

On the Variation of Divorce Risks in Europe: Findings from a Meta-Analysis of European Longitudinal Studies

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The aim of this article is to integrate empirical research on divorce risks in Europe and to explain the variation of empirical findings between European countries by the different levels of modernization and differences in the strength of marriage norms. We focus on the effects of premarital cohabitation, the presence of children, and the experience with parental divorce on marital stability. More than 260 studies on divorce risks could be identified, and 120 were used for further meta-analytical examinations. We show that there is considerable heterogeneity of divorce risks within as well as between countries. Explaining the variation of effect sizes between European countries, it could be shown that in countries where more rigid marriage norms prevail cohabitation has a stronger effect on marital stability than in countries where marriage norms are weaker. Furthermore, the lower the divorce barriers are, the weaker is the association between the parental divorce and the divorce risk of the offspring.

Introduction

The aim of this article is to summarize European research on various divorce risks. More precisely, we will examine how much divorce risks vary between European countries and whether such variations can be explained by country-specific macro-level factors. Are there any meaningful differences in the divorce risks between European countries?

We perform a meta-analysis of 120 publications from European longitudinal divorce studies that include empirical results from 20 European countries. This article is based on two earlier papers on the results of German divorce research (Wagner and Weiß, 2003a, 2004) and their first extensions towards the European

level (Wagner and Weiß, 2003b). We will proceed as follows: First, we propose an improved conceptualization of macro-level factors. Second, we extend the spectrum of variables as we include indicators not only of the information level (premarital cohabitation) and marital investments (children) but also of divorce experiences (parental divorce). Third, we look more closely at the problem that studies differ in their empirical findings about divorce risks because different statistical methods or models have been applied.

In a first step, we describe the elements of a micro-theoretical divorce model, and we characterize important divorce risks. Second, we specify hypotheses on the differences of divorce risks between European countries. Third, we present our data and methods. Fourth, we

describe the European pattern of divorce risks, and we discuss some methodological problems. Fifth, we examine to what extent macro-variables account for the variability of divorce risks across European countries.

Divorce Models

Most theories that are applied to explain divorce risks focus on the micro-level of the individual or on the meso-level of the marital dyad. Central to microeconomic (Becker *et al.*, 1977) and exchange theories (Levinger, 1965, 1982; Lewis and Spanier, 1979) are the costs and gains marriage partners perceive from the actual marriage and from alternative options. A part of the costs of divorce are the external social barriers of a separation. Further, it is assumed that individuals have several options with different expected costs and gains, that individuals dispose of various resources (e.g. time for partner search) and that these resources are scarce.

According to the microeconomic theory, persons organize their households in such a way that the utility of commodities is maximized (Becker *et al.*, 1977). If the collective utility of marriage is smaller than the expected utility of the alternatives, the marriage will be divorced. Among other things, the rewards of marriage depend on the mode of the division of labour, on investments in marriage-specific capital, and on the 'partner-match'.

Microeconomic theory argues that an increase in the division of labour between the partners also increases the gains from marriage. Moreover, investments in marriage-specific capital, like children, common homeownership, or knowledge about the partner, increase the gains from marriage and the costs of separation as these investments lead to a more efficient household production. Because microeconomic theory has given up the neoclassical fiction of a perfect market, conceptions like level of information and subjective insecurity are implemented into the theory. Search costs arise because individuals need information about potential spouses. At the time of marriage not all attributes of the partners are known, but the higher the premarital level of information about the partner is, the better is the partner match and the lower the divorce risk.

Very little research deals with the question whether the explanatory power of this well-established divorce model depends on the wider societal context. Is the importance of certain determinants of divorce related to macro-level factors? A lot of research has been undertaken that compares divorce behaviour between European countries empirically. However, most of those studies use crude

divorce rates and create typologies. Except for the studies of Blossfeld *et al.* (1995) and Blossfeld and Müller (2003) and latest findings by Dourleijn and Liefbroer (2003), Diekmann and Schmidheiny (2004a), and Kiernan (2002), there is no research on the question whether and why determinants of divorce vary across countries. In the following section, we will present some hypotheses on how this societal context could affect divorce risks.

We confine our analysis to a number of hypotheses or risk factors which will be explored in a comparative meta-analysis across European countries: premarital cohabitation, the presence of children, and the stability of parents' marriage (transmission hypothesis). These variables have been selected for theoretical and practical reasons.

First, a great number of empirical studies have shown that these three variables are strongly associated with the stability of marriages. We will show, however, that the intensity of these associations varies considerably across countries.

Second, as we aim to conduct a comparative meta-analysis, we concentrate on those variables that have been used in a sufficient number of studies in different European countries. Moreover, not all divorce risks have been consistently operationalized. We had to select those variables that were measured in a similar way.

Third, most of the divorce risks are part of the microeconomic model of divorce. Cohabitation before marriage indicates the intensity of partner search and the premarital information level about the partner. A marriage without prior cohabitation increases the risk of a bad partner match.

It is well known that marriages without children are more often divorced than marriages with children. The presence of own children indicates an investment in marriage-specific capital and increases the costs of divorce (Wagner, 1997).

The intergenerational transmission of divorce could be integrated into a microeconomic divorce model as well. In the literature, four main explanations for the intergenerational transmission of divorce risk are proposed: a stress hypothesis, a socialization or learning hypothesis, a socioeconomic deprivation hypothesis, and a hypothesis about the inheritance of personality traits (McGue and Lykken, 1992; Jockin *et al.*, 1996; Wagner, 1997; Diekmann and Engelhardt, 1999).

Divorce Risks and the Societal Context: Hypotheses

It is not reasonable to develop different theories of marital stability for different countries. But it might be the case that the strength of the proposed relationships

between the variables of a divorce model or the importance of certain predictors varies according to the wider societal context. In empirical research, one way to vary the societal context is to realize a cross-national design.

Conceptual Framework

Rational choice theory stresses that individual action is limited by the institutional context. Contexts differ across countries and therefore outcomes might differ, even if individual preferences are the same (Brüderl and Diekmann, 1997: 8). We agree with a position proposed by Gerhards and Hölscher (2003) or Curtis *et al.* (2001), who state that countries are not the best or even meaningful units of sociological analysis. The unit ‘country’ should rather be replaced by dimensions which are assumed to affect processes at the meso- or micro-level, like the gross national product or the women’s employment rate. Another way of replacing countries by more theoretically validated constructs is the construction of typologies. For instance, welfare state typologies have been applied to understand patterns of partner choice (Blossfeld and Müller, 2003), normative orientations towards women’s employment (Künzler *et al.*, 1999), or the economic consequences of separations (Uunk, 2003).

Which dimensions are used to explain cross-national differences? Different authors emphasize similar groups of macro-factors. For example, Gerhards and Hölscher (2003) distinguish between the level of modernization, traditional, cultural, or religious orientations, and the type of policy and welfare. Curtis *et al.* (2001) look at the effects of economic organizations, of religious tradition, of different types of political organizations and the degree of stability or continuity of democracy. Both papers are very similar in their use of macro-level factors.

