6+	–0.027***	–0.027***
Constant	–4.808***	–4.801***
Log-likelihood	–8,875.23	–8,872.17

Significance: * = 10%; ** = 5%; *** = 1%

Source: Calculations based on GSOEP, 1984–2004; event: second conception

3.4.3 Stay Duration of First-Generation Immigrants

Model 2.2: In a preliminary analysis, the next step has been to ask whether or not an adaptation effect by duration of stay at destination, or a disruption effect appears. In answering this question, the stay duration of first-generation immigrants has been taken into account (controlling for the age of the first child). Whereas Model 2.1 estimates the second-child risk for the whole group of first-generation immigrants, we then divided the first-generation immigrants into several sub-groups, and replaced the time-constant risk by a time-varying estimate.⁴ For the first-generation immigrants who had their first births in Germany, a distinct duration pattern cannot be identified. Significantly elevated transition rates are observed only in the third year of stay in West Germany relative to West Germans (about 40%). However, the sample of first-generation immigrants who arrived with one child in West Germany is too small for a separate analysis with a time-varying risk by stay duration (this step is not displayed here).

Thus, due to the relatively small sizes of the sub-samples and the insignificance of the impact of the stay duration, the next step in the modeling process – Model 2.2 – uses again a time-constant risk for the first generation, but distinguishes between the women who had the first birth in Germany, and those who had the child before the move (see Table 3.20). The results reveal high transition rates for the new

⁴Following the modeling process of the transition to a first birth: for the women who had the first birth in Germany, the risk of a second birth was set to zero by default naturally within the first-year interval and is allowed to vary only after the first year. The “frozen” interval may appear relatively small; however, this is considered to be sufficient since this sample admits women who immigrated to West Germany during pregnancy and had their first birth shortly after the move.

immigrants: the risk of having a second child among immigrants who arrive after the first birth is almost twice as high as that of West Germans. Although the transition rates of first-generation immigrants who had the first birth in Germany are lower, the latter group still has a significant 26% higher second-birth risk than West Germans.

This result suggests a kind of “arrival” effect for the new immigrants, i.e., those who moved after the first birth. It also implies that immigrants who had the first child already in Germany are more adapted to West German second-birth behavior than the women who immigrated only after the first birth.

3.4.4 Women’s Characteristics

Age at First Birth

Model 2.3A: We continue the modeling process by including characteristics of the women. Model 2.3A (Table 3.21) adds the age of the women at the first birth. About 80% of the first-generation immigrants in the sample had become mothers below age 25, whereas this share is about 70% among the second generation, and is barely 50% among West Germans (Tables A16 and A17). Controlling for this covariate reduces the second-child risks of both first-generation sub-groups, but they remain elevated. The results show significantly lower transition rates for women who gave birth for the first time at age 25 or older than for women who became mothers at younger ages.

In the same step, the indicator of the women’s birth cohort is introduced – as in the case of the first-child analysis, this covariate does not add explanation to the model.

Educational Attainment

Model 2.3B: The next step adds the educational attainment of the women. The immigrant groups and West Germans differ significantly in terms of socio-demographic composition (see Tables A14–A24): while the share of women without a school-leaving certificate is higher among the first and second generations than among West Germans, the latter group has a higher share of women with secondary school education. Controlling for education reduces the differences in second-birth risks between the first generation whose first birth was in Germany and West Germans by about 6%. There is also a diminishing effect for the women of the first immigrant generation who arrived with one child in West Germany, but the birth risk among this group remains much elevated. The effect of the school-leaving certificate on second-birth risks is similar for the groups: women who completed secondary education have higher transition rates to a second child, compared to women without a school degree or with a first degree. This effect is the opposite of

Table 3.21 Factors influencing the transition to a second child: women’s characteristics – relative risks

