Regional Contexts and Family Formation: Evidence from the German Family Panel (pairfam)

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- will be updated before presentation -

Abstract: In addition to lasting differences in family formation behaviors between East and West Germany, substantial variation in marriage and fertility patterns continue to exist on a smaller-scale regional level. Following a multilevel approach, our study uses longitudinal data from the German Family Panel (pairfam), enhanced with a rich set of district-/community-level indicators, to investigate the extent to which spatial variations in family formation behaviors result from differences in population composition or from 'true' context effects. The respondents are members of particular cohorts born in 1981-83 and 1971-73. The contribution of our multilevel analysis to the existing literature is threefold: While, first, previous research almost exclusively focused on women, our data allow us to consider both sexes. Second, earlier studies did not pay much attention to regional differences within Eastern Germany, whereas we include all of Germany in our analysis. Third, and finally, to the best of our knowledge our study is the first one to provide a quantitative assessment of possible contextual effects on individuals' fertility intentions (in addition to considering first marriages and first births). Our findings show that regional diversity on individuals' family formation behaviors is small and somtimes due to socio-structural composition. Differences between East and West Germany are still apparent, though. Urbanization and economic conditions are also significantly correlated with the number of children of cohort members and fertility intentions. Finally there is evidence for effects of selective spatial relocation on the transition to first birth.

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1. Introduction

Even more than 20 years after Unification, the 'demographic divide' between the Eastern and Western German federal states still receives considerable attention (e.g., Cassesn et al., 2009). While this seems justified particularly against the background of persistently different patterns of fertility and family dynamics in East and West (e.g., Arránz Becker et al. 2010; Huinink et al. 2012), it should not lead us to neglect the existence of historically long-standing fertility differentials between smaller regional units, such as districts (e.g., Basten et al. 2011; Hank 2001). The extent of such variation becomes very clearly visible when looking at the regional distribution of marriage (*Figure 1*) and fertility (*Figure 2*) rates across Germany, even though the range is quite small. In 90 % of the districts the marriage rate varies between 3.2 (*Leipzig*) and 7.0. (e.g. *Potsdam*). The median is 5.6. The CMR in one region is even 29.7 (island *Rügen*). District-level total fertility rates range from close to 1 in the Southern German 'urban' districts of Würzburg, Passau, and Heidelberg to almost 1.7 in the Northern 'rural' districts of Cloppenburg and Ludwigslust.. The median TFR is 1.43 what is clos the TFR in total Germany.

[Figure 1 about here]

[Figure 2 about here]

Although a substantial share of the regional variation in West German women's fertility decisions appears to result from differences in *population composition* (e.g., Hank 2002a; 2003), there also is clear evidence for 'true' *contextual effects* on individuals' family formation behaviors (for recent international evidence see Fiori et al. 2014; Kulu 2013). For the (Western) German case, however, structural conditions, such as the availability of public daycare for children (cf. Hank et al. 2004), seem to be less relevant for the individual than regional *socio-cultural milieus*. These have been shown to affect women's (and men's; cf. Hank 2002b) propensity to marry, thereby having an indirect, that is, mediated impact on individuals' fertility decision (Hank 2003).

The role of such regional socio-cultural milieus in determining individual behaviors and the underlying multilevel processes can only be understood appropriately by taking a small-scale regional perspective. Exploiting longitudinal data from the German Family Panel (*pairfam*), which we enhance with regional indicators at different levels of spatial aggregation, our analysis expands previous research in this realm in several ways. While small-scale regional analyses of family formation (i.e. first marriages and first births) so far almost exclusively focused on West Germany (but see Kopp 2000) and on women (but see Hank 2002b), the present study draws, *first*, on regionally representative data from East Germany and, *secondly*, includes information on men's partnerships and fertility. Moreover, *thirdly*, no quantitative empirical study has yet investigated the potential role of contextual factors on fertility *intentions* of childless men and women in Germany. Closing this research gap is an important aim of our analysis, which thereby complements a number of recent studies on the relationship between childbearing intentions and reproductive behavior (e.g., Eckhard & Klein 2006; Huinink et al. 2008; Morgan & Rackin 2010).