Following the work of Gerhards and Hölscher (2003) or Curtis *et al.* (2001), we concentrate on two macro-level factors: the degree of socioeconomic development or the *modernization level* and a more cultural factor that captures the strength/weakness of the marriage as an institution or the strength/weakness of marital norms—the *deinstitutionalization* of marriage. The latter should indicate how much a society can be characterized by a more traditional or progressive marriage culture, respectively. In societies with more traditional marriage norms, we expect divorce rates to be low and norms that impede divorce to be strong. Although many scholars have criticized modernization theory because the concept ‘modernization’ is vague and predictions of this theory have been falsified, it is still an important question

whether the socioeconomic development of a country, like the living standard, the expansion of the educational system, or an increase in female employment, affects divorce risks.¹

In the following, the task is to specify macro–micro hypotheses. In family sociology, such specifications are rare. A good example, though, is the explanation of cross-national differences in the public consent to divorce by Gelissen (2003). Those macro–micro hypotheses specify how a macro-variable affects the association between a social factor and the likelihood of a divorce (divorce rate) at the micro-level.

Modernization

We assume that three aspects of modernization processes affect divorce risks: the expansion of the educational system, an increasing heterogeneity of marriage markets, and an increasing individualization. If the level of modernization is high, individuals stay longer in the educational system and the qualification of women is generally high. As far as the ‘enrollment effects hypothesis’ (Blossfeld and Jaenichen, 1992) holds, marriage and family formation are highly incompatible with educational enrollment and a career orientation of women, men and women marry relatively late, early marriages are especially ‘dysfunctional’, and cohabitation becomes a substitute for an early marriage. Moreover, we assume that an increasing heterogeneity of the marriage market and an increasing individualization require a longer partner search, and, as a consequence, the importance of cohabitation as a prerequisite of a stable marriage increases. However, it is known that it is important to control for selectivity processes, because those who do not cohabit before marriage also might be very reluctant to divorce. Selectivity and modernization are likely to be linked in a U-shaped manner (Dourleijn and Liefbroer, 2003).

Hypothesis 1: The higher the level of modernization, the stronger premarital cohabitation reduces the divorce rate.

As we will show in this article, research has clearly demonstrated that the presence of children is an important marital investment that lowers the divorce rate. But it is hard to see that the increase of marriage-specific capital due to the birth of common children is related to the broader level of socioeconomic development. However, modernization theory would argue that the economic risks of living as a single parent decrease with a rising living standard, gainful employment of women, and more economic independence of women. From that

perspective, the divorce risk associated with the presence of children should be lower in countries that are highly modernized.

Hypothesis 2: The level of modernization lowers the strength of the association between the presence of children and the divorce rate.

We assume that this hypothesis holds even if a possible selection—such as the birth of children to be increasingly selective on marital quality—might counteract our assumption.

Whether the transmission effect might be related to the socioeconomic development level of the society depends on the mechanisms that are responsible for the higher divorce risk of people whose parents have been divorced. It is not likely that the mechanisms that are emphasized by the stress or the socialization hypothesis depend on the level of modernization. But the deprivation hypothesis points to the financial situation of single mother families. It has been argued that parental divorce leads to economic and educational disadvantages for the children, which in turn affect their own marriage negatively. If the society is more modernized, the educational level and the earning power of single mothers might improve. It is also possible that a developed educational system compensates for possible disadvantages that come up when children experience the divorce of their parents. These two reasons may reduce the intergenerational transmission of the divorce risk with an increasing level of modernization.

Hypothesis 3: The level of modernization reduces the intergenerational transmission of the divorce risk.

Marriage Culture: Barriers to Divorce

Different levels of societal barriers to divorce have been used by a number of scholars to explain a varying explanatory power of divorce determinants. Blossfeld *et al.* (1995) compared countries with more traditional family systems to those with more modern family systems. For example, the authors found out that the effect of women's educational attainment on the divorce rate is higher in Italy than in Sweden. Another assumption is that high barriers to divorce suppress the 'effects of any traits that are positively linked to the risk of divorce' (Teachman, 2002: 332).

European countries differ according to the extent to which marriage is institutionalized. In a country where marriage is highly institutionalized, premarital cohabiters are a more selective group than in societies that are characterized by a weak institutionalization of marriage. In the latter case, we expect cohabitation to be

less selective and to be less strongly correlated with the divorce rate.

Hypothesis 4: The lower the barriers to divorce, the less cohabitation affects the divorce rate.

If marriage as an institution is less important and if many marriages get divorced, one can assume that a 'divorce culture' has emerged that also facilitates parenthood after a separation.

Hypothesis 5: The effect of children on marital stability decreases with lower divorce barriers.

If a marriage is divorced despite the existence of children, the 'pressure' to divorce should be very high. Therefore, children might suffer much more under such conditions (Wolfinger, 1999). In countries with high barriers to divorce, only very devastated marriages get divorced which means that children from such marriages have to bear a parental marriage, which is especially destructive. If barriers to divorce are low, the experience of a divorce should be less stigmatizing and divorce becomes less deviant. This should result in a less serious effect of the parental divorce on the stability of children's marriage.

Hypothesis 6: The transmission hypothesis should hold less in case of low divorce barriers.

Methodological Framework

There are four types of comparative study designs that differ in their units of analyses and their linkage of micro- and macro-level data. First, there are studies at the aggregate level that correlate national divorce rates with other aggregate statistics (e.g. Trent and South, 1989). Such studies have been criticized for their missing correspondence to an action-oriented explanation. Secondly, there are a number of new studies that compare marriage behaviour or divorce risks with micro-data between single countries (Blossfeld *et al.*, 1995; Brüderl and Diekmann, 1997; Blossfeld and Müller, 2003; Diekmann and Schmidheiny, 2004b). These studies do not account statistically for societal characteristics and hence can be characterized as case studies. A third approach involves pooling data from various countries and carry out a single statistical analysis. This methodology imposes common regression coefficients across countries (this restriction may be relaxed with the addition of interaction terms between the countries and selected variables) (Gauthier, 2002: 15). A fourth type of comparative study overcomes this weakness with the help of a multilevel framework, which combines micro- and macro-level data (Curtis *et al.*, 2001; Van Deth and Elff, 2004). The meta-analytical framework could be located

between the third and the fourth type; some authors consider it as a type of multilevel analysis (De Leeuw and Hox, 2003).

Data and Methods

Meta-analysis is a technique that covers the whole research process. We apply a five-stage model proposed by Cooper (1982): (i) research question, (ii) literature retrieval, (iii) data coding and data entry, (iv) data analysis, and (v) presentation of results.

Literature Retrieval and Sample Description

Publications dealing with our research question should meet the following criteria to be included in our meta-analysis: on the one hand, we were interested in publications in which marital stability² is the dependent variable. On the other hand, we limited our search to publications that explicitly used European longitudinal data sets. The countries considered here are the 18 countries of the European Economic Area (EEA),³ the candidate countries for the European Union, and Switzerland.

A comprehensive literature research that includes all types of publications and research reports is necessary for any meta-analysis. A detailed description of literature research procedures is given by Lipsey and Wilson (2001) and White (1994). We started the literature search in April 2003 with a stock of 52 German studies. Then, we added a number of papers, for example, collected during two conferences of the ‘European Research Network on Divorce’ in Florence 2002 and Tilburg 2003.