Variable	Model 2.3A	Model 2.3B	Model 2.3C
West German	1	1	1
<i>Immigrant generation</i>			
First generation with first birth abroad	1.82***	1.77***	1.74***
First generation with first birth in Germany	1.22***	1.17**	1.19**
Second generation	0.99	0.97	1.02
<i>Age at first birth in years</i>			
<20	1	1	1
20–24	0.91	0.91	0.90
25–29	0.85**	0.83**	0.82***
30+	0.64***	0.61***	0.58***
<i>Birth cohort</i>			
1946–1959	1	1	1
1960–1969	1.04	1.03	1.00
1970+	0.98	0.98	0.89
<i>School education</i>			
No degree		1.13	1.13
First or other degree		1	1
Second degree		1.23***	1.25***
N.A.		0.86	0.85
<i>Employment^a</i>			
Full-time			1
Part-time			1.13
Non-employed			1.64***
N.A.			1.22
<i>Constant</i>	–4.661***	–4.674***	–5.054***
Log-likelihood	–8,861.22	–8,856.43	–8,822.43

Significance: * = 10%; ** = 5%; *** = 1%; controlled for age of the first child

^aTime-varying covariate

Source: Calculations based on GSOEP, 1984–2004; event: second conception

the impact of education on first-birth behavior, whereby women with secondary education have lower transitions to motherhood. This finding is in accordance with the results of a study by Kreyenfeld (2002). In a recent study, Kravdal (2007) has demonstrated selection effects also for Norway.

Employment

Model 2.3C: The employment status is the last step in Model 2.3C. The first-birth analysis has revealed that non-employment is of crucial importance both for the immigrant groups and West Germans, i.e., women have elevated birth risks during periods of non-employment. The same is true for the transition to the second birth. The conception risk is 64% higher for non-employed women than it is for full-time employed women. Note that this analysis includes only married women.

Unlike in the first-birth analysis, however, the employment status cannot explain the fertility differentials between the first immigrant generation and West Germans.

3.4.5 Partner's Characteristics

Model 2.4: As was done in the first-birth analysis, the educational level and employment status of the husband are controlled for in the following steps (Table 3.22). Again, contrary to the results on the first birth, the partner's higher education is associated with higher second-birth risks, which confirms other findings (Kreyenfeld 2002; Kravdal 2007). The employment status of the husband does not have an additional impact on second-birth risks, however. Both factors together account for about one-tenth of the fertility differentials between first-generation immigrants and West Germans (Models 2.4A and B).

Note that none of these steps changes the result that second-generation migrants and West Germans do not show differences in second-birth risks.

3.4.6 Immigration Background

Model 2.5: The final steps in our analysis take the immigration background of the women and their partners into account. Due to the small sample size, no distinction is made by country of origin for the new first-generation immigrants who arrived after the first birth. For the first generation with the first birth in Germany and the second generation, tests were made by country of origin. The results are not shown here since they do not reveal significant differences between the various countries. The only exception are "old" first-generation Turks whose second-birth risk is 21% higher than that of West Germans (see Table 3.23). Second-generation Turks, as well as first- and second-generation immigrants from the former Yugoslavia, Greece, Italy, and Spain, show no significant differences when compared to first-generation Turks or West Germans (results not shown here). Therefore, the country backgrounds are combined again.

After comparing immigrants and their descendants to West Germans, Model 2.5B asks whether differences within the immigrant groups occur by adding migrant-specific covariates that apply to immigrant women only (conditional covariates, see Table 3.23). Model 2.5B adds the partners' origin. This step does not greatly change the risks of the migrant groups. It is, however, noteworthy that immigrant women who are married to a man from West Germany or a third country have second-child risks that are about 30% lower than those of homogeneously married women. This variable does not have a significant impact on the first-child transition.

This is different for the covariate on the migration process that indicates spatial separation during the migration process of first-generation immigrants. However, due

Table 3.22 Factors influencing the transition to a second child: characteristics of the women and the spouse — relative risks

