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Single Motherhood in East and West Germany: What Can Explain the Differences?

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What Can Explain the Differences?

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Abstract: The share of single mothers is higher in East Germany than in West Germany. Using data from the Socio-Economic Panel (SOEP), we examine two transmission channels leading to single motherhood, namely out-of-partnership births and separations of couples with minor children. Women in East Germany have both a higher probability of out-of-partnership birth and a higher probability of separation. We find no evidence that availability of child care plays a role in the differences between East and West Germany. The differences in single motherhood appear to be rather driven by cultural and economic factors.

JEL: J12, J13, P20.

Keywords: Out-of-partnership birth, separation of couples, cohabitation, child care, unemployment, culture.

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1. Introduction

Two decades after reunification there are still large differences between East and West Germany. This does not only hold for the economic circumstances but also for the various dimensions of social life including single parenthood. Official statistics show that the share of parents living without a spouse or cohabiting partner in the household is substantially higher in East than in West Germany (Statistisches Bundesamt 2010). In the year 2009, 27 percent of East German families were single parent families. The share of single parent families in West Germany amounted to 17 percent.

This raises the question of what causes the differences between East and West Germany. As most single parents are single mothers, our study addresses the question by examining two transmission channels leading to single motherhood. Using data from the SOEP, we examine both out-of-partnership births and separations of couples with minor children.[1] Our results show that East and West Germany differ in both respects. Single women in East Germany are more likely to give birth to a child than single women in West Germany. Furthermore, East German couples have a higher probability to separate than West German couples.

We consider three possible causes for the differences in single motherhood. First, East Germany is still characterized by poor economic outcomes implying that there is a lower share of men with a high earnings capacity. The lower earnings capacity of men may lead East German women to search more often for a new partner or to raise their children even without the help of a partner. Second, availability of child care is much higher in East than in West Germany. Availability of child care allows mothers to combine work and family even if there is no partner in the household. Hence, mothers'

dependency on a partner may be lower in East Germany. Third, cultural differences may play a role. People in East and West Germany lived under completely different political regimes for 45 years. This may have resulted in the emergence of different norms of love, partnership and family in the two parts of Germany.

We run regressions with and without control variables for the economic situation and for the availability of child care. Including these variables does not change the pattern of results on out-of-partnership births. East and West German women differ in the probability of out-of-partnership birth even when taking the economic situation and the availability of child care into account. This suggests that the differences in out-of-partnership births may be rather due to cultural factors.

As to the higher rate of separations in East Germany, our estimates show that the economic situation but not the availability of child care plays a role. Moreover, the higher rate of separations can be explained by a higher share of cohabiting couples. Cohabiting couples have a higher likelihood of separation than married couples. We argue that the different shares of cohabiting couples in East and West Germany at least partially reflect cultural differences.

On a whole, our analysis suggests that both cultural and economic factors play a role in the higher share of single mothers in East Germany. We find no evidence that the availability of child care can explain the different shares of single mothers in East and West Germany.

The rest of the paper is organized as follows. In the second section, we provide our background discussion. The third section presents the data and variables while the fourth section provides the estimation results. The fifth section concludes.

2. Background Discussion

2.1 Economic Situation

East Germany is still characterized by relatively poor labor market outcomes. In the year 2009, the unemployment rate amounted to 13 percent in East Germany compared to 7 percent in West Germany.[2] The average gross monthly wage of a full-time employee was 2486 Euro in East Germany compared to 3248 Euro in West Germany.[3] Considering the economic theory of family, the poor labor market outcomes should play a role in the higher share of single parents in East Germany.

The economic theory of family assumes that joint production and consumption within a household is the reason for the formation of marital and cohabiting partnerships (see Bergstrom 1997 and Weiss 1997 for surveys). Consumption benefits result from consuming household public goods (including children). Gains in the production of household commodities result from economies of scale and returns to specialization. According to this theory, a man and a woman only form and sustain a partnership if the surplus generated by the partnership is sufficiently high. Other things equal, the size of the surplus depends on the partners' earnings capacity. Given the traditional specialization within families with women being disproportionately responsible for household labor and men being responsible for market labor, specifically a low earnings capacity of men should entail a smaller size of the surplus. This makes the formation of a partnership less likely (Willis 1999, Wilson 1987) and the dissolution of an existing partnership more likely (Becker et al. 1977, Weiss and Willis 1997).

Thus, the poor economic situation in East Germany may entail both a higher rate of out-of-partnership-births and a higher rate of separations. If single women in East

Germany have a smaller chance to find a partner who brings resources to the partnership, they may decide to have a child without a partner. East German women living in a partnership may more often decide to search for a new partner or to raise their children as a single mother if the earnings capacities of their current partners more frequently turn out to be low.

2.2 Availability of Child Care

Availability of child care may be a second factor influencing the differences in single parenthood between East and West Germany. The socialist regime in the former German Democratic Republic (GDR) built up a comprehensive child care system. The reason was that the regime tried to control the socialization and education of its citizens from the very start of their lives. Moreover, the socialist regime pursued the goal of equality including the equality of men and women. Thus, the regime encouraged labor force participation of women by policies that helped reconcile work and family life. After German reunification the comprehensive child care system has survived so that availability of child care is higher in East than in West Germany (Bauernschuster and Borck 2012, Schober and Stahl 2014, Wrohlich 2008).