More literature has been found by ‘chasing the footnotes’ (White, 1994), that is, checking all literature references for their potential benefit. We also started retrieving eight literature databases using different search strategies. In a first step, we used most of the authors’ names as search criteria to find other papers than those cited. Secondly, we used phrases such as ‘divorce’, ‘marital dissolution’, ‘marital instability’ and ‘longitude’, and ‘event history’ as distinguishing features to obtain longitudinal studies. Finally, we searched the World Wide Web for European longitudinal databases.

In total, we collected 261 publications from 15 European countries, and because some publications are comparative, we are able to report empirical results for 20 European countries.

A total of 25 publications were untraceable and could thus not be checked. About 236 articles, books, and so on

have been found, but just 120 could be used for further meta-analytical examinations. As Figure 1 shows, most of the publications come from Germany, the Netherlands, and Sweden. A considerable number of publications also stems from Norway and the United Kingdom.

Figure 2 illustrates the distribution of publications by retrieval status and year of publication. There is an increase in research activities up to 2002. Noticeable are

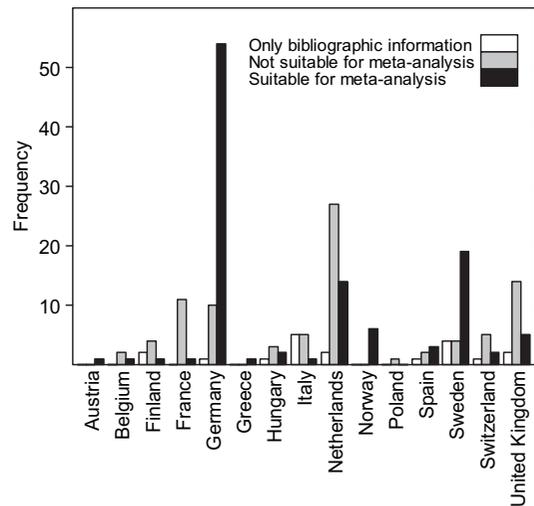


Figure 1 Results of literature retrieval by retrieval status and country.

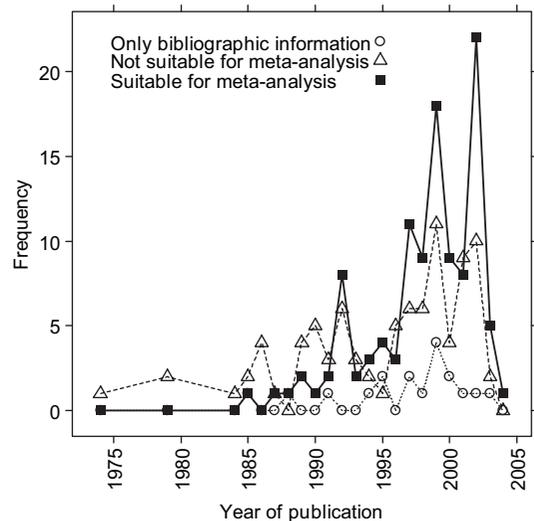


Figure 2 Results of literature retrieval by retrieval status and year.

the parallel historical trend lines for publications included in our meta-analysis and those not included. The oldest publication is from 1985, while the most recent papers stem from 2004.

To avoid biases, we tried to get as many studies as possible from all over Europe. Finally, we were confronted with nine different languages (Dutch, Flemish, French, Spanish, Catalan, Italian, Hungarian, English, and German).⁴ As nearly all databases contain literature published in English or German, there is some language bias. Nearly 90 per cent of the publications included in our meta-analysis were written in English or German. About 6 per cent were published in Dutch.

Statistical Methods

Our data analysis is performed in four steps: (i) preparation of data, (ii) estimation of mean effect sizes, (iii) tests for homogeneity, and, if possible, (iv) analysis of heterogeneity. The outcome of effect size integration is a set of different and pooled divorce factors.

Synthesis

Many authors describe meta-analytical methods for pooling bivariate statistics (e.g. correlation coefficients, rank order correlations, see Bortz and Döring, 1995). In our study, we exclusively use regression coefficients. The pooled effect sizes are attained through the computation of the weighted means of all effect sizes. Three requirements are important: (1) It is only meaningful to aggregate effect sizes if at least two single effect sizes exist; (2) effect sizes have to be statistically independent (Fricke and Treinies, 1985; Lipsey and Wilson, 2001); and (3) effect sizes are weighted according to their reliability.

A consequence of the first requirement (1) is that only a small sample of all variables is included in meta-analysis. To realize condition (2), it is important to integrate only those effect sizes that are derived from different studies or subsamples.⁵ To meet these criteria, effect sizes for similar variables are aggregated for each sample. In a second step, mean effect sizes are pooled across countries (Beelmann and Bliesener, 1994; Bortz and Döring, 1995).

To meet the third requirement (3), we weighted the single effect sizes by their inverse variance (the squared standard error) of each effect size. As suggested by many authors, we used the weighted arithmetic mean (Hedges and Olkin, 1985; Shadish and Haddock, 1994; Lipsey and Wilson, 2001). 'Hence, larger weights are assigned to effect sizes from studies with smaller variances and larger within-study sample sizes' (Shadish and Haddock,

1994). Effect sizes based on a large sample show a higher reliability and will therefore get higher weights.

The mean effect size \overline{ES} , weighted by its inverse variance v_i , is calculated for k independent effects sizes ES_i as follows:

$$\overline{ES} = \frac{\sum_{i=1}^k (w_i \times ES_i)}{\sum_{i=1}^k w_i}$$

where

$$w_i = \frac{1}{v_i} = \frac{1}{SE_i^2}$$

The inverse variance w_i is a weight assigned to the study and equals the inverse squared standard error SE_i .⁶

Less information exists on synthesizing regression coefficients from multivariate event history models (Greenland 1987) difficulties arise in particular from the aggregation of effect sizes that stem from differently specified models. Coefficients from bivariate or multivariate methods differ according to their magnitudes and standard errors. Following Lipsey and Wilson (2001), meta-analysis misses adequate procedures of multivariate result integration. Only very few authors discuss this methodological problem (Amato, 2001; Lipsey and Wilson, 2001: 67 ff. and other meta-analyses cited in this book; Verhoeven *et al.*, 2005). However, many meta-analysts include such regression coefficients (Amato and Keith, 1991; Karney and Bradbury, 1995; Amato, 2001). We do not know of any meta-analysis that ignores an effect size because coefficients were estimated in multivariate models. Because it is common to aggregate effect sizes which are related to different subgroups (cohorts, geographical regions, and years) and which also estimate different parameters, it is reasonable to use this method.

Testing for homogeneity of effect sizes

Two distribution models of effect sizes have to be distinguished. The fixed effects model assumes all effect sizes to come from one study population. It thus estimates only one population effect size, and differences of effect sizes *between* studies are ignored. The random effects model assumes the population parameters to be randomly distributed and located around a so-called *superpopulation*. The total variance of effect size v_i^* estimates reflects both a *study-within-variance* v_i and a

study-between-variance τ^2 (Shadish and Haddock, 1994): $v_i^* = \tau^2 + v_i$. Using v_i^* to compute weights w_i means to increase variance and standard error and to downsize statistical significance of aggregated effect sizes \overline{ES} .