Variable	Model 2.4A	Model 2.4B
West German	1	1
<i>Immigrant generation</i>		
First generation with first birth abroad	1.67***	1.65***
First generation with first birth in Germany	1.16**	1.15*
Second generation	1.00	1.00
<i>Age at first birth in years</i>		
<20	1	1
20–24	0.89*	0.88*
25–29	0.78***	0.77***
30+	0.53***	0.53***
<i>Birth cohort</i>		
1946–1959	1	1
1960–1969	0.99	0.99
1970+	0.87	0.87
<i>School education</i>		
No degree	1.12	1.12
First or other degree	1	1
Second degree	1.18**	1.19**
N.A.	0.85	0.85
<i>Employment^a</i>		
Full-time	1	1
Part-time	1.12	1.12
Non-employed	1.63***	1.63***
N.A.	1.21	1.22
<i>Spouse's school education</i>		
No degree	1.05	1.05
First or other degree	1	1
Second degree	1.25***	1.27***
N.A.	0.89	1.08
<i>Spouse' employment^a</i>		
Full-time		1
Part-time		1.15
Non-employed		0.90
N.A.		0.80*
Constant	-5.031***	-5.005***
Log-likelihood	-8,813.46	-8,811.11

Significance: * = 10%; ** = 5%; *** = 1%; controlled for age of the first child

^aTime-varying covariate

Source: Calculations based on GSOEP, 1984–2004; event: second conception

to the small sample size and the relatively large share of missing values (overlapping for partner's origin and migration process), it is important to proceed carefully when including this covariate. The results indicate that the circumstances of the migration play a role in the first birth, but not really for the second child (see Table A25).

Table 3.23 Factors influencing the transition to a second child: characteristics of immigration background – relative risks

Variable	Model 2.5A	Model 2.5B
West German	1	1
<i>Immigrant generation and country of origin</i>		
First generation with first birth abroad ^a	1.65**	1.63***
First generation with first birth in Germany, Turkey	1.21*	1.26**
First generation with first birth in Germany, SSEE ^b	1.11	1.19*
Second generation, Turkey	0.94	0.99
Second generation, SSEE ^b	1.06	1.18
<i>Spouse's origin^c</i>		
Migrant from same country		1
Migrant from different country or German		0.68**
N.A.		0.65**
Log-likelihood	-8,810.51	-8,806.25

Significance: * = 10%; ** = 5%; *** = 1%; controlled for age of the first child, age at first birth, birth cohort, school education, employment status of the woman; school education, employment of spouse

^aTurkey, Yugoslavia, Greece, Italy, Spain

^bSSEE (Southern and Southeastern Europe): Yugoslavia, Greece, Italy, Spain

^cConditional covariate for immigrant women

Source: Calculations based on GSOEP, 1984–2004; event: second conception

3.4.7 Further Covariates

In addition, we have tested the effect of further covariates (see Table A26). As in the previous analysis, these variables are shown to affect immigrants and West Germans in a similar manner, but do not explain fertility differentials if existent after the control variables are added as described. The variable on the type of the place where the woman lived at age 15 was, after several tests, re-categorized into rural versus urban. Results showed, in line with the literature (e.g., Kane 1986), that women with an urban background have significantly lower transition rates both to a first and to a second birth.

The religious affiliation has one category with a significant effect on first and second births, i.e., having no religious affiliation was found to have a birth-risk-lowering impact (e.g., Mayer and Riphahn 2000). In general, this probably reflects more of the variability within the West German group than differences between immigrants and Germans; for immigrants, there appears a relatively high association between country background and religion. Therefore, it may be more appropriate to focus on structural indicators than on cultural attributes.

3.4.8 Intermediate Conclusion

Repeating one of the main conclusions of the first-child analysis, the results on the transition to the second birth show the importance of distinguishing between

the immigrant generations. No significant differences can be found between the second generation and West Germans, whereas the birth risks of first-generation immigrants are elevated compared to these two groups. Furthermore, a distinction between women who had their first child in West Germany and those who had their first child before the move seems reasonable: women who immigrated with a child have even higher parity-progression rates than women with the first birth after the move. This once again contradicts the disruption hypothesis, and applies to both short-term effects for first-generation immigrants moving with one child, and to longer-term effects for women of the first migrant generation who had their first child in Germany.

While these results confirm the assumption that an adaptive behavior becomes more important with an increasing length of stay at destination, the “arrival” effect seen among newly arriving immigrants is interesting.

