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On the variation of divorce risks in Europe: a meta-analysis

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1. Introduction

The aim of this paper is to summarize European research on 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 21 European countries. This study is based on two earlier papers on the results of German divorce research (Wagner and Weiß, 2003a, 2004) and its first extension towards an European level (Wagner and Weiß, 2003b). Here, we will proceed in two ways. First, we propose an improved conceptualization of macro-level factors. Secondly, we extend the spectrum of variables as we include not only indicators of the information level and marital investments but also of the partners' social resources and their divorce experience. Thirdly, we look more closely at the problem that effect sizes are likely to differ according to the inclusion of control variables.

In a first step, we describe the elements of a divorce model and we characterize important divorce risks. Secondly, we specify hypotheses on the differences of divorce risks between European countries. Thirdly, we inform about our data and methods. Fourthly, we describe the European pattern of divorce risks and we discuss the problem whether the variation of divorce risks is a result of different methods applied. The last step is concerned with the question to what extent macro variables account for the variability of divorce risks across European countries.

2. Divorce risks[1]

Most theories that are applied to explain divorce risks are formulated at the micro-level of the individual or at the meso-level of the marital dyad. Central to microeconomic and exchange theories are the costs and gains marriage partners perceive from the actual marriage and from alternative options. It is assumed that individuals have several options with different expected costs and gains, individuals have at their commands certain resources (e.g. time for partner search) and that these resources are scarce.

Exchange theory assumes that individuals achieve their aims through an exchange of material and immaterial resources in that way that rewards are maximized and costs are minimized. The exchange of resources is regulated by norms of reciprocity and justice which enhance the progression of trust and commitment (Sabatelli and Shehan, 1993). Exchange theory has been applied to marital stability by Levinger (1965, 1982) and Lewis and Spanier (1979). It is hypothesized that marital stability depends on the