2. The role of contextual factors in individuals' family formation

Starting out from a model of sociological explanation in which life-course events are determined by both individual characteristics and the living conditions in specific regional social contexts (e.g., Esser 1988), *multilevel models* evolved as a by now well-established analytical instrument to investigate a broad range of research questions in the field of family sociology and demography (e.g., Courgeau & Bacciani 1998; Teachman & Crowder 2002). In such models, macro-phenomena can be conceived as limiting *frames of reference* setting the agenda for micro-processes (cf. Münch & Smelser 1987: 381f.). Following this general approach, we conceptualize regional social contexts as socio-cultural reference frames (e.g. norms, values) and as opportunity structures (e.g. infrastructures). We assume that the 'collective properties' of a regional context (such as local norms concerning non-marital childbearing or the local supply of public childcare) translate into 'contextual properties' of individuals (Lazarzfeld & Menzel 1969), that is, into relatively invariant structural parameters

directly affecting the individual's behavior (see Hank [2002a; 2003] for a more detailed discussion).

Focusing on a set of selected key regional indicators, we now briefly describe how such contextual properties might be related to men's and women's family formation behavior (including fertility intentions; see Meggiolaro 2011; Wesolowski 2014). (Note that the individual-level control variables employed in our models – age, education, parental and marital status, as well as information on whether the individual lives in East Germany or is a foreigner – are standard ones and will therefore not be discussed here any further.) We particularly focus on the role of local *opportunity structures*, which – in the context of our study – may be defined by "economic opportunities and constraints that are linked to childbearing and its proximate determinants [… and by …] the local demography, specifically the distribution of the population by social and demographic characteristics, which affect access costs for engaging in particular behaviors (e.g., by determining the availability of suitable partners)." (Billy & Moore 1992: 980; see also Basten et al., 2011, for a thorough discussion)

Opportunity structures are closely related to a region's *degree of urbanization* (e.g., Kulu 2013). It has been argued, for example, that rural-urban differentials are likely to mark different socio-cultural milieus regarding family-related attitudes or values and that the effect of neighborhood-specific social interactions on marital timing "weakens as the size of the larger geographic area in which the neighborhood is embedded increases" (South & Crowder 2000: 1073), because there is less cohesion and involvement in urban than in rural communities. Moreover, since urban areas generally offer more alternatives to traditional family formation and provide a less appropriate environment for rearing children than rural areas, individuals should exhibit a decreasing propensity to marry and have a child with increasing population density.

Properties of the local *marriage market* are likely to play an important role, because the selection of potential mates tends to grow out of spatially circumscribed social networks (e.g., Lengerer 2001; South & Crowder 2000; also see Stauder 2011). A shortage in the number of desirable partners on the marriage market – resulting from imbalanced sex ratios, for example

– thus often leads to relatively high proportions unmarried or to a delay of marriage. Conversely, Lloyd & South (1996: 1114) showed that "a surplus in the quantity of females facilitates men's marital transitions by enhancing their assortative mating process", which is consistent with theories of marital search behavior. It is hence generally predicted that individuals encountering numerous individuals of the opposite sex in the local marriage market will have high marriage rates.

Access to *children's day care* plays an important role for the compatibility of childrearing and (female) employment and therefore is a potentially crucial element of the regional opportunity structure. Since the availability of adequate child care reduces the opportunity costs of childrearing – especially for women who want to pursue an employment career – individuals should be more likely to have children if the public provision of day care increases (although the empirical evidence supporting this assertion is very mixed; see Andersson et al. 2004; Hank et al. 2004; Rindfuss et al. 2010).

The direction of an effect of the regional *unemployment rate* on fertility is difficult to predict (see Kravdal, 2002 for a discussion). Since individuals' labor supply partly depends on the demand for labor, women's probability to have a child might move in step with the unemployment rate, because (at least in the short run) this would reduce the opportunity costs of cutting down or giving up market work for starting a family. However, the local labor market situation also is an indicator of the economic situation in general. Women may be expected to be more likely to have a child if unemployment decreases, because children might be considered as more easily affordable, if economic prospects are evaluated positively.

The regional unemployment rate may also have an ambiguous influence on women's entry into marriage. If the labor market situation is perceived as difficult, women could seek economic security in a marriage, where they pool their income with the partner's earnings. However, high unemployment also reduces the number of economically attractive partners on the marriage market, which might result in delayed marriage (e.g., Lichter et al. 1991).

Moreover, if labor market prospects are poor, men may be reluctant to contract a marriage, because it is uncertain whether they will be able to fulfill or maintain their traditional role as the family's primary breadwinner (independent of their own current employment status).

The effect of the *aggregate female labor force participation* on family formation is unclear, too (e.g., Brewster & Rindfuss 2000). Female employment rates clearly mark the degree to which women are expected and able to constitute economic independence from a husband's support. Higher female labor force participation rates may thus "serve as a deterrent to men's marriage formation" (Lloyd & South 1996: 1114) and might reduce women's propensity for having a child and contracting a marriage. However, a higher labor force participation of women could also reflect a more favorable interplay between the family and labor market institutions, benefitting working parents in particular. The probability of having a child may thus be positively associated with women's participation in the labor market.