Coming back to the question on the impact of socialization, the similarities between second-generation immigrants and West Germans seem to support this hypothesis. The second-birth risk of first-generation immigrants who had their first birth in Germany remains significantly higher than that of West Germans. The result of the comparison between countries of origin of the first generation is less clear. The elevated birth risks of Turkish women compared with West Germans points in the direction of the importance of socialization, but the differences with the other countries of origin are smaller than expected. The results rather suggest that compositional differences in socio-demographic characteristics and current living circumstances explain the fertility differentials between the first generation and West Germans to a large extent, though not completely.

3.5 Results: Transition to a Third Child

The analysis of the transition to a third child includes 415 women who belong to the first immigrant generation. Among them are 317 who had their first and second births in West Germany, 40 women who emigrated with one child and had the second birth in West Germany, and 58 first-generation immigrants who arrived with two children. The third-child sample also includes 172 second-generation migrants and 1,099 West German women. All women in the sub-sample are included during the time spent in the first marriage.

3.5.1 Kaplan–Meier Survival Estimates

The basic process time is the time since the second birth, i.e., the age of the second child. Figure 3.12 gives the Kaplan–Meier survival estimates comparing the immigrant generations to West Germans (see also Table 3.24). The calculation for first-generation immigrants includes all women in this category, regardless of whether

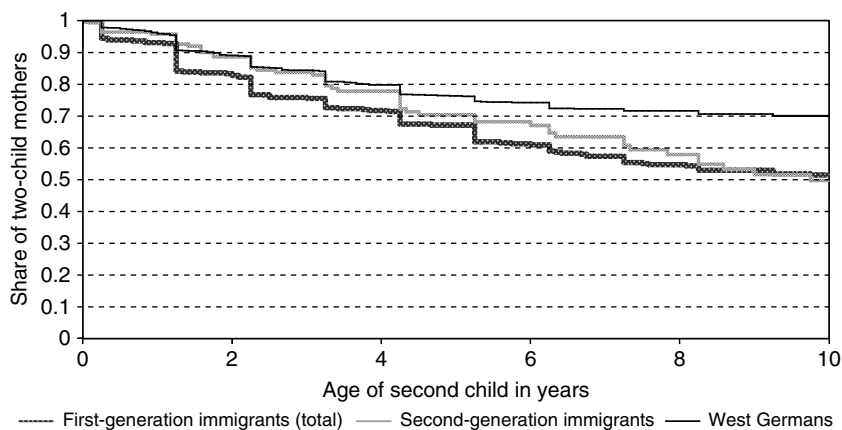


Fig. 3.12 Transition to a third child, first- and second-generation immigrants and West Germans

Source: Calculations based on GSOEP, 1984–2004.

Note: Kaplan-Meier survival estimates; event: third conception.

Log-rank test and Wilcoxon test: $p < 0.001$.

Table 3.24 Share of two-child mothers and median age of second child at third conception

	N	Share of two-child mothers in %	Median age of second child in years
<i>First-generation immigrants (total)</i> ^a	415	46.3	11.2
<i>First-generation immigrants with second birth in West Germany</i>	357	48.7	13.2
Turkey	153	24.3	5.3
SSEE ^b	204	61.1	N.A.
<i>Second-generation immigrants (total)</i>	172	45.1	9.8
Turkey	78	31.0	7.3
SSEE ^b	94	53.6	N.A.
<i>West Germans</i>	1,099	66.8	N.A.

^aImmigrants with second birth in West Germany and with second birth before move

^bSSEE (Southern and Southeastern Europe): Yugoslavia, Greece, Italy, Spain

Source: Calculations based on GSOEP, 1984–2004; Kaplan–Meier survival estimates

they moved to Germany while childless or after the first or second birth. This choice is related to the sample size, and to the fact that the results do not differ much with and without those women who had the second birth before the move.

Again, the results reveal significant differences between first-generation immigrants and West Germans ($p < 0.001$). More than 50% of the two-child mothers of the first immigrant generation progress to a third child, whereas only one-third of West Germans also have a third child. In contrast to the second-child analysis, significant differences occur between second-generation immigrants and West Germans ($p = 0.004$), but not between the first and second generations ($p = 0.45$). The share of two-child mothers having a third child is similar for first- and second-generation immigrants.