As child care allows women to combine family and work, it lowers their financial dependence on a male partner. This in turn may reduce women's incentive to form and sustain a partnership. Thus, a higher availability of child care may result in both a higher rate of out-of-partnership births and a higher rate of separations.

2.3 Culture

However, East and West Germany not only differ in the economic situation and in the infrastructure of child care. The differences between the two parts of Germany appear to be much deeper. People in East and West Germany lived under completely different political regimes for 45 years. A series of studies indicate that this has resulted in deep cultural differences. Other things equal, people in East Germany are characterized by higher levels of social distrust (Heineck and Süssmuth 2013, Rainer and Siedler 2009). They exhibit less solidarity and cooperation than West Germans (Ariely et al. 2014, Ockenfels and Weimann 1999) and show stronger preferences for state intervention (Alesina and Fuchs-Schündeln 2007).

Most importantly, there is also evidence that different norms of love, partnership and family have developed in the two parts of Germany. People in East Germany are more likely to hold non-traditional sex role attitudes than people in West Germany (Bauernschuster and Rainer 2012). East Germans are more likely to disagree with the view that women have to stay home in order to take care of the household and the children. They also more often tend to refuse the view that a woman has to support the husband's career instead of making her own. Moreover, sex researchers and cultural historians stress that love and sexuality in East Germany has been to some extent more emancipated (Beutel et al. 2007, Herzog 2008, Lautmann et al. 2004, Mühlberg 1995, Starke 1995). Sexuality in East Germany is characterized by higher levels of sexual activity and mobility and is more frequently to be perceived as gratifying and enjoyable. Relationships between East German men and women appear to be, to a lesser extent, driven by material cost-benefit considerations. These cultural differences can be seen as

the long-term result of the policy of gender equality promoted by the former socialist regime in the GDR.

The cultural differences may be a third explanation for the differences in single parenthood between East and West Germany. Non-traditional gender roles may imply that East German mothers are less likely to rely on a male partner than their West German counterparts. This may imply both a higher likelihood of out-of-partnership birth and a higher likelihood of separation.

3. Data and Variables

3.1 The Data Set

Our empirical analysis uses data from the SOEP (Wagner et al. 2007). The SOEP is a large representative longitudinal survey of private households in Germany. Based on face-to-face interviews, a nucleus of socio-economic and demographic questions is asked annually. Different 'special' topics are sampled in specific waves.

For our analysis, we need information on the availability of child care. This information is not provided by the SOEP but can be obtained from official German statistics. Information on the availability of child care is only published for 2006 and subsequent years. Thus, we focus on waves 2006 to 2011 of the SOEP. We limit our analysis to women without migration background.

3.2 Key Variables

Table 1 provides the definitions of the variables. Our first dependent variable is a dummy variable for out-of-partnership birth. It is equal to 1 in the actual period if a single woman

(without a husband or cohabiting partner) has no child in the previous year and has a child in the actual year. The variable is equal to 0 if the single woman has no child both in the previous and in the actual year. In the initial year 2006, we consider only single women without a child. Hence, our definition of the variable implies that we observe out-of-partnership birth in each year from 2007 to 2011. For the empirical analysis, we pool the data from these years. The analysis on the determinants of out-of-partnership birth is limited to women who are 18 to 35 years old.

The second dependent variable is a dummy variable for separations. As our study aims at examining the determinants of single motherhood, we focus on women with children under age of 16.[4] The dependent variable is equal to 1 in the actual period if the woman has a husband or cohabiting partner in the previous year and is separated from her husband or cohabiting partner in the actual year. The variable is equal to 0 if the woman has the husband or cohabiting partner in the previous and in the actual year. In the initial year 2006, we consider only women with a husband or cohabiting partner. Thus, we observe separations in each year from 2007 to 2011. Again, for the empirical analysis, we pool the respective data from these years. The analysis on the determinants of separation is restricted to women who are 18 to 55 years old.

Our explanatory variable of primary interest is a dummy equal to 1 if the woman resides in East Germany. The dummy is equal to 0 if the woman resides in West Germany. We exclude women who have migrated from East to West Germany or from West to East Germany. For our analysis, we focus on East German women who have lived in East Germany before the fall of the Berlin Wall. Accordingly, we focus on West German women who have lived in West Germany before the fall of the Wall. This helps

capture the potential influence of long-term cultural factors.

The descriptive statistics shown in Table 2 provide first evidence that West and East German women differ in both out-of-partnership births and separations. In the East German sample there are 3 percent of observations with out-of partnership birth compared to 1 percent in the West German sample. The share of observations with a separation is 2 percent in the East German and 1 percent in the West German sample. Hence, the descriptive statistics suggest that both a higher rate of out-of-partnership births and a higher rate of separations contribute to the higher share of single parents in East Germany.

In order to test whether the higher probabilities of out-of-partnership birth and separation among East German women can be explained by child care availability or economic circumstances, we will run regressions with and without including variables for these factors. If the higher availability of child care plays the crucial role, the dummy for residing in East Germany should only emerge as a significant determinant in regressions that do not control for child care availability. It should not emerge as a significant determinant in regressions that control for child care availability. If economic circumstances play the decisive role, the dummy for East Germany should only take a significant coefficient in regressions that do not control for the economic situation. It should not take a significant coefficient in regressions that include variables for the economic situation.