Finally, actors are likely to be influenced by behavioral expectations and actual behavior they witness in their social environment. South and Crowder (2000: 1069), for example, point out that socially dislocated areas might "lack successful marital role models that signal the benefits of marriage and provide the normative expectations to marry." Along the same lines, fertility has been suggested to be 'contagious' (e.g., Lois & Arránz Becker 2014). That is, we might expect *aggregate indicators of family formation* to be associated with individuals' related behaviors.

When regional effects are considered one always has to take into account the individual can be spatially mobile and select in different types of residential environment or regions the think is appropriate for what their life plans are (Basten et al. 2012, Kulu/Milewski 2007; Huinink/Wagner 1989). Regional differences in fertility and marriage rates can be expected to be at least by part the result of selective migration. Interestingly, recent studies seem to show that it is hard to explain regional differences by processes of relocation– even in the case of the contrast between urban and suburban fertility (Kulu et al. 2009). In some recent studies

from Britain residential moves do not play a role (Kulu/Washbrook. 2014, Fiori et al. 2914) – neither in the positive direction (selective relocation because of family reasons) nor in the negative direction (disruption effects or selective migration because of career reasons). However, Myers (2010) for US and Vidal et al. (2013) find evidence on the relationship between spatial mobility and fertility intentions.

3. Data & method

Our analysis is based on data from waves 1-4 of the German Family Panel (*pairfam*; Release 4.0), which is funded as a long-term project by the German Research Foundation (cf. Huinink et al. 2011, Nauck et al. 2013). The first wave has been conducted in 2008/09 and the other waves followed year by year. The respondents are members of the cohorts born in 1971-73, 1981-83, and 19191-93. In this analysis we include only the first two cohorts. At the first wave the respondents have been of age 35-37 and 25-27 respectively. We enhance this mico-level database with information from two sources providing an array of contextual indicators at different levels of regional aggregation. For our main set of models we employ district-level indicators derived from the most recent edition of *INKAR* (BBSR 2012).

Dependent variables. First, we estimate regional diversity in the number of children of men and women in the two cohorts at wave 1. We supplement it by a model on *childlessness*. Second, we analyze respondents' *intention to have a first or another child* within the next two years at wave 1 (see Buhr & Kuhnt, 2012, for a discussion of different conceptualizations of fertility intentions in pairfam). Third and fourth, we estimate models on the respondents' transition into *first marriage* and to *first parenthood* (first birth or first pregnancy reported) between wave 1 and 4 of pairfam. Because of the young age of the respondents the analysis of higher order births is not performed in this study.

Contextual-level explanatory variables. In addition to taking into account whether individuals' live in *East* or *West Germany*, a core contextual variable in our analysis is the degree of *urbanization* according to the German BIK classification. We distinguish city centers of big cities (100.000 inhabitants and more), regions in the periphery of big cities, medium sized cities (5.000 to 50.000 inhabitants) and rural areas. We treat this information as

time dependent in the model of the transition to first marriage and first birth between waves 1 and 4. Additionally, we consider the following district-level variables: the proportion of children under the age of 3 attending a public *child care* facility; the local *unemployment* and *female labor force participation rate*, the (crude) *divorce rate*, and – depending on the model – the *sex ratio* (transition to marriage) and *the local (crude) marriage rate* (transition to first birth).

Individual-level control variables. Micro-level control variables account for the individual's *age* (cohort, respectively) and – employing binary indicators – her/his highest *educational level* (distinguishing between low, medium, and high as well as for still being in education), *marital status*, and *migration background*. Furthermore in the discrete time regression models we include a time depended indicator of a *relocation* during the observation period (residential mobility and migration). This allows us to account for a change in the place of living or kind of residence up to the year of marriage or childbirth. This does not allow causal inferences unfortunately but is an at least preliminary way to account for respective effects.

Method. For estimating the number of children we apply multilevel Poisson-regression. Analyzing the intention to have a child we apply a cross-sectional multilevel logistic regression. Finally, we estimate multilevel discrete-time rate models on a yearly basis by estimating random intercept models for binary data (cf. Barber et al. 2000; Guo & Zhao 2000). In all models, the constant is allowed to vary across countries, i.e. it consists of a fixed component and a normally distributed random error term, which takes the same value for all observations within a specific context (e.g. *Kreis*). This error term measures the deviation of each country from the fixed part of the constant (between-context variance), thereby accounting for the correlation between individuals nested within the same *Kreis* and capturing otherwise unobserved context effects. If the standard deviation of the macro-level error term (denoted as σ_u^2) turns out to be statistically significant from zero, such effects are present. Some models do did not converge in a proper way.in this case we did a robust regression without estimating the regional variance component.