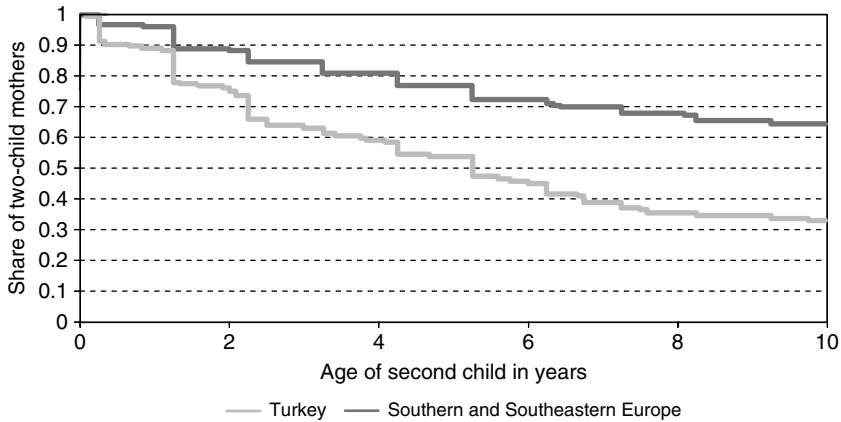


Fig. 3.13 Transition to a third child of first-generation immigrants by country of origin

Source: Calculations based on GSOEP, 1984–2004.

Note: Kaplan-Meier survival estimates; event: third conception.

Log-rank test and Wilcoxon test: $p < 0.001$.

The next step would be a comparison within the immigrant groups by origin. However, a differentiation by the various countries of origin is not feasible due to the small sizes of the respective sub-groups and their respective numbers of events. Turks are the biggest group in both immigrant generations. Their numbers of events are higher than the sum of births among the Yugoslavian, Greek, Italian, and Spanish women in the sample. Therefore, the women from the Southern and Southeastern European countries have been grouped together again.

Among the first immigrant generation, about 75% of Turkish two-child mothers have another child. The median age of the second child is 5.3 years. Of the SSEE countries, less than 40% progress to a subsequent child ($p < 0.001$). Second-generation immigrants from Turkey are less likely to have a third child than the first generation, but their transition is still significantly higher than that of second-generation women of SSEE background ($p = 0.012$; see Table 3.24, Figs. 3.13 and 3.14).

3.5.2 Immigrant Generation and Baseline Intensity (Age of the Second Child)

Model 3.1: The first modeling step in the intensity-regression analysis compares the immigrant generations to West Germans using the age of the second child as basic process time. Model 3.1 (see Table 3.25 and Fig. 3.15) applies the simple distinction between the first and second immigrant generations. In line with the analyses on the first and second births, first-generation immigrants have a significantly higher risk of

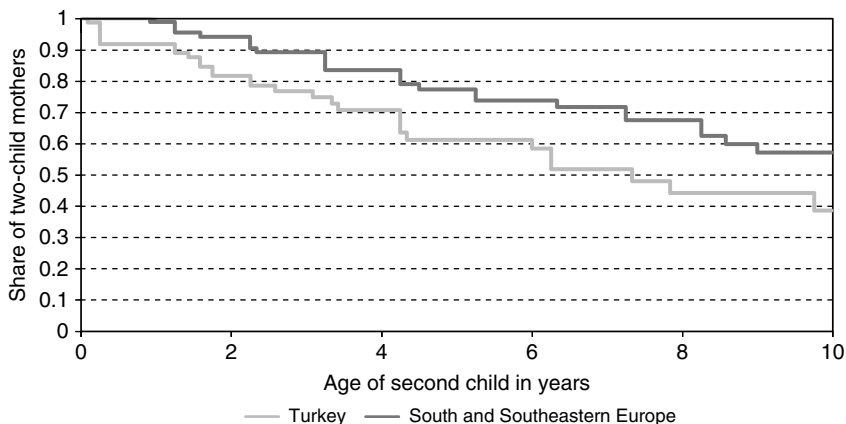


Fig. 3.14 Transition to a third child of second-generation immigrants by country of origin
Source: Calculations based on GSOEP, 1984–2004.