In the present case, the pooled effect sizes are expected to be heterogeneous because the different effect sizes are based on different subgroups or model specifications (cf. above). Especially, the integration of partial coefficients is not successfully solved. Coefficients from different models do not estimate the same parameter. Therefore, we use random effects models and expect results of strong heterogeneity.

Homogeneity tests are applied to decide whether a distribution model with random or with fixed effects is appropriate. In many cases, these tests are based on the Q-statistic (Hedges and Olkin, 1985; Normand, 1999). With $k-1$ degrees of freedom, the Q-statistic follows a χ^2 -distribution with k effect sizes:

$$Q = \sum_{i=1}^k w_i(ES_i - \overline{ES})^2.$$

If Q exceeds the critical value of the χ^2 -distribution, the null hypothesis of a homogeneous distribution has to be rejected. Hence, the distribution of effect sizes would be assumed to be heterogeneous, and further analyses are necessary for identifying the determinants of heterogeneity.

Most of our results stem from heterogeneous distributions, and it is therefore necessary to test for sources of heterogeneity. This can be done with weighted regression analysis. Weighted regression analysis ('meta-regression') is conducted as it is proposed by Lipsey and Wilson (2001). We use a mixed effects model to control for heterogeneity. Such a model '[. . .] assumes that the effects of between study variables [. . .] are systematic but that there is a remaining unmeasured (and possibly unmeasurable) random effect in the effect size distribution in addition to sampling error. That is, variability in the effect size distribution is attributed to systematic (modeled) between-study differences, subject-level sampling error, and an additional random component' (Lipsey and Wilson, 2001: 124).⁷ Meta-regressions will be dealt in sections *Publication Characteristics and Divorce Risks* and *Context Variables and Divorce Risks*. The former section deals with the influence of publication (or to be more specific, model specification) characteristics on effect sizes, while the latter is aimed at testing the impact of country level characteristics on the strength of divorce risks.

Results

The aim of this section is to describe the variation of effect sizes between and within European countries. We analyze premarital cohabitation as indicators of the information level, the birth of children after marriage as indicators of marital investments, and effects of parental divorce on the child's marital stability.

Divorce Risks at the European Level and at the Country Level

Premarital cohabitation

Figure 3 displays the crude distribution of cohabitation effect sizes by country, that is, before any meta-analytical computations are done.⁸ It can be seen that most of the publications report positive effects for premarital cohabitation on the divorce risk. Exceptions are Norway, Latvia, and Greece. Some countries as Belgium, Sweden, Slovenia, Germany, or the United Kingdom report negative as well as positive influences of premarital cohabitation on marital stability.

The mean effect sizes for cohabitation for each European country and the results of the heterogeneity tests are summarized in Table 1. The association between cohabitation and the stability of the subsequent marriage shows a lot of variation between countries. In some countries, cohabitation is significantly associated with less marital stability (Czech Republic, Estonia, France, Germany,

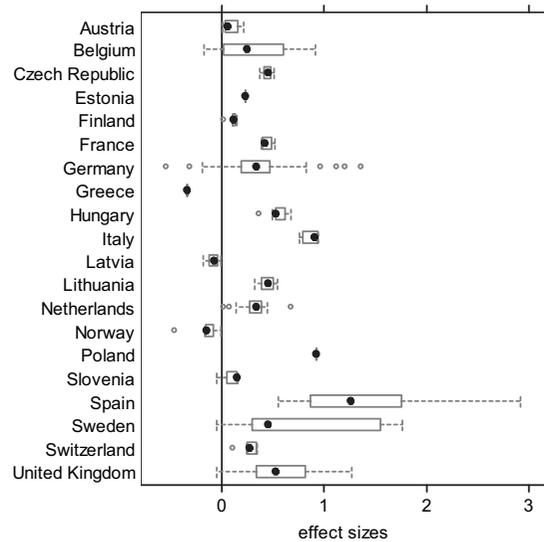


Figure 3 The effects of premarital cohabitation on the divorce rate by country.

Table 1 Effect sizes of premarital cohabitation by country and at the European level

Country	N	Effect size	Per cent	Standard error	Q
Austria	3	0.02	1.61	0.01	0.49
Belgium	3	0.31	36.75	0.22	7.72**
Czech Republic	2	0.43***	54.19	0.09	0.19
Estonia	1	0.23*	25.99	0.12	0.00
Finland	2	0.03	2.94	0.03	4.14
France	2	0.43***	53.88	0.08	0.25
Germany	27	0.29***	33.91	0.05	250.02***
Greece	1	-0.34*	-28.68	0.21	0.23
Hungary	4	0.53***	69.72	0.05	1.38
Italy	3	0.85***	133.96	0.12	0.04
Latvia	2	-0.01	-1.19	0.02	0.39
Lithuania	2	0.45***	57.46	0.10	0.65
Netherlands	7	0.26***	29.05	0.04	6.45
Norway	3	-0.18	-16.14	0.12	0.54
Poland	1	0.92**	150.93	0.47	0.00
Slovenia	2	-0.01	-1.39	0.07	0.59
Spain	4	1.06***	188.64	0.14	3.38
Sweden	10	0.72***	105.65	0.23	229.25***
Switzerland	2	0.27***	31.52	0.05	0.00
United Kingdom	2	0.34	41.06	0.27	44.93***
Europe	20	0.29***	33.11	0.05	360.34***

* $P \leq 0.10$; ** $P \leq 0.05$; *** $P \leq 0.01$.

Hungary, Italy, Lithuania, the Netherlands, Poland, Spain, Sweden, and Switzerland), in some countries it is not related to marital stability (Austria, Belgium, Finland, Latvia, Norway, Slovenia, and the United Kingdom), and in one country—Greece—it increases marital stability.

Heterogeneity tests reveal considerable variation of the cohabitation effect within countries (Belgium, Germany, Sweden, and the United Kingdom). This is understandable because the size and the direction of the cohabitation effect differs according to the specification of the underlying statistical model, especially with respect to the inclusion of control variables.

The European overall effect indicates a positive relationship between cohabitation and the risk of divorce, that is, cohabiting couples have a 33 per cent higher risk to divorce than couples who do not share a common household before marriage.

Presence of children

The presence of children strongly decreases the risk of divorce (Figure 4, Table 2). Albeit, we find a considerable variance at the country level. We get the lowest value for Germany where the divorce rate is reduced by 25 per cent if children are present. The highest value of -70 per cent is observed for the Netherlands.

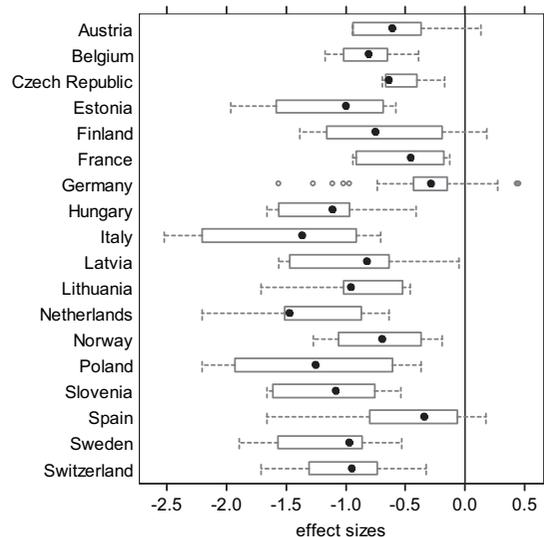


Figure 4 The effects of the presence of children on the divorce rate by country.