The discrete-time rate-regression models, which we employ to estimate individuals' odds of family formation (first marriage/first birth), use multiple observations for each individual in the sample, i.e. each time unit during which an individual is observed contributes a separate and independent observation to the input data. For each of these observations, the dependent variable is coded 1 if the event occurs, 0 otherwise. The results of the logistic regressions are presented as odds ratios.

4. Empirical findings

In table 2 (first three columns) the results of the multilevel Poisson-regression on the number of life births reported by men and women of the two older cohorts in the first wave are displayed. In the model without covariates the regional variance is significant but quite small. When we include relevant individual characteristics we find expected coefficients indicating their correlation with the number of children. All of them are highly significant. The regional variance now is very small but still significant on the 0.1-level. When we include district level indicators the variance of the random intercept cannot be estimated with our data. Applying a robust Poission-regression we find a significant positive contrast between living in a medium sized city compared to rural areas. Rural areas interestingly do not differ from big cities and their periphery. The unemployment rate and the share of female labor force participation rate are positively related to the number of children of the respondents in our two cohorts.

[Table 2 about here]

In the last column of table 2 a logistic regression on the probability of being childless at the time of the first interview is displayed. For the younger cohort it reflects dufferences in the timing of family formation. Again the multilevel model did not converge. Therefore, we performed robust logit estimation. The results of this model show even clearer findings regarding the correspondence between regional characteristics and childlessness than the model on the number of children. Childlessness is more likely when respondents live in West

Germany and the center of big cities compared to all other levels of urbanization Interestingly this is true for both cohorts, i.e. at younger and older ages (not shown in the table).

In previous studies there has been no analysis of regionally disparate fertility intentions but only fertility outcomes. We know that it makes a difference as men or women can have a fertility intention even though the prerequisites to have a child are not optimal yet and they might also intend to life conditions accordingly (comp. Huinink/Feldhaus 2012). Therefore one can expect that regional variation of the likelihood to intent having a child during the next two years – accounting for age and other individual characteristics – should not be too big or at the most reflect less structural than cultural differences between regions. In table 3 the results of the multilevel logit-model of the probability to intend a first child at the time of the first wave are displayed. It has been estimated for man and women not being pregnant at the time of interview and biologically being able to have a child.

[Table 3 about here]

In the first three columns one can see different models for intending a first child. Already in the "empty" model the regional variance is only weakly significant. After including the individual characteristics it even becomes somewhat stronger but it declines again when regional attributes are considered in the third model. However, only the East-West indicator is strongly significant. This is primarily the case in the younger cohort (results not shown). That corresponds to other findings saying that family formation in East Germany is still realized (and intended obviously) at a younger age. In the last column the intention for a second or higher order child is analyzed. Here a significant regional variance is evident even in the full model. The intention to have a second or higher order child seems to be comparably low for respondents living in small cities after accounting for all other factors. This seems to be somewhat strange and has to be investigated further.

In the next step we analyze regional disparities in the transition to first marriage. Previous findings by Hank (2002a) showed that regional differences in marriage rates are a major reason for diverging rates in family formation in West Germany. In his earlier analyses

he could not "explain" these regional differences in marriage behavior by socio-structural composition and structural attributes of regions.

The results in Table 4, again based on data from our two cohorts whose members have been 25-30 years old (younger cohort) and 35 to 40 years old (older cohort), show that there is significant regional diversity in first marriage rates in these two age intervals. It is not due to social-structural composition. Even though the coefficients of nearly all regional level factors do not differ from 0 significantly, including them lets the regional variance drop considerably. The economic situation seems to have a strong impact on marriage rates. This is especially true for the younger cohort (results not shown). The East-West contrast is also strong but the respective coefficient is not significant due to the high correlation with unemployment rates.

[Table 4 about here]

In the final step a model of the transition to first birth resp. first pregnancy is estimated. The results are displayed in Table 5. Again, in the empty model we find a highly significant variance between regions. This holds true after including the individual level indicators. Even though having married has a very strong effect in the model the regional variance increases only slightly where this variable is not included (results not shown).

[Table 5 about here]

Including regional level variables again lets drop the variance considerably. The coefficients of the unemployment rate and the crude marriage rate are close to 0.1-level of significance. If we now excluded the marriage indicators the regional variance would stay significant what is in accordance with Hank' earlier findings.