Our measure of child care availability is the number of child care facilities divided by the number children under age 6 in the federal state the woman lives in. We also control for the woman's labor force participation by including a variable for her

actual working hours. The economic situation is captured by a series of variables. We include a dummy equal to 1 if the woman is unemployed. Moreover, we take into account the woman's earnings. In the analysis on the determinants of separations, we also control for the earnings and unemployment of the partner. In the analysis on the determinants of out-of-partnership birth, we include a variable for the male unemployment rate at the federal state level to account for the earnings capacity of potential partners.

If child care availability and economic circumstances cannot explain the differences between East and West Germany, the dummy for East Germany should still emerge with a significant coefficient of roughly the same size even when controlling for these factors. This would suggest that the differences in out-of-partnership births and separations can rather be explained by cultural differences. Of course, this is not direct but indirect evidence of the role of cultural differences. The hypothesis that cultural factors explain the higher share of single mothers is supported by excluding other potential explanations.

However, in the analysis on the determinants of separations, we also take into account whether the woman is married or lives in cohabitation. The descriptive statistics show that cohabitation is much more widespread among East German than among West German mothers. The share of mothers living in cohabitation is 25 percent in East Germany compared to 6 percent in West Germany. To the extent cohabitation is a less stable form of partnership than marriage, these numbers may also reflect cultural differences. By running regressions with and without the control variable for cohabitation, we can check whether the higher probability of separation in East Germany can be explained by the higher propensity for cohabitation. This can be seen as a further

test of the role of cultural factors.

3.3 Control Variables

Building on the empirical literature on the formation and dissolution of families (e.g., Bruze et al. 2015, Kraft 2001, Kraft and Neimann 2009, Weiss and Willis 1997) we include control variables for health, age, education and religiosity. In the regressions on the determinants of separation, we also account for the number of children and for age differences and educational differences between the partners.

4. Results

4.1 Determinants of Out-Of-Partnership Birth

Table 3 provides a series of probit estimations on the determinants of out-of-partnership birth. In regression (1), we include only a constant and the dummy variable for residing in East Germany. The variable takes a significantly positive coefficient. The corresponding marginal effect implies that a single woman in East Germany has a 2 percentage point higher probability of giving birth to a child. Taking into account that this probability is 1 percent for West Germany, the difference between the two parts of Germany is substantial.

In regression (2), we expand the specification by additionally including basic control variables for age, education, health and the year of observation. The variable for health emerges with a significant coefficient. Single women who are more healthy are less likely to give birth to a child. Most importantly, including the basic control variables does not change the result on our key explanatory variable.

In regression (3), we add controls for availability of child care and actual working hours. Both variables take insignificant coefficients and residing in East Germany remains a significantly positive determinant of out-of-partnership birth. Thus, the estimation provides no evidence that the differences between the two parts of Germany can be explained by the higher availability of child care in East Germany.

In regression (4), we add variables for the economic situation to our basic specification (2). The coefficients on these variables are insignificant while the coefficient on the dummy for East Germany still remains significant. Hence, the regression does not suggest that economic factors can explain the differences in out-of-partnership birth.

Finally, in column (5), we present the results of a full specification that includes all explanatory variables. This specification also takes into account religious affiliation. Single women with a Catholic or Protestant affiliation have a higher probability of out-of-partnership birth. An explanation for this finding could be that religious women tend to avoid abortion. The variables for actual working hours and for the economic situation now also emerge with significant coefficients. The probability of out-of-partnership birth is increasing in the actual working hours. Unemployed single women and single women with low earnings are more likely to give birth to a child. Most importantly, single women in East Germany remain significantly more likely to become single mothers. The estimated coefficient and the marginal effect have even increased in the fully specified model. Single women in East Germany have a roughly 3 percentage point higher probability of out-of-partnership birth than single women in West Germany.

Altogether, our analysis provides no evidence that the higher likelihood of out-of-

partnership birth in East Germany can be explained by the higher availability of child care or the poor economic situation. This suggests that other factors should play a role. As discussed, different norms of love, partnership and family have developed in East and West Germany. People in East Germany are more likely to have non-traditional sex role attitudes. As a consequence, single women in East Germany appear to be more willing to give birth to a child.

4.2 Determinants of Separation

Table 4 shows the results on the determinants of separation. Regression (1) only includes a constant and the dummy variable for East Germany. The dummy takes a significantly positive coefficient. In East Germany, a woman with children has a roughly 1 percentage point higher probability to separate from her husband or cohabiting partner. This suggests that also a higher rate of separations contributes to the higher share of single parents in East Germany.

Regression (2) additionally includes a series of basic control variables. Education and health are negative determinants of separation. Furthermore, both age and age differences play a role. The risk of separation is higher for younger mothers. It is also higher if there is an age difference between both partners. The influence of the age difference is stronger if the woman is the older partner. Returning to our main topic, including the basic control variables does not change the result on our key explanatory variable. Mothers in East Germany have a higher likelihood of separation.

In regression (3), we add the variables for child care availability and the woman's actual working hours to the basic specification. These variables turn out to be

insignificant while the dummy for East Germany remains a significantly positive determinant. Thus, we find also with respect to separations no evidence that availability of child care can explain the differences between East and West Germany.