Experiences with parental divorce

Similarly strong evidence can be found by looking at the consequences of parental divorce on child's marriage.

Table 2 Effect sizes of presence of children by country and at the European level

Country	N	Effect size	Per cent	Standard error	Q
Austria	3	-0.40	-32.83	0.25	11.80***
Belgium	4	-0.69***	-49.94	0.16	6.51*
Czech Republic	2	-0.46*	-36.93	0.24	2.85*
Estonia	2	-0.90***	-59.22	0.20	0.53
Finland	2	-0.34	-29.11	0.51	8.64***
France	3	-0.47**	-37.31	0.19	5.13*
Germany	13	-0.28***	-24.65	0.06	118.57***
Hungary	3	-0.90***	-59.26	0.28	11.43***
Italy	3	-1.16***	-68.49	0.29	3.98
Latvia	3	-0.61*	-45.77	0.35	23.44***
Lithuania	3	-0.75***	-52.86	0.18	4.00
Netherlands	1	-1.19***	-69.61	0.19	—
Norway	2	-0.53*	-41.02	0.30	3.13*
Poland	2	-0.95*	-61.40	0.51	2.25
Slovenia	3	-0.91***	-59.71	0.22	4.51
Spain	4	-0.51*	-39.65	0.24	30.00***
Sweden	5	-0.91***	-59.55	0.13	5.16
Switzerland	3	-0.86***	-57.56	0.14	0.70
Europe	18	-0.71***	-50.93	0.09	54.89***

* $P \leq 0.10$; ** $P \leq 0.05$; *** $P \leq 0.01$.

Notes: We excluded effect sizes for United Kingdom, which we characterize as outliers (Chan and Halpin, 2002). Including the findings from United Kingdom, the mean effect size lowers to -36.50 per cent and increases the standard error to 0.13.

Nearly all the reported effect sizes indicate positive associations between the stability of the parental marriage and the stability of children’s marriage (Figure 5). Only in

Germany and Sweden some negative results can be found, but the mean value is also positive.

The transmission of the divorce risk between generations can be observed in nearly every country. In France, Poland, Slovenia, and Spain, the transmission effect is not significant. The mean ‘European’ transmission effect is about 60 per cent. However, it reaches 274 per cent in Italy and falls down to 13 per cent in Poland (Table 3).

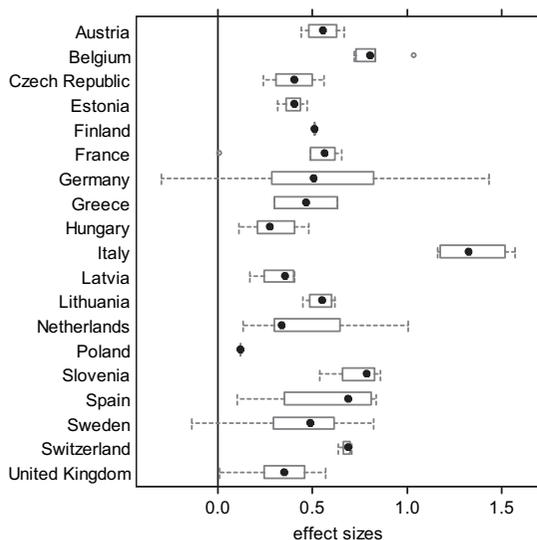


Figure 5 The effects of parental divorce on the divorce rate by country.

Publication Characteristics and Divorce Risks

We found strong evidence that all mean effect sizes are significantly heterogeneous at the European level. This heterogeneity can be seen as a consequence of societal factors as well as of different measurement issues and model specifications. In this section, we concentrate on model specification issues.

One simple idea to control for methodological influences on effect sizes is to control for the number of variables per model. The number of variables per model can be seen as a proxy for a particular step in stepwise regression analysis. It is important to note that all analyses were performed at the level of effect sizes, not countries, that is, we use statistically *dependent* effect sizes (cf. section *Synthesis*). Table 4 gives an impression

Table 3 Effect sizes of parental divorce by country and at the European level

Country	N	Effect size	Per cent	Standard error	Q
Austria	2	0.54**	72.29	0.09	5.09
Belgium	3	0.81**	125.02	0.12	3.92
Czech Republic	2	0.45**	56.21	0.10	1.98
Estonia	1	0.39**	47.26	0.08	—
Finland	1	0.51*	66.53	0.20	—
France	2	0.28	32.31	0.27	36.86**
Germany	25	0.49**	63.23	0.07	4.75**
Greece	1	0.52*	68.03	0.26	—
Hungary	4	0.30**	34.45	0.05	2.92
Italy	2	1.32**	273.97	0.21	9.88
Latvia	2	0.36**	43.19	0.07	6.01
Lithuania	2	0.54**	71.43	0.09	3.41
Netherlands	7	0.31**	35.66	0.06	9.99
Poland	1	0.12	12.75	0.18	—
Slovenia	2	0.74	109.38	0.14	6.92
Spain	2	0.42	52.04	0.32	8.54**
Sweden	8	0.42**	52.50	0.06	1.71*
Switzerland	1	0.68**	96.40	0.12	—
United Kingdom	1	0.31**	36.75	0.07	—
Europe	19	0.47**	59.68	0.07	319.31**

* $P \leq 0.05$; ** $P \leq 0.01$.

of the variation of effect sizes (β -coefficients) from less-developed models and those from models with the maximal number of variables. All in all, we do not find considerable variation. However, models with the maximal number of parameters report somewhat smaller effect sizes especially for cohabitation and parental divorce. Of course, this is not a surprising finding, because in stepwise regression analysis, the larger the models become, the smaller the regression coefficients will usually be.

The results of a mixed effects regression approach which controls for the number of variables can be found in Table 5. We restrict our analysis here to one model per publication, that is, we use the model that contains the maximum number of variables. There is only one

Table 4 Using effect sizes from models with minimal number of control variables and models with maximum number of control variables

	Minimum			Maximum		
	\overline{ES}	SE	N	\overline{ES}	SE	N
Cohabitation	0.422*	0.049	85	0.366*	0.044	102
Children	-0.567*	0.057	91	-0.559*	0.047	117
Parental divorce	0.449*	0.032	83	0.351*	0.028	74

* $P \leq 0.01$.

Table 5 Effects of the number of variables per model on divorce risk

	Constant	SE	b	SE	N
Cohabitation	0.362**	0.118	0.000	0.006	102
Children	-0.734**	0.108	0.010*	0.006	117
Parental divorce	0.322**	0.076	0.001	0.004	74

* $P \leq 0.10$; ** $P \leq 0.01$.

significant finding; the more variables are included into the model, the weaker is the association between the presence of children and marital stability. For the remaining risks (cohabitation and parental divorce), we do not find any significant results.