So far, a relocation (residential mobility or migration) was not found to play any relevant role in the estimated models. In the case of the first birth we go a little bit more in detail with it. We consider an interaction between the degree of urbanization of the current place of living and having performed a relocation. One can assume that the characteristic of

the place of living is a result of the move. Interestingly we here find a clear pattern of plausible effects. Having moved to a small city or the countryside is positively related to the transition rate to first birth (compared to staying in big cities) and moving to a big city is negatively related to it. This shows that selective migration has to be assumed. However, these are preliminary results, which have to confirmed by more intensive analyses.

5. Discussion

In our study we analyzed different steps of the family formation process starting with the fertility intention and proceeding with the transition to marriage and first birth. In our first model, more due to a descriptive interest than to identify causal relationships we analyzed the regional diversity in the number of children. We did not cover the whole age range but focused an cohorts born in 1982-83 and 1971-73 which are in a special phase of the life course. He younger cohort is at the onset of the main fertility period. The older cohort is close to the end of it. Even though one would expect considerable differences between those cohorts regarding our models only a few interactions with the other independent covariates have been identified. Therefore, we did not display the separate models here.

Our findings show that regional diversity on individuals' family formation behaviors is small. Differences between East and West Germany are still apparent, though. The size of the place of living and economic conditions are of relevance. We also found some evidence for effects of selective migration.

Our study shows that medium scale regional disparities (district level) in family formation might have shrunk strongly. This is in accordance with other studies, e.g. from Britain (Kulu/Washbrook 2014, Fiori et al. 2014). It is probably not due to the fact that our models are quite parsimonious and not very detailed in regard to mapping relevant life course trajectories. However, this can be improved. We also deal with the mobility issue quite roughly, so far. Interactions of individual characteristics with regional level factors have not been looked at extensively.

Further research should go in three directions. First, one should study smaller geographical units like neighborhoods. One should go more into detail with modeling the

local environment of the respondents using data, which provide very small-scale contextual information, for some variables even down to the level of housing blocks (MICROM data). Second and connected with the first point, mobility issues have to addressed more precisely as an integrated part of a multi-dimensional life course. Doing this probably means however that analyzing the time of pregnancy or the birth of a child is misleading if one wants to identify causal mechanisms because the birth event is not the adequate time point. Important decisions have been taken earlier. Already intending a child leads to activates in other life domains and planned changes have been accomplished when the family formation takes place (Vidal/Huinink/Feldhaus 2013). Third we need to learn more about cultural effects. One way is to devote more attention to historical studies of regional disparities (Lesthaeghe/Neels 2002). One could analyze in greater detail long term regional idiosyncrasies in first union formation behaviors and first sexual intercourse or have a closer look on regional diversity of divorce (e.g., Kulu 2012; Lyngstad 2011).

6. References

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Figures

Figure 1: Regional distribution of crude marriage rates in Germany (2010)