By contrast, economic circumstances now appear to play a role in the differences between the two parts of Germany. As shown in column (4), the size and the significance of the coefficient on the dummy for East Germany wane when including the variables for the economic situation. Among these variables, the income of the partner emerges as a significantly negative determinant of separation. All in all, the regression suggests that the poor economic situation contributes to the higher rate of separations in East Germany.

However, regression (5) indicates that also cultural differences may explain East Germany's higher rate of separations. The specification of the regression adds a dummy for cohabitation to the basic set of control variables. Conforming to expectations, this variable turns out to be a significantly positive determinant of separation. The influence is quite substantial. Cohabitation is associated with a 3 percentage point higher probability of separation than marriage. Importantly, controlling for cohabitation renders the coefficient on the dummy for East Germany insignificant and even entails a change in its sign from positive to negative. Finally, column (6) shows the regression results of a full specification that includes all explanatory variables. The coefficient on our key explanatory variable is again insignificant and the other explanatory variables show the same pattern of results as before.

4.3 Determinants of Cohabitation

Altogether, the estimations suggest that both the poor economic situation and a higher

propensity to form a cohabiting union can explain the higher rate of separations in East Germany. Cohabitation may, on the one hand, reflect an alternative concept of love, partnership and family that relies to a lesser extent on (formal) commitments. In this sense, different propensities to form a cohabiting union can indicate cultural differences between East and West Germany. However, a higher propensity for cohabitation may, on the other hand, simply reflect specific circumstances that lead couples to prefer household formation without marriage. For example, uncertainty about the quality of the match can make it more attractive to form a cohabiting union (Stevenson and Wolfers 2007). Such uncertainty should be higher if economic prospects are poor.

In order to examine this issue in more detail we estimate the determinants of cohabitation. Table 5 provides the results of a series of regressions with different specifications. The dependent variable is a dummy equal to 1 if the mother lives in cohabitation. It is equal to 0 if the mother is married.

Many of the control variables take significant coefficients. The number of children in the household and the woman's religiosity are negative determinants of cohabitation. The probability of cohabitation is higher for younger women. It is also higher if there are age differences between the partners. The effect is more pronounced if the woman is the older partner. The woman's education is a negative determinant. The probability of cohabitation is higher if the woman is more educated than her partner. The opposite holds true if the partner is more educated than the woman. Actual working hours are a positive determinant while the partner's income and the availability of child care are negative determinants. Both own unemployment and the partner's unemployment increase the probability of cohabitation.

Most importantly, the dummy for East Germany takes a significantly positive coefficient in all regressions. While the inclusion of the other explanatory variables to some extent entails a decrease in the size of the coefficient, the basic point remains that mothers in East Germany have a higher probability of cohabitation even when controlling for other influences such as the economic situation. This is consistent with the view that the higher propensity for cohabitation in East Germany at least partially reflects specific cultural factors.

4.3 Robustness Checks

We performed a series of robustness checks that increased the confidence in the pattern of our results. First, we used alternative measures of the availability of child care. Instead of child care facilities divided by the number of children under age 6, we considered child care facilities divided by the number of children under age 3 and child care facilities divided by the number of children under age 14. These variables also did not emerge as significant determinants. Their inclusion did not change the basic pattern of results. Second, in the estimates on the determinants of out-of-partnership birth, we replaced the male unemployment rate by the average male earnings in the federal state. This exercise also confirmed our basic pattern of results. Third, we added women who have migrated between East and West Germany to the estimation sample. Again, the pattern of results remained unchanged. Fourth, we also experimented with a specification that included an explanatory variable for residing in an urbanized area. This variable did not emerge as a significant determinant.

Finally, we applied the rare events logit developed by King and Zeng (2001a,

2001b) to take into account that the shares of observations with an out-of-partnership birth or a separation are rather small in our sample. Tables A.1 and A.2 provide the results. The results based on the rare events logit are very similar to those obtained by using the probit procedure.

5. Conclusions

East Germany has a substantially higher poverty rate than West Germany. Single parenthood has been widely identified as a main factor contributing to poverty. This suggests that it is particularly important to examine the circumstances that lead to the higher share of single mothers in East Germany.

Our study shows that both a higher likelihood of out-of-partnership birth and a higher likelihood of separation contribute to the higher share of single mothers in East Germany. Our estimates provide no evidence that the higher likelihood of out-of-partnership birth can be explained by child care availability or economic circumstances. This is consistent with the view that different norms of love and partnership in East and West Germany may explain the differences in out-of-partnership birth. While child care availability also appears to play no role in the higher likelihood of separation in East Germany, the poor economic circumstances contribute to that likelihood. A higher propensity for cohabitation is a further factor that can explain the higher likelihood of separation in East Germany. Cohabitation reflects a type of love and partnership that is based on less (formal) commitments than marriage. Thus, the influence of the higher propensity for cohabitation indicates that cultural differences contribute also to the different separation rates in East and West Germany.

The findings of this study suggest that the share of single mothers in East Germany will, if at all, only slowly converge to the share in West Germany. A convergence of the economic conditions in both parts of Germany may only partially lead to a decrease in the differences in single motherhood. To the extent cultural differences play an important role, we may observe a higher share of single mothers in East Germany also in the long run.