Note: Kaplan-Meier survival estimates; event: third conception.

Log-rank test and Wilcoxon test: $p = 0.01$.

Table 3.25 Factors influencing the transition to a third child: immigrant generation and timing of previous births and move – relative risks

Variable	Model 3.1	Model 3.2A	Model 3.2B
West German	1	1	1
<i>Immigrant generation</i>			
First generation (total)	1.27***		
Second generation	1.24	1.23	1.23
First generation with:			
Second birth abroad		1.77***	
Second birth in West Germany		1.20**	
First + second birth in West Germany			1.19*
First birth abroad + second birth in Germany			1.33
First + second birth abroad			1.77***
<i>Age of first second child in months (slope)</i>			
0–20	0.016*	0.016*	0.016*
20–72	–0.011***	–0.011***	–0.011***
72+	–0.009***	–0.009***	–0.009***
Constant	–5.320***	–5.308***	–5.308***
Log-likelihood	–4,255.22	–4,253.79	–4,253.68

Significance: * = 10%; ** = 5%; *** = 1%

Source: Calculations based on GSOEP, 1984–2004; event: third conception

having a third child than West Germans (+27%). The transition rates of women of the second generation appear to be elevated by almost the same magnitude, although the differences between the second generation and West Germans, as well as between the second and the first generations, are not significant.

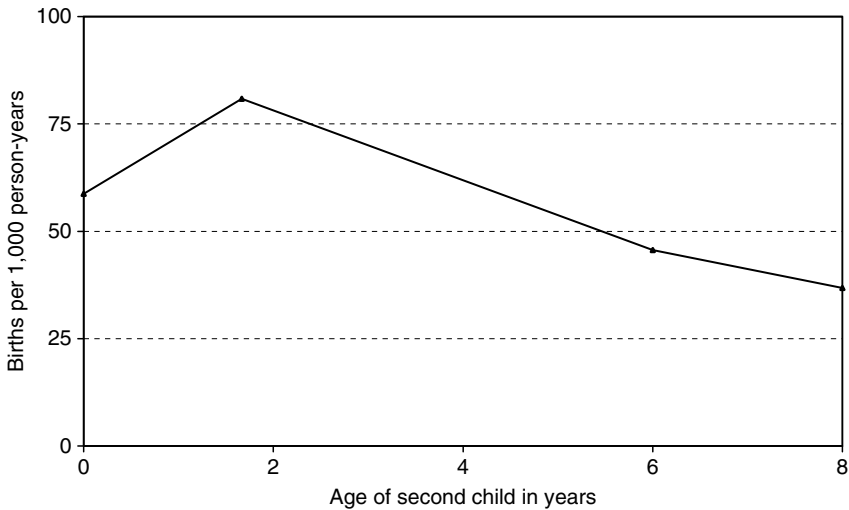


Fig. 3.15 Transition to a third child – baseline intensity

Source: Calculations based on GSOEP, 1984–2004.

Note: Piecewise-linear intensity estimation (Model 3.1); event: third conception

3.5.3 Stay Duration of First-Generation Immigrants

Models 3.2: To explore whether it is possible to discern an effect of an interrelation of events for immigrants who arrived with two children, or an effect of adaptation or disruption among the first immigrant generation, we take into account the timing of the previous births and of the move in the next steps (the duration of stay cannot be included due to the small sample size). Model 3.2A (Table 3.25) compares women who had their first and second children before moving to Germany to those who had their second child in Germany (with the first child having been born either before or after the move). As in the case of the transition to the second child, we find significantly increased birth risks for the new immigrants compared with the birth risks for West Germans. These women have a 77% higher transition to a subsequent child, whereas the risk of the earlier immigrants is only 20% higher (also significant).