An important result of our analysis is that we cannot rule out any methodological influences on the meta-analytical estimates of divorce risks. However, we can assume that such influences do not account for the total variation of the effect sizes across European countries.

Context Variables and Divorce Risks

Macro-level indicators

As explained in section *Conceptual Framework*, we concentrate on two macro-level factors: the degree of socio-economic development ('modernization level') and the

level of deinstitutionalization of the marriage. The operationalization of these two concepts is based on a number of country statistics (see Table A1 in the *Appendix*). We selected five macro-level indicators, namely the crude divorce rate in divorces per 1,000 inhabitants, the proportion of Catholics in percentage, the mean age of women at first marriage, the gross domestic product per capita, and the percentage contribution of the service sector to total gross domestic product.

The highest divorce rates can be found in the Czech Republic (3.1), Belgium (3.0), and Lithuania (3.0), whereas the lowest rates appear in Italy (0.7), Spain (0.9), and Greece (1.1). Spain (92.0 per cent) and Poland (90.7 per cent) by far have the highest proportion of Catholics in contrast to Estonia (0.4 per cent) and Norway (0.8 per cent). The Czech Republic possesses one of the lowest mean age of women at their first marriage (22.3) along with Lithuania (22.2), whereas Germany (28.8) and Sweden (28.5) show the highest mean age. The gross domestic product is lowest in Lithuania (8,400), followed by Latvia (8,900); Norway (33,000) and Switzerland (32,000) achieve the highest gross domestic products. The last column displays the percentage of gross domestic product derived from the third sector. In comparison with the ranking in column four, we find a somewhat changed order. The Netherlands (73.1 per cent), France (72.9 per cent), and the United Kingdom (72.6 per cent) exhibit a high proportion of the third sector determining the gross domestic product. The lowest values can be found in Slovenia (57.3 per cent), Norway (61.2 per cent), and the Czech Republic (61.4 per cent).

Based on these five indicators, we conducted a principal component analysis which revealed a two-factor solution. The first factor's eigenvalue is 2.13, the second is about 1.30, and the proportion of explained variance is nearly 70 per cent.

The factor loadings can be seen at Table 6. The first factor includes the gross domestic product per capita, the proportion of employees in the third sector, and the mean marriage age. The second factor includes the national divorce rate and the proportion of Catholics. The first factor is called 'decrease of divorce barriers' or

'deinstitutionalization of the marriage' and the second one 'level of modernization'.

Figure 6 gives an impression of the distribution of countries according to their factor scores. All countries can be classified with respect to the 2 × 2 matrix. In the top left-hand corner of the diagram, countries are displayed which have relatively weak divorce barriers and reached a relatively low level of modernization (Estonia, Czech Republic, and Latvia). Clockwise aside, there are countries plotted which have relatively weak divorce barriers and reach a relatively high level of modernization (Finland, United Kingdom, Norway, Sweden, Germany, the Netherlands, Belgium, and Switzerland). Greece, Austria, France, Spain, and Italy belong to a group of countries which can be characterized as relatively traditional with respect to the marriage culture and modern with respect to the socioeconomic development. Hungary, Poland, and Slovenia are characterized by relatively strong divorce barriers and a relatively low level of modernization.

The variation of divorce risks between European countries: some explanations

To test our hypotheses, we perform a number of (mostly bivariate) regression analyses. The interpretation of the unstandardized regression coefficients is straightforward. The last two rows of each table report r^2 (see section *Testing for Homogeneity of Effect Sizes*) and the reduction of variance between the countries in percent compared with the unconditional model (a negative value indicates an increase of between-country variance).

Cohabitation. Taking cohabitation as an indicator of how much information about the partner is available before marriage, it is assumed that in societies with a high level of modernization premarital cohabitation should reduce the divorce risk much more than in low-level modernized countries. With respect to Table 7, models 1 and 3, this hypothesis could not be confirmed. Controlling for modernization even increases the proportion of variance *between* countries, that is, compared with model 0, the variance increases by 7.29 per cent.

Table 6 Factor loadings of principal component analysis

Variables	Factor 1	Factor 2
Crude divorce rate in divorces per 1,000 inhabitants	-0.04	0.81
Proportion of Catholics in per cent	-0.05	-0.81
Mean age of women at first marriage	0.94	0.01
Gross domestic product per capita	0.92	0.03
Percentage contribution of services to total gross domestic product	0.62	-0.03