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Table 1: Variable definitions

Variable	Description
Separation	Dummy equals 1 if a mother separates from her husband or cohabiting partner in the actual year.
Cohabitation	Dummy equals 1 if the mother has a cohabiting partner. It equals 0 if she is married.
Out-of-partnership birth	Dummy equals 1 if a single woman has no child in the previous year and has a child in the actual year.
East Germany	Dummy equals 1 if the woman resides in East Germany.
18-29 years	Dummy equals 1 if the woman is 18 to 29 years old.
30-39 years	Dummy equals 1 if the woman is 30 to 39 years old.
Skilled	Dummy equals 1 if the woman's highest educational attainment is a completed apprenticeship training.
University degree	Dummy equals 1 if the woman has a university degree.
Number of children	Number of children under age 16 in the household.
Health	Current health coded from 1 (bad) to 5 (very good).
Woman older	Age difference in years if the woman is older. The variable is set equal to 0 if the woman is not older than her partner.
Partner older	Age difference in years if the partner is older. The variable is set equal to 0 if the partner is not older than the woman.
Woman more educated	Educational difference in years of education if the woman is more educated. The variable is set equal to 0 if the woman is not more educated than her partner.
Partner more educated	Educational difference in years of education if the partner is more educated. The variable is set equal to 0 if the partner is not more educated than the woman.
Actual working hours	Actual working hours per week including overtime. The variable is set equal to 0 if the woman does not work.
Ln(child care availability)	Log of number of daycare facilities per children under age 6 at the federal state level.
Woman's labor income	Monthly gross labor income of the woman. The variable is set equal to 0 if the woman does not work.
Partner's labor income	Monthly gross labor income of the partner. The variable is set equal to 0 if the partner does not work.
Woman unemployed	Dummy equals 1 if the woman is unemployed.
Partner unemployed	Dummy equals 1 if the woman's partner is unemployed.

Ln(male unemployment rate)	Log of male unemployment rate at the federal state level.
Catholic	Dummy equals 1 if the woman is catholic.
Protestant	Dummy equals 1 if the woman is protestant.
Year dummies	Four year dummies.

The reference group for the age group dummies contains women aged 40 to 55 years (30 to 35 years) in the regressions on the determinants of separation (out-of-partnership birth). The reference group for the education dummies contains unskilled women. The reference group for the religion dummies contains women who have no catholic or protestant religious affiliation.

Table 2: Descriptive statistics

	Estimation sample for the analysis of separations		Estimation sample for the analysis of out-of-partnership births	
Variable	West Germany	East Germany	West Germany	East Germany
Separation	0.01	0.02	---	---
Cohabitation	0.06	0.25	---	---
Out-of-partnership birth	---	---	0.01	0.03
18-29 years	0.04	0.13	0.81	0.86
30-39 years	0.32	0.49	---	---
Skilled	0.63	0.56	0.61	0.66
University degree	0.28	0.39	0.24	0.18
Number of children	1.72	1.50	---	---
Health	3.58	3.70	3.86	3.76
Woman older	0.48	0.38	---	---
Partner older	2.99	3.06	---	---
Woman more educated	0.71	0.84	---	---
Partner more educated	1.05	0.59	---	---
Actual working hours	16.13	26.38	24.03	20.62
Ln(child care availability)	-4.46	-4.27	-4.45	-4.27
Woman’s labor income	990.32	1202.41	1067.38	649.02
Partner’s labor income	3921.84	2282.75	---	---
Woman unemployed	0.04	0.13	0.04	0.15
Partner unemployed	0.03	0.11	---	---
Ln(male unemployment rate)	---	---	1.83	2.52
Catholic	0.44	0.06	0.42	0.01
Protestant	0.44	0.22	0.46	0.22
N	4815	1512	1450	618

The table shows the means of the variables.

Table 3: Determinants of out-of-partnership birth, method: probit

	(1)	(2)	(3)	(4)	(5)
East Germany	0.555 [0.020] (4.06)***	0.555 [0.019] (3.87)***	0.637 [0.023] (3.28)***	0.393 [0.012] (2.69)***	0.786 [0.029] (2.94)***
18-29 years	---	-0.218 [-0.007] (1.03)	-0.296 [-0.011] (1.21)	-0.364 [-0.014] (1.44)	-0.347 [-0.012] (1.40)
Skilled	---	-0.094 [-0.003] (0.42)	-0.060 [-0.002] (0.26)	0.019 [0.001] (0.09)	0.005 [1.19e-04] (0.02)
University degree	---	-0.148 [-0.004] (0.52)	-0.060 [-0.002] (0.22)	0.128 [0.004] (0.48)	0.167 [0.005] (0.64)
Health	---	-0.191 [-0.006] (2.23)**	-0.188 [-0.006] (2.26)**	-0.172 [-0.005] (2.01)**	-0.180 [-0.005] (2.05)**
Actual working hours	---	---	-0.006 [-1.84e-04] (1.20)	---	0.009 [2.61e-04] (1.71)*
Ln(child care availability)	---	---	-0.455 [-0.013] (0.88)	---	-0.264 [-0.007] (0.46)
Woman's labor income	---	---	---	-2.60e-04 [-7.44e-06] (1.30)	-0.001 [-1.52e-05] (3.09)***
Woman's labor income squared	---	---	---	1.69e-08 [4.85e-10] (0.39)	5.61e-08 [1.57e-09] (2.63)***
Woman unemployed	---	---	---	0.336 [0.013] (1.35)	0.418 [0.016] (1.69)*
Ln(male unemployment rate)	---	---	---	0.134 [0.004] (0.58)	0.093 [0.003] (0.40)
Catholic	---	---	---	---	0.577 [0.017] (2.06)**
Protestant	---	---	---	---	0.492 [0.013] (2.46)**
Constant	-2.500 (24.39)***	-1.565 (3.54)***	-3.453 (1.50)	-1.754 (2.90)***	-3.415 (1.35)
Year dummies	---	included	included	included	included
Pseudo R^2	0.046	0.076	0.086	0.107	0.132
N	2,068	2,068	2,068	2,068	2,068