Model 3.2B further divides the group of the immigrants who had the second birth in West Germany by also taking into account whether the first birth took place before or after the move. The results show significantly elevated risks for the women who had both births in West Germany, but not for those who had one child abroad and the second one in Germany. Since the group with both births in Germany is the biggest in the sample and the number of events in the latter category is relatively small, the further steps in the analyses proceed with the distinction as introduced in Model 3.2A.

3.5.4 Women's Characteristics

The women's characteristics are added in the next two modeling steps (Table 3.26).

Age at Second Birth

Model 3.3A: Model 3.3A controls for the age of the woman at the second birth (see Table 3.26). More than 40% of the women of both immigrant generations have had their second child before they turned 25, whereas this share is only about 20% among West Germans (see Tables A28 and A29). Inserting this covariate reduces the significance of the difference in third-child risks between first-generation immigrants and West Germans, and also reduces the third-birth risks by about a third. The effect of this variable are largely decreasing third-birth risks for the women who had their second birth at ages 25 to 29 (−45%), and at ages 30+ (−60%).

Educational Attainment

Model 3.3B: This model adds the birth cohort and school education of the women (see Table 3.26). The decrease in the birth risks of the immigrant groups (though

Table 3.26 Factors influencing the transition to a third child: women's characteristics – relative risks

Variable	Model 3.3A	Model 3.3B
West German	1	1
<i>Immigrant generation</i>		
First generation with second birth abroad	1.23	1.11
First generation with second birth in Germany	1.06	0.96
Second generation	1.03	0.85
<i>Age at second birth in years</i>		
<25	1	1
25–29	0.55***	0.54***
30+	0.40***	0.38***
<i>Birth cohort</i>		
1946–1959		1
1960–1969		1.37***
1970+		1.44**
<i>School education</i>		
No degree		1.34**
First or other degree		1
Second degree		1.29**
N.A.		1.47
<i>Constant</i>	−4.803***	−4.964***
<i>Log-likelihood</i>	−4,212.75	−4,201.66

Significance: * = 10%; ** = 5%; *** = 1%; controlled for the age of the second child

Source: Calculations based on GSOEP, 1984–2004; event: third conception

group differences are not significant) indicates that compositional differences between the groups play a role in explaining the fertility differentials: second-generation migrants are overrepresented in the birth cohorts 1960+, and the third-birth risk for this group is around 40% higher than that of women born before 1960 (see Table A27).

As far as educational attainment is concerned, a U-shape effect is found (Model 3.3B, see Table 3.26). Women without a school-leaving certificate have a 34% higher risk of having a third child than women with a first degree. With a share of about 30% and 20%, respectively, first- and second-generation immigrants are far more frequently found in the category without a formal educational degree than West Germans (see Table A30). As in the analysis of the second child, having a higher level of education also increases the transition to a third child. This applies to both immigrant groups as well as to West Germans, and these results are in line with the findings in a study by Kravdal (2007).

3.5.5 Partner's Educational Attainment

Model 3.4: Next we control for the educational attainment of the spouse. Inserting this covariate to the model further diminishes the birth-risk differentials between the groups under consideration.

The educational background of the spouse has a U-shaped influence on third-birth risks. Women who are married to a man without a school-leaving certificate (here, the biggest group in the sample are first-generation immigrants, see Table A31) have transition risks that are almost 60% higher than those of women married to a husband with a first degree or with secondary education (+25%; see Table 3.27).

3.5.6 Immigration Background

Models 3.5: Finally, in order to test the socialization hypothesis, we draw a comparison within the immigrant generation groups by country background. Again due to the sample size, the women of Yugoslavian, Greek, Italian, and Spanish descent are grouped into a single category (SSEE – Southern and Southeastern Europe). Model 3.5A (Table 3.28) detects significant differences between Turkish women and women from SSEE countries. The highest transition rates to a third child are estimated for first-generation immigrants from Turkey, whose risk is 73% higher than that of West Germans. In contrast to the second-child behavior, second-generation migrants of Turkish descent have significantly higher transition rates, as well (+42%). Meanwhile, the risk of having a third child is significantly lower for first-generation immigrants from SSEE countries (–27% compared to West Germans), whereas the difference between the second SSEE generation and West Germans is not significant.