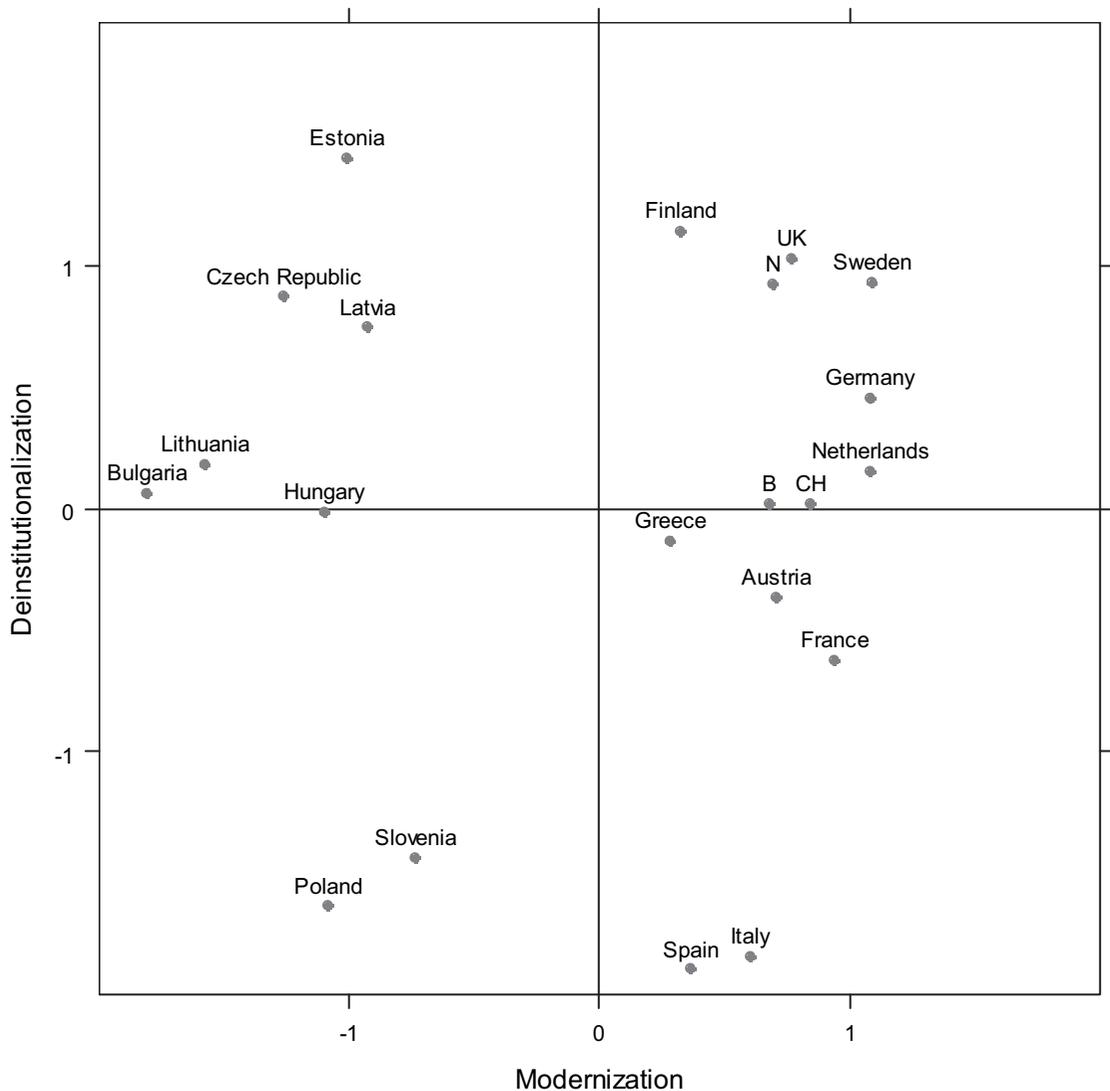


Figure 6 Classification of European countries by levels of deinstitutionalization and modernization (factor scores). B, Belgium; CH, Switzerland; N, Norway; and UK, United Kingdom.

Hypothesis 4 presumes that decreasing divorce barriers lower the impact of cohabitation on the risk of divorce. The results of models 2 and 3 confirm this hypothesis. In the bivariate, as well as in the trivariate case, we find negative effects of about -0.16 . Compared with the first model, the deinstitutionalization factor is able to explain about 19 per cent (model 2) and 14 per cent (model 3) of between-countries variance.

Children. The presence of children indicates marital investments. It is expected that couples with children

have higher divorce costs to bear than couples without children. Modernization theory stresses the decreasing economic risks of living as a single parent. Table 8, models 1 and 3, clearly shows that modernization theory fails. This could mean that the importance of children for the creation of marital-specific capital does not differ between countries.

The same is true for the association between presence of children and deinstitutionalization, although a negative relationship was proposed.

Table 7 The impact of levels of modernization and deinstitutionalization on the association between premarital cohabitation and divorce rate

	Model 0		Model 1		Model 2		Model 3	
	<i>b</i>	SE	<i>b</i>	SE	<i>b</i>	SE	<i>b</i>	SE
Constant	0.303**	0.075	0.305**	0.078	0.306**	0.069	0.309**	0.071
Modernization			-0.006	0.085			-0.022	0.078
Deinstitutionalization					-0.157*	0.072	-0.159*	0.074
<i>N</i>	20		20		20		20	
τ^2	0.096		0.103		0.078		0.083	
$\tau_0^2 - \tau^2$ in per cent			-7.29		18.75		13.54	

* $P \leq 0.05$; ** $P \leq 0.01$.

Table 8 The impact of levels of modernization and deinstitutionalization on the association between presence of children and divorce rate

	Model 0		Model 1		Model 2		Model 3	
	<i>b</i>	SE	<i>b</i>	SE	<i>b</i>	SE	<i>b</i>	SE
Constant	-0.709*	0.072	-0.716*	0.075	-0.711*	0.074	-0.718*	0.077
Modernization			0.035	0.077			0.037	0.078
Deinstitutionalization					0.042	0.081	0.044	0.082
<i>N</i>	18		18		18		18	
τ^2	0.045		0.047		0.049		0.051	
$\tau_0^2 - \tau^2$ in per cent			-4.44		-8.89		-13.33	

* $P \leq 0.01$.

Transmission

For the transmission effect, no association is expected to be found between the level of modernization and the degree of effect sizes. Indeed, we do not find any significant effects (Table 9, models 1–3).

If we account for the degree of deinstitutionalization, we observe negative associations. This corresponds with

our theoretical model which proposes that with a societal decrease of divorce barriers we should expect lower effects from parental divorce for the respondents' own divorce risk.

A working paper by Diekmann and Schmidheiny (2004b) asserts a strong negative correlation between the magnitude of the transmission effect and the proportion

Table 9 The impact of levels of modernization and deinstitutionalization on the association between parental divorce and divorce rate

	Model 0		Model 1		Model 2		Model 3	
	<i>b</i>	SE	<i>b</i>	SE	<i>b</i>	SE	<i>b</i>	SE
Constant	0.478**	0.047	0.479**	0.048	0.493**	0.044	0.493**	0.045
Modernization			0.042	0.049			0.039	0.044
Deinstitutionalization					-0.093*	0.050	-0.093*	0.051
<i>N</i>	19		19		19		19	
τ^2	0.027		0.029		0.020		0.022	
$\tau_0^2 - \tau^2$ in per cent			-7.41		25.93		18.52	

* $P \leq 0.10$; ** $P \leq 0.01$.

Table 10 The impact of the levels of modernization, deinstitutionalization, and proportion of children from divorced parents on the association between parental divorce and divorce rate

	Model 0		Model 1		Model 2		Model 3	
	<i>b</i>	SE	<i>b</i>	SE	<i>b</i>	SE	<i>b</i>	SE
Constant	0.516*	0.055	0.520*	0.057	0.536*	0.046	0.747*	0.093
Modernization			0.048	0.056				
Deinstitutionalization					-0.160*	0.057		
Proportion of children from divorced parents							-1.944*	0.647
<i>N</i>	14		14		14		14	
τ^2	0.031		0.034		0.018		0.014	
$\tau_0^2 - \tau^2$ in per cent			-9.68		41.94		54.84	

* $P \leq 0.01$.

Note: Analyses restricted to those countries used by Diekmann and Schmidheiny (2004b).

of children experiencing their parents' divorce. They find evidence for the hypothesis that low acceptance and stigmatization of divorce aggravate the long-term consequences for children from divorced parents. We tried to replicate their analysis using the same independent variable (proportion of children from divorced parents) and the same set of 14 countries (we excluded the United States). The numerical results can be seen in Table 10.

Models 0–2 apply the same variables as in Table 9 except that we use a restricted number of countries. In short, the outcomes remain stable and do not change very much, that is, we found no association between the level of modernization and a negative impact with increasing divorce barriers. Model 3 presents the results using Diekmann and Schmidheiny's (2004b) variable 'proportion of children from divorced parents'. As well as these two authors, we found a very strong negative association between the proportion of children from divorced parents and the intergenerational transmission effect.

Discussion

The aim of this article was to describe and to explain the heterogeneity of divorce risks in Europe. We concentrated on such divorce risks that play a major role in common divorce models: level of information about the partner, marital investments, and divorce experiences.

Between 1985 and 2004, European divorce research resulted in 120 publications that report divorce risks. There is no alternative to meta-analysis to get a precise overview of this huge number of empirical findings. We estimated the strength of divorce risks for 20 European countries. On the one hand, we found that there are

estimates of divorce risks which vary significantly within countries, for example, the association of the presence of children and the marital stability. This is *per se* an important finding as it shows that we cannot be sure about the strength of the relationships between variables even on a national level. In that case, one has to be cautious when calculating a mean effect size, as it does not represent the distribution of effect sizes within a country adequately. On the other hand, in quite a number of countries, divorce risks do not show strong internal variation. For example, the cohabitation and the transmission effect do not vary considerably within the countries. Here, we obtain rather precise national estimates of the divorce risks.