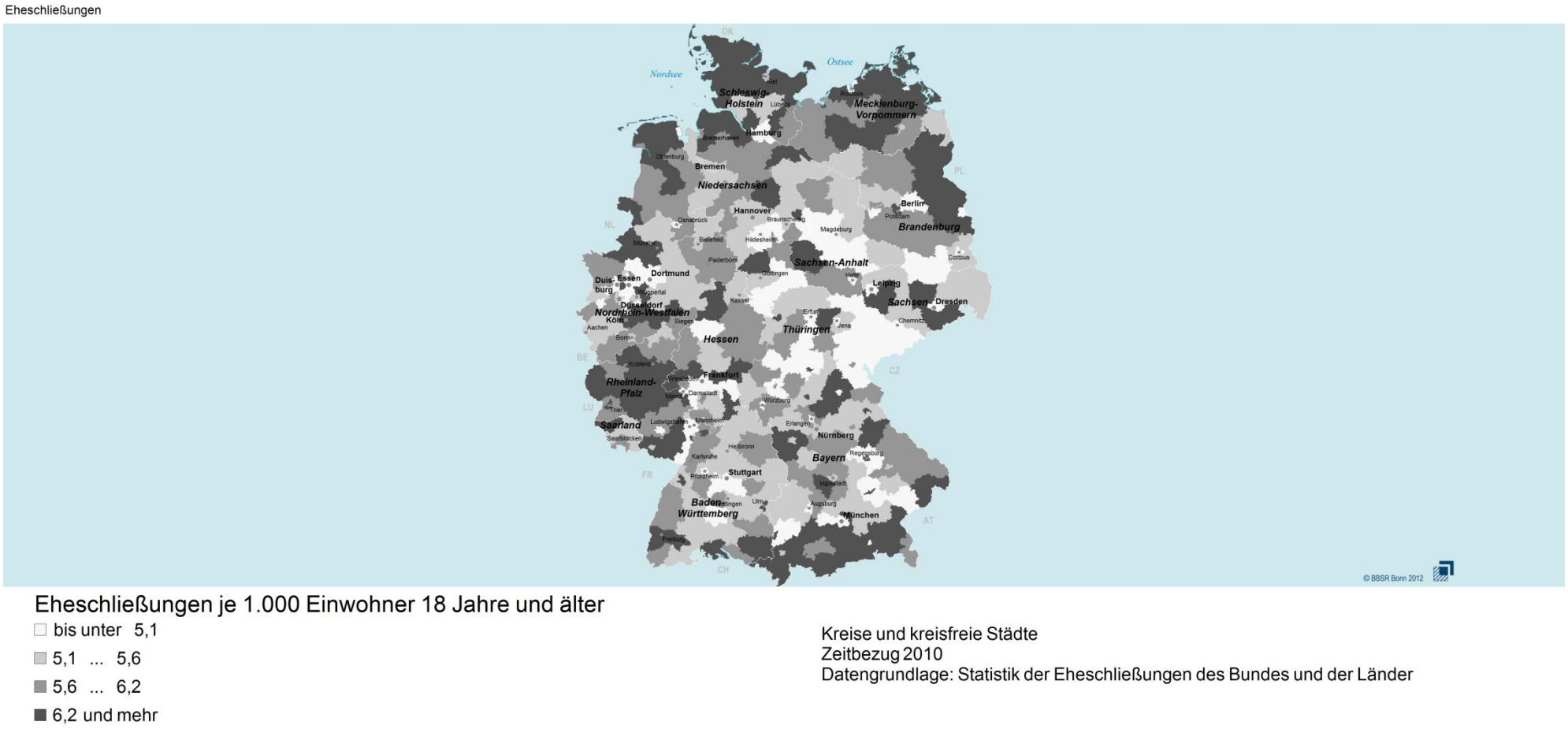
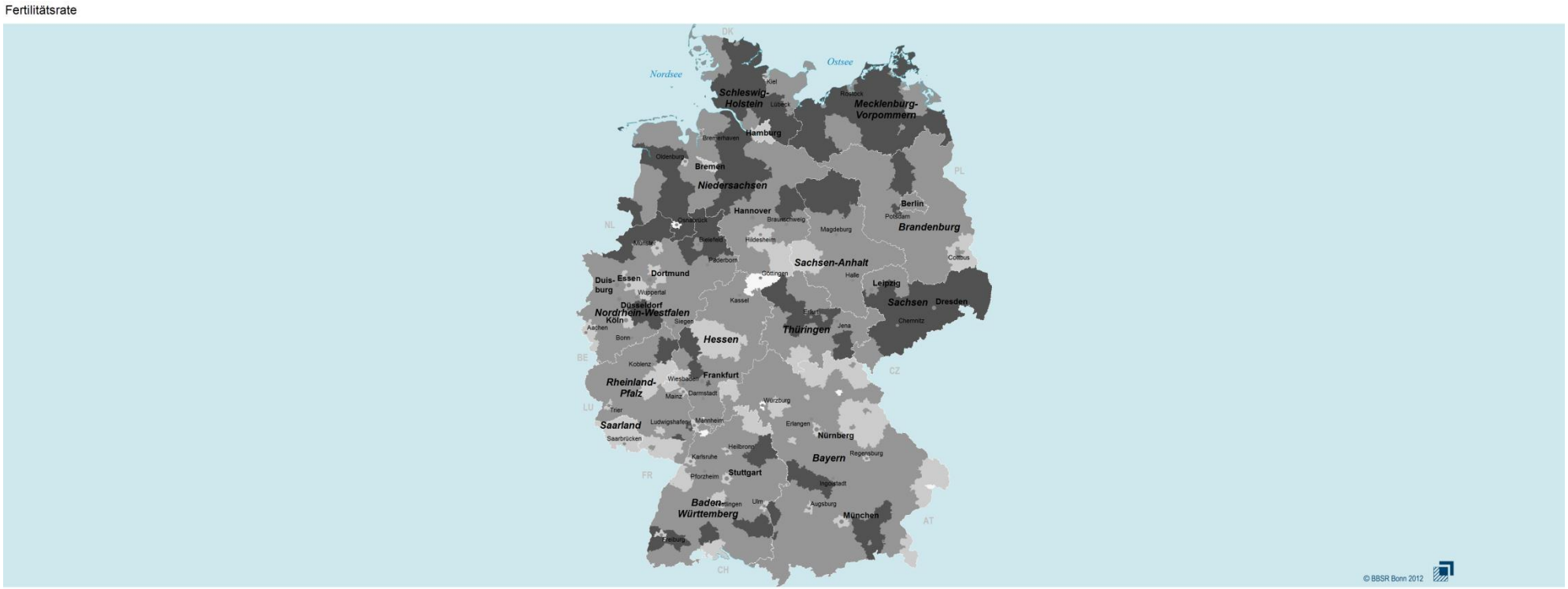