The table shows the estimated coefficients. Z-statistics are in parentheses. Standard errors are clustered by federal state and year of observation. Marginal effects are in square brackets. Marginal effects of dummy variables are evaluated for a discrete change

from 0 to 1. Marginal effects of the education dummies and religion dummies are changes in probability compared to the respective reference group. *** Statistically significant at the 1% level; ** at the 5% level; * at the 10% level.

Table 4: Determinants of separation, method: probit

	(1)	(2)	(3)	(4)	(5)	(6)
East Germany	0.220 [0.007] (2.28)**	0.152 [0.005] (1.69)*	0.255 [0.008] (2.43)**	0.009 [2.5e-04] (0.10)	-0.046 [-0.001] (0.46)	-0.033 [-0.001] (0.21)
18-29 years	---	0.736 [0.028] (4.41)***	0.740 [0.028] (4.51)***	0.612 [0.020] (3.63)***	0.481 [0.014] (2.73)***	0.405 [0.011] (2.31)**
30-39 years	---	0.391 [0.010] (3.18)***	0.394 [0.010] (3.28)***	0.374 [0.009] (2.97)***	0.322 [0.008] (2.54)**	0.303 [0.008] (2.35)**
Skilled	---	-0.245 [-0.010] (1.78)*	-0.255 [-0.010] (1.82)*	-0.126 [-0.004] (0.82)	-0.145 [-0.005] (1.05)	-0.070 [-0.002] (0.45)
University degree	---	-0.553 [-0.017] (3.06)***	-0.565 [-0.017] (3.07)***	-0.357 [-0.010] (1.76)*	-0.459 [-0.012] (2.47)**	-0.311 [-0.008] (1.47)
Number of children	---	0.017 [0.001] (0.32)	0.028 [0.001] (0.47)	0.007 [1.8e-04] (0.12)	0.064 [0.002] (1.20)	0.069 [0.002] (1.22)
Health	---	-0.154 [-0.004] (3.48)***	-0.150 [-0.004] (3.41)***	-0.132 [-0.004] (2.83)***	-0.169 [-0.004] (3.70)***	-0.148 [-0.004] (3.23)***
Woman older	---	0.083 [0.002] (3.90)***	0.084 [0.002] (3.94)***	0.069 [0.002] (3.17)***	0.061 [0.001] (2.23)**	0.054 [0.001] (1.98)**
Partner older	---	0.032 [0.001] (2.83)***	0.031 [0.001] (2.76)***	0.029 [0.001] (2.59)***	0.027 [0.001] (2.33)**	0.026 [0.001] (2.23)**
Woman more educated	---	0.051 [0.001] (1.56)	0.052 [0.001] (1.59)	0.042 [0.001] (1.20)	0.046 [0.001] (1.28)	0.039 [0.001] (1.06)
Partner more educated	---	-0.017 [-0.001] (0.49)	-0.017 [-0.001] (0.50)	0.009 [2.4e-04] (0.25)	-0.017 [-4.1e-05] (0.49)	0.002 [4.1e-05] (0.05)
Actual working hours	---	---	0.001 [1.79e-05] (0.21)	---	---	0.001 [2.9e-05] (0.27)
Ln(child care availability)	---	---	-0.544 [-0.015] (1.55)	---	---	-0.473 [-0.012] (1.34)
Woman's labor income	---	---	---	2.31e-05 [6.3e-07]	---	-2.31e-05 [-7.7e-08]

				(0.48)		(0.04)
Partner's labor income	---	---	---	-8.58e-05 [-2.3e-06] (2.29)**	---	-8.58e-05 [-1.9e-06] (2.03)**
Woman unemployed	---	---	---	0.264 [0.009] (1.54)	---	0.180 [0.005] (1.06)
Partner unemployed	---	---	---	0.125 [0.004] (0.74)	---	0.030 [0.001] (0.18)
Cohabitation	---	---	---	---	0.746 [0.033] (5.05)***	0.669 [0.027] (4.93)***
Catholic	---	---	---	---	---	0.024 [0.001] (0.13)
Protestant	---	---	---	---	---	-0.040 [-0.001] (0.27)
Constant	-2.335 (58.45)***	-2.075 (8.81)***	-4.562 (2.82)***	-2.036 (8.30)***	-2.226 (9.34)***	-4.308 (2.64)***
Year dummies	---	included	included	included	included	included
Pseudo R^2	0.006	0.096	0.097	0.116	0.142	0.154
N	6,327	6,327	6,327	6,327	6,327	6,327

The table shows the estimated coefficients. Z-statistics are in parentheses. Standard errors are clustered by federal state and year of observation. Marginal effects are in square brackets. Marginal effects of dummy variables are evaluated for a discrete change from 0 to 1. Marginal effects of the age dummies, education dummies and religion dummies are changes in probability compared to the respective reference group. *** Statistically significant at the 1% level; ** at the 5% level; * at the 10% level.