A central issue of this study was to explain the variation of national divorce risks across Europe. We developed two types of hypotheses. We asked whether the modernization level is related to divorce risks, and we analyzed whether the strength of traditional marriage norms and of the barriers to divorce changes the explanatory power of certain divorce determinants.

Despite a small sample size, two macro–micro relations were empirically confirmed. One concerns the level of information about the partner before marriage. In countries in which traditional marriage norms are strongly institutionalized, cohabitation has a stronger effect than in countries in which marriage norms are weaker. This result underlines the selectivity hypothesis. A second empirically confirmed hypothesis deals with the transmission effect. We could show the decreasing association between the parental divorce and the divorce risk of the offspring, which took place in societies with low divorce barriers, or a high level of deinstitutionalization, respectively. Additional evidence about the underlying macro–micro association was found when using a

macro-indicator, namely the proportion of children from divorced parents, which was proposed by Diekmann and Schmidheiny (2004b).

No empirical support was found for any of our hypotheses which link the level of modernization to the risk of divorce. At least with respect to the divorce risk, we considered the level of socioeconomic development not to be an important macro-variable.

Also, we could not find any significant relationships between the strength of divorce barriers and the effect of children on marital stability. It might be that a country indicator that captures the family policy and the infrastructure of child custody is a more powerful macro-variable. For example, Gerhards and Hölscher (2003) differentiate between three models of family policy ‘family support’, ‘market oriented’, and ‘dual earner’. Especially, the implementation of the ‘dual career’ model, as in Sweden or in East European countries, facilitates a divorce in case of the presence of children. However, it has to be taken into account that selectivity processes might counteract such a macro–micro link. In some countries, the formation of a family is more dependent on a stable marriage than in other countries.

How should comparative divorce research be performed? We still believe that meta-analytical techniques are the best procedures to get good estimates of effect sizes at the national level. An effect size that is based on many studies is more reliable than an effect size that is only based on a single study. We demonstrated that effect sizes can differ according to the model specification. This was especially pronounced with respect to the cohabitation effect. It is argued that a meta-analytical synthesis based on effect sizes from different regression models is questionable. This is because variables indicate different social conditions depending on characteristics of the statistical model (e.g. number and type of the control variables). Nevertheless, it is not very likely that these methodological issues account for the variation of divorce risks across countries, as the consequences of different model specifications should level off when comparing mean divorce risks. Finally, it is necessary to state that every meta-analysis cannot be better than the studies and publications that are included. Exactly, this argument is meant by the saying ‘garbage in, garbage out’.

Notes

1. We neglect the family policy dimension as a possible third macro-factor (Kaufmann, 1982; Andreß, 2003). The first reason is that we expect that our cultural

factor (‘external barriers’) already captures some aspects of the policy dimension. For example, the extent of legal restrictions of divorce is an important part of family policy, but at the same time, it is very closely related to the concept of barriers. Second, we do not know of any classification of family policies that would allow us to consider every country in our comparative analysis. Especially, Eastern European countries are often not included (Korpi, 2000).

2. As we included only papers that analyzed marital stability by means of event history models, our dependent variable is a hazard rate. We did not differentiate between continuous and discrete-time models.
3. EEA exists since 1994 and includes 15 countries of the European Union (Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden, and the United Kingdom), plus Iceland, Norway, and Liechtenstein.
4. For translating Catalan, Dutch, Flemish, and Spanish papers, we received assistance of several experts. We thank Inara Stürckow, Michael Rosentreter, and Stephan Lindner.
5. In meta-analysis, single publication can be regarded as the sampling unit, and reported effect sizes can be regarded as the unit of analysis.
6. Serious problems emerge if publications do not report sufficient information to conduct a meta-analysis. This is especially true if standard errors of the effect sizes are missing. In our case, less than 20 per cent of all publications report standard errors or *t*-values. The remaining publications only offer information about significance levels using the well-known ‘star symbolism’. To estimate the standard errors, the given information should be used at the best possible degree. Details on the estimation procedure of missing standard errors can be found in Wagner and Weiß (2003a).
7. All analyses concerning the mixed effects model were done by using the Stata ado-file ‘metareg’ provided by Stephen Sharp (Thompson and Sharp, 1999). For calculating the weighted means of the effect sizes, we used ‘R: A language and environment for statistical computing’ (R Development Core Team, 2005) and an appropriate package for meta-analysis written by Lumley (2005).
8. This type of figure is known as ‘box-and-whiskers plot’ and used for a graphical summary of a distribution. The box in the middle indicates lower and upper quartiles and median (black dot). The lines (‘whiskers’) denote the largest/smallest observation

that fall within a distance of 1.5 times the box size from the nearest quartile. Any observations that fall farther away are considered 'extreme' values and are shown separately (Dalgaard, 2002; Maindonald and Braun, 2003).

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Appendix

Table A1 Country-specific indicators

Country	Crude divorce rate in divorces per 1,000 inhabitants	Proportion of Catholics in per cent	Mean age of woman at first marriage	Gross domestic product per capita	Percentage contribution of the service sector to the Gross domestic product
Austria	2.4	75.1	25.8	27,900	70.9
Belgium	3.0	80.9	25.2	29,200	71.8
Czech Republic	3.1	39.0	22.3	15,300	61.4
Estonia	3.0	0.4	23.5	11,000	64.8
Finland	2.6	1.0	26.7	25,800	62.9
France	1.9	65.5	26.7	26,000	72.9
Germany	2.5	33.5	28.8	26,200	68.0
Greece	1.1	0.5	25.5	19,100	71.2
Hungary	2.5	60.1	22.7	13,300	64.2
Italy	0.7	79.9	26.3	25,100	68.9
Latvia	2.5	14.8	22.6	8,900	70.9
Lithuania	3.0	72.1	22.2	8,400	62.6
Netherlands	2.1	31.0	27.0	27,200	73.1
Norway	2.3	0.8	27.1	33,000	61.2
Poland	1.2	90.7	23.0	9,700	65.9
Slovenia	1.2	82.9	24.8	19,200	57.3
Spain	0.9	92.0	26.5	21,200	67.8
Sweden	2.4	1.8	28.5	26,000	69.0
Switzerland	2.2	46.1	27.2	32,000	64.5
United Kingdom	2.7	9.3	26.1	25,500	72.6

Sources: Rothenbacher, F. (1996). *European Family Indicators*. EURODATA. Newsletter No. 3, available from: <<http://www.spiegel.de/jahrbuch/>> [accessed 27 October 2003]; Statistisches Bundesamt (Ed). (2004). *Statistisches Jahrbuch 2004. Für das Ausland*. Wiesbaden; Statistisches Bundesamt (Ed). (2004). *Statistisches Jahrbuch 2004. Für die Bundesrepublik Deutschland*. Wiesbaden; The World Factbook, available from: <<http://www.odci.gov/cia/publications/factbook/geos/gm.html>>.