Figure 2: Regional distribution of total fertility rates in Germany (2010)



Tables

Table 2: Multilevel poisson regression (robust poisson regressen) for "number of children" and logistic regression on "childlessness" (at first wave)

		Poisson models		Logist. model[1)]
N of children	empty	+ individ.	+ context[1)]	full model
Female		0.32**	0.33**	-0,98**
		(0.026)	(0.022)	(0.066)
Cohort 1981-83 *(vs. cohort 1971-73)*		-0.84**	-0.84**	1.77**
		(0.032)	(0.034)	(0.069)
In education		-0.66**	-0.64**	0.76**
		(0.105)	(0.108)	(0.153)
Low education (*vs. medium education)*		0.41**	0.43**	-0.95**
		(0.037)	(0.039)	(0.130)
High education (*vs. medium education)*		-0.19**	-0.17**	0.58**
		(0.030)	(0.026)	(0.075)
Married		1.06**	1.07**	-2.55**
		(0.032)	(0.041)	(0.075)
Native German		-0.08**	-0.10**	0.27**
		(0.028)	(0.027)	(0.077)
East German			0.11	-0.64**
			(0.068)	(0.146)
Periphery of big cities (*vs. big city center*)			0.03	-0.22**
			(0.032)	(0.083)
Small cities (*vs. big city center*)			0.09**	-0.32**
			(0.033)	(0.087)
Rural areas (*vs. big city center*)			0.004	-0.15
			(0.051	(0.144)
Public childcare (<3)			-0.002	0.01
			(0.002)	(0.005)
Unemployment rate			0.02*	-0.07**
			0.006	(0.016)
FLP rate			0.01*	-0.02
			(0.005)	(0.010)
Crude divorce rate			-0.02	0.03
			(0.03)	(0.066)
Constant	-0,122**	-0.90**	-1.47**	2.66**
	(0.017)	(0.057)	(0.264)	(0.557)
# obs. (respondents)	7,303	7,303	7303	7.303
# obs. (Kreise)	242	242	242	242
σ_u^2	0.024**	0.004$^+$		
Log likelihood	-9567.1	-7453.3	-7426.8	-3033.0

Standard errors in parentheses; ** p<0.01, * p<0.05, + p<0.1

[1)] Robust poisson-regression without random coefficient estimated.

Table 3: Multilevel logit regression for
"intention to have a first (another) child within next 2 years" (at first wave)

		First child		Another child
Fertility intention	empty	+ individ.	+ context.	full model
Female		0.53**	0.53**	-0.31**
		(0.075)	(0.075)	(0.087)
Cohort 1981-83 *(vs. cohort 1971-73)*		-0.16^{+}	-0.16^{+}	1.09**
		(0.088)	(0.088)	(0.094)
In education		-0.60**	-0.57**	-0.01
		(0.135)	(0.137)	(0.280)
Low education (*vs. medium education)*		-0.19	-0.16	-0.25^{+}
		(0.163)	(0.162)	(0.137)
High education (*vs. medium education)*		0.25**	0.27**	0.47**
		(0.084)	(0.085)	(0.099)
Married		0.66**	0.68**	-0.16^{+}
		(0.105)	(0.105)	(0.098)
Native German		-0.12	-0.18^{+}	0.02
		(0-091)	(0.092)	(0.095)
East German			0.77**	-0.19
			(0.249)	(0.294)
Periphery of big cities (*vs. big city center*)			-0.17	-0.20
			(0.112)	(0.133)
Small cities (*vs. big city center*)			-0.13	-0.26*
			(0.106)	(0.124)
Rural areas (*vs. big city center*)			0.03	-0.29
			(0.193)	(0.236)
Public childcare (<3)			-0.00	0.01
			(0.001)	(0.008)
Unemployment rate			-0.04^{+}	-0.02
			(0.021)	(0.026)
FLP rate			-0.00	-0.01
			(0.015)	(0.018)
Crude divorce rate			-0.07	-0.12
			(0.095)	(0.115)
Constant	-0.80**	-1.45**	-0.74	-0.01
	(0.039)	(0.157)	(0.825)	(0.115)
# obs. (respondents)	3641	3641	3641	3662
# obs. (Kreise)	242	242	242	242
σ_u^2	0.040^{+}	0.059*	0.019	0.084*
Log likelihood	-2251.6	-2165.2	-2150.8	-1821.2