Table 3.27 Factors influencing the transition to a third child: spouse's educational attainment – relative risks

Variable	Model 3.4
West German	1
<i>Immigrant generation</i>	
First generation with second birth abroad	1.12
First generation with second birth in Germany	1.11
Second generation	1.02
<i>Age at second birth in years</i>	
<25	1
25–29	0.60***
30+	0.44***
<i>Birth cohort</i>	
1946–1959	1
1960–1969	1.43***
1970+	1.86***
<i>School education</i>	
No degree	1.39**
First or other degree	1
Second degree	1.26*
N.A.	1.85*
<i>Spouse's school education</i>	
No degree	1.59***
First or other degree	1
Second degree	1.25**
N.A.	3.37***
<i>Constant</i>	
Log-likelihood	–5.492***
	–4,127.86

Significance: * = 10%; ** = 5%; *** = 1%; controlled for the age of the second child

Source: Calculations based on GSOEP, 1984–2004; event: third conception

Table 3.28 Factors influencing the transition to a third child: characteristics of immigration background – relative risks

Variable	Model 3.5A	Model 3.5B
West German	1	1
<i>Immigrant generation and country of origin</i>		
First generation with second birth abroad ^a	1.11	1.12
First generation with second birth in Germany, Turkey	1.73***	1.75***
First generation with second birth in Germany, SSEE ^b	0.73**	0.74**
Second generation, Turkey	1.42*	1.41*
Second generation, SSEE ^b	0.84	0.84
<i>Spouse's origin^c</i>		
Migrant from same country		1
Migrant from different country or German		1.03
N.A.		0.92
Log-likelihood	–4,113.32	–4,113.24

Significance: * = 10%; ** = 5%; *** = 1%; controlled for age of the second child, age at second birth, birth cohort, school education of the woman; school education of spouse

^aTurkey, Yugoslavia, Greece, Italy, Spain

^bSSEE (Southern and Southeastern Europe): Yugoslavia, Greece, Italy, Spain

^cConditional covariate for immigrant women

Source: Calculations based on GSOEP, 1984–2004; event: third conception

Model 3.5B controls for the country background of the husband for immigrants only (conditional covariate). This step does not significantly change the results, and it should be noted that the vast majority of the immigrant women in the third-child sample are homogeneously married.

3.5.7 Further Covariates

Further control variables have been added to this analysis as well. Their sample statistics and results are displayed in the Appendix (see Tables A32–A35). In contrast to the analysis of the previous births, the variables on the type of place where the women lived at age 15 and the religious affiliation do not influence the parity-transition rates.

One finding may be interesting: women who have two children of the same sex are significantly more likely to have another child than mothers of a boy and a girl. This applies to immigrants as well as to West Germans, and confirms the findings of international literature (Andersson et al. 2007).

3.5.8 Intermediate Conclusion

The analysis of the third-birth behavior once again contradicts the hypothesis of disruption. No fertility-decreasing effect can be found either for immigrants who have lived in West Germany for several years and had one or both precedent births in that country, or for immigrants who moved with two children. Instead, as in the case of second births, there appears to be an “arrival” effect for mothers moving with two children, as these women have elevated fertility risks compared to the other immigrant groups and West Germans. These risks can be explained, however, by compositional differences between the new immigrants and West Germans: these immigrants have had the first two children at relatively young ages, and are therefore more likely to have another child. The age at the second birth is also the crucial explanatory variable for the elevated birth risks of the first-generation immigrants who arrived in West Germany before the second birth.

As for the hypotheses of adaptation and socialization, evidence for both can be found: first-generation immigrants who moved without children or with one child to West Germany have smaller transition rates than immigrants who moved with two children. That the risks are nevertheless elevated is explained by the young age at second-time motherhood.

Most important, however, is the support of the socialization hypothesis found here. First-generation immigrants show large differences by country background, with Turks having much higher birth risks than West Germans, and women from SSEE countries having even lower risks than Germans. The differences continue in the second generation, except that the birth risks of the second generation from SSEE countries and West Germans are not significantly different from each other.