Table 5: Determinants of cohabitation, method: probit

	(1)	(2)	(3)	(4)	(5)
East Germany	0.878 [0.190] (20.36)***	0.716 [0.126] (15.35)***	0.756 [0.134] (13.05)***	0.600 [0.100] (11.52)***	0.412 [0.064] (4.80)***
18-29 years	---	1.175 [0.245] (13.27)***	1.233 [0.260] (13.98)***	1.097 [0.216] (11.61)***	1.138 [0.223] (12.08)***
30-39 years	---	0.445 [0.063] (8.93)***	0.468 [0.066] (9.36)***	0.447 [0.062] (8.30)***	0.463 [0.064] (8.56)***
Skilled	---	-0.425 [-0.075] (7.79)***	-0.448 [-0.079] (7.91)***	-0.297 [-0.048] (5.14)***	-0.314 [-0.049] (5.48)***
University degree	---	-0.456 [-0.079] (5.85)***	-0.493 [-0.085] (6.27)***	-0.277 [-0.045] (3.14)***	-0.258 [-0.042] (2.87)***
Number of children	---	-0.291 [-0.042] (6.65)***	-0.260 [-0.038] (6.10)***	-0.296 [-0.042] (6.91)***	-0.258 [-0.036] (5.98)***
Health	---	0.042 [0.006] (1.27)	0.044 [0.006] (1.37)	0.056 [0.008] (1.65)*	0.063 [0.009] (1.88)*
Woman older	---	0.143 [0.019] (12.45)***	0.146 [0.020] (12.65)***	0.135 [0.018] (11.32)***	0.135 [0.018] (11.52)***
Partner older	---	0.025 [0.003] (3.54)***	0.024 [0.003] (3.31)***	0.021 [0.003] (3.21)***	0.021 [0.003] (3.05)***
Woman more educated	---	0.045 [0.007] (3.06)***	0.046 [0.007] (3.07)***	0.038 [0.006] (2.37)**	0.041 [0.006] (2.45)**
Partner more educated	---	-0.049 [-0.007] (2.56)**	-0.046 [-0.006] (2.40)**	-0.030 [-0.004] (1.42)	-0.028 [-0.004] (1.33)
Actual working hours	---	---	0.005 [0.001] (3.00)***	---	0.011 [0.001] (5.08)***
Ln(child care availability)	---	---	-0.428 [-0.062] (2.12)**	---	-0.412 [-0.058] (1.84)*
Woman's labor income	---	---	---	5.39e-05 [7.69e-06] (2.27)**	-6.10e-05 [-8.58e-06] (1.76)*
Partner's labor income	---	---	---	-4.37e-05 [-6.23e-06] (2.63)***	-3.91e-05 [-5.50e-06] (2.45)**

Woman unemployed	---	---	---	0.365 [0.061] (4.07)***	0.451 [0.077] (4.64)***
Partner unemployed	---	---	---	0.409 [0.070] (4.64)***	0.415 [0.070] (4.73)***
Catholic	---	---	---	---	-0.310 [-0.047] (3.94)***
Protestant	---	---	---	---	-0.304 [-0.046] (3.54)***
Constant	-1.546 (45.09)***	-1.297 (7.19)***	-3.352 (3.65)***	-1.425 (7.73)***	-3.203 (3.12)***
Year dummies	---	included	included	included	included
Pseudo R^2	0.087	0.213	0.216	0.231	0.242
N	6,327	6,327	6,327	6,327	6,327

The table shows the estimated coefficients. Z-statistics are in parentheses. Standard errors are clustered by federal state and year of observation. Marginal effects are in square brackets. Marginal effects of dummy variables are evaluated for a discrete change from 0 to 1. Marginal effects of the age dummies, education dummies and religion dummies are changes in probability compared to the respective reference group. *** Statistically significant at the 1% level; ** at the 5% level; * at the 10% level.