Standard errors in parentheses; ** p<0.01, * p<0.05, + p<0.1

Table 3: Multilevel discrete-time logit regression for "entry into first marriage" (in interview year)

1st marriage	empty	+ individ.	+ context
Female		0.14	0.12
		(0.098)	(0.098)
Cohort 1981-83 *(vs. cohort 1971-73)*		0.44**	0.46**
		(0.117)	(0.117)
In education		-0.81**	-0.82**
		(0.234)	(0.235)
Low education (*vs. medium education)*		0.46*	-0.49*
		(0.199)	(0.200)
High education (*vs. medium education)*		0.36**	0.31**
		(0.106)	(0.106)
Child born		0.73**	0.88**
		(0.113)	(0.115)
Native German		-0.37**	-0.32**
		(0.113)	(0.113)
Relocation		-0.08	-0.08
		(0.168)	(0.167)
East German			-0.38
			(0.282)
Periphery of big cities (*vs. big city center*)			-0.04
			(0.144)
Small cities (*vs. big city center*)			-0.19
			(0.147)
Rural areas (*vs. big city center*)			-0.13
			(0.258)
Proportion ♀/♂(20-40)			-1.51
			(1.21)
Unemployment rate			-0.07*
			(0.027)
FLP rate			-0.01
			(0.018)
Crude divorce rate			-0.02
			(0.120)
Constant	-3.03**	-3.51**	-0.69
	(0.053)	(0,208)	(1.62)
# obs. (person-years)	10,309	10,309	10,308
# obs. (Kreise)	304	304	303
σ_u^2	0.069*	0.100**	0.035
Log likelihood	-1932.9	-1886.5	-1869.3

Standard errors in parentheses; ** p<0.01, * p<0.05, + p<0.1

Table 4: Multilevel discrete-time logit regression for
"first birth *or pregnancy* (in interview year)"

1st birth	empty	+ individ.	+ context	+ interaction
Female		-0.00	0.01	0.00
		(0.086)	(0.085)	(0.085)
Cohort 1981-83 *(vs. cohort 1971-73)*		0.35**	0.36**	0.36**
		(0.100)	(0.100)	(0.100)
In education		-0.55**	-0.50**	-0.50**
		(0.190)	(0.192)	(0.192)
Low education (*vs. medium education)*		0.24	0.25	0.25
		(0.175)	(0.174)	(0.174)
High education (*vs. medium education)*		-0.05	-0.01	-0.01
		(0.093)	(0.094)	(0.094)
Married		2.03**	2.05**	2.05**
		(0.089)	(0.089)	(0.090)
Native German		-0.16	-0.22*	-0.22*
		(0.099)	(0.101)	(0.101)
Relocation (and in big city center)		-0.05	-0.04	-0.36+
		(0.144)	(0.144)	(0.217)
East German			0.28	0.26
			(0.291)	(0.295)
Periphery of big cities (*vs. big city center*)			0.05	0.02
			(0.127)	(0.132)
Small cities (*vs. big city center*)			0.06	-0.01
			(0.124)	(0.128)
Rural areas (*vs. big city center*)			0.18	0.07
			(0.223)	(0.236)
Relocated and in periphery				0.35
				(0.368)
Relocated and in small city				0.71*
				(0.341)
Relocated and in rural area				1.08+
				(0.641)
Public childcare (<3)			-0.01	-0.01
			(0.008)	(0.008)
Unemployment rate			0.04	0.04
			(0.024)	(0.024)
FLP rate			0.02	0.02
			(0.017)	(0.017)
Crude marriage rate			0.04	0.04
			(0.026)+	(0.026)
Crude divorce rate			-0.12	-0.12
			(0.108)	(0.108)
Constant	-2.57**	-3.28**	-4.16**	-4.15**
	(0.048)	(0.182)	(0.957)	(0.960)
# obs. (person-years)	9,307	9,307	9,306	9,306
# obs. (Kreise)	304	304	303	303
σ_u^2	0.072**	0.074*	0.022	0.027
Log likelihood	-2436.1	-2153.2	-2143.3	-2140.4

Standard errors in parentheses; ** p<0.01, * p<0.05, + p<0.1