Appendix

Table A1: Determinants of out-of-partnership birth, method: rare events logit

	(1)	(2)	(3)	(4)	(5)
East Germany	1.423 (3.93)***	1.428 (3.78)***	1.634 (3.48)***	0.806 (2.08)**	1.584 (2.62)***
18-29 years	---	-0.698 (1.30)	-0.946 (1.46)	-1.139 (1.82)*	-1.032 (1.67)*
Skilled	---	-0.352 (0.61)	-0.241 (0.41)	-0.058 (0.10)	-0.105 (0.19)
University degree	---	-0.392 (0.53)	-0.152 (0.21)	0.226 (0.34)	0.333 (0.51)
Health	---	-0.484 (2.28)**	-0.484 (2.38)**	-0.467 (2.22)**	-0.452 (2.07)**
Actual working hours	---	---	-0.017 (1.22)	---	0.029 (2.02)**
Ln(child care availability)	---	---	-1.130 (0.90)	---	-0.621 (0.46)
Woman's labor income	---	---	---	-0.001 (2.39)**	-0.002 (3.95)***
Woman's labor income Squared	---	---	---	3.44e-07 (2.56)**	3.74e-07 (5.68)***
Woman unemployed	---	---	---	0.527 (0.87)	0.743 (1.24)
Ln(male unemployment rate)	---	---	---	0.678 (1.10)	0.582 (0.92)
Catholic	---	---	---	---	1.223 (1.68)*
Protestant	---	---	---	---	1.090 (2.38)**
Constant	-5.021 (17.26)***	-2.389 (2.15)**	-6.962 (1.25)	-3.120 (2.12)**	-7.025 (1.18)
Year dummies	---	included	included	included	included
N	2,068	2,068	2,068	2,068	2,068

The table shows the estimated coefficients. Z-statistics are in parentheses. Standard errors are clustered by federal state and year of observation. *** Statistically significant at the 1% level; ** at the 5% level; * at the 10% level.

Table A2: Determinants of separation, method: rare events logit

	(1)	(2)	(3)	(4)	(5)	(6)
East Germany	0.582	0.351	0.598	-0.024	-0.201	-0.186
	(2.36)**	(1.56)	(2.33)**	(0.10)	(0.78)	(0.47)
18-29 years	---	1.839	1.848	1.546	1.224	1.018
		(4.30)***	(4.44)***	(3.69)***	(2.72)***	(2.33)**
30-39 years	---	1.050	1.048	0.988	0.861	0.782
		(3.07)***	(3.14)***	(2.87)***	(2.54)**	(2.28)**
Skilled	---	-0.598	-0.623	-0.271	-0.389	-0.138
		(1.70)*	(1.77)*	(0.68)	(1.10)	(0.32)
University degree	---	-1.356	-1.386	-0.838	-1.095	-0.661
		(2.74)***	(2.81)***	(1.52)	(2.18)**	(1.13)
Number of children	---	0.047	0.072	0.019	0.175	0.180
		(0.36)	(0.49)	(0.13)	(1.39)	(1.34)
Health	---	-0.336	-0.327	-0.298	-0.366	-0.324
		(3.00)***	(2.97)***	(2.65)***	(3.37)***	(3.06)***
Woman older	---	0.214	0.217	0.179	0.146	0.129
		(4.35)***	(4.47)***	(3.47)***	(2.10)**	(1.82)*
Partner older	---	0.083	0.081	0.071	0.065	0.060
		(3.04)***	(2.94)***	(2.65)***	(2.45)**	(2.25)**
Woman more educated	---	0.153	0.155	0.131	0.140	0.128
		(1.81)*	(1.84)*	(1.43)	(1.52)	(1.31)
Partner more educated	---	-0.029	-0.028	0.045	-0.016	0.031
		(0.30)	(0.30)	(0.44)	(0.17)	(0.32)
Actual working hours	---	---	0.002	---	---	0.002
			(0.29)			(0.22)
Ln(child care availability)	---	---	-1.326	---	---	-1.152
			(1.51)			(1.20)
Woman's labor income	---	---	---	7.52e-05	---	2.55e-05
				(0.60)		(0.14)
Partner's labor income	---	---	---	-2.29e-04	---	-1.83e-04
				(2.22)**		(1.88)*

Woman unemployed	---	---	---	0.637 (1.57)	---	0.522 (1.30)
Partner unemployed	---	---	---	0.210 (0.55)	---	0.010 (0.03)
Cohabitation	---	---	---	---	1.783 (4.66)***	1.582 (4.48)***
Catholic	---	---	---	---	---	-0.004 (0.01)
Protestant	---	---	---	---	---	-0.115 (0.32)
Constant	-4.609 (42.74)***	-4.216 (6.68)***	-10.264 (2.52)**	-3.981 (5.94)***	-4.550 (7.09)***	-9.509 (2.12)**
Year dummies	---	included	included	included	included	included
N	6,327	6,327	6,327	6,327	6,327	6,327

The table shows the estimated coefficients. Z-statistics are in parentheses. Standard errors are clustered by federal state and year of observation. *** Statistically significant at the 1% level; ** at the 5% level; * at the 10% level.

Endnotes

[1] A third channel would be the death of the husband or cohabiting partner.

[2] See *www.destatis.de/DE/ZahlenFakten/Indikatoren/LangeReihen/Arbeitsmarkt/lrarb001.html*.

[3] See *www.destatis.de/DE/ZahlenFakten/GesamtwirtschaftUmwelt/VerdiensteArbeitskosten/VerdiensteVerdienstunterschiede/Tabellen/Bruttomonatsverdienste.html*.

[4] Kraft (2001) and Kraft and Neimann (2009) have also used the SOEP to examine the determinants of separation. Our analysis differs in several respects from this previous research. First, while their studies focus on the divorce of married couples, we examine the separation of both cohabiting and married couples. Second, while their studies also consider couples without children, we focus on couples that have children. Third, the study by Kraft and Neimann (2009) is limited to West Germany whereas our study considers separations in East and West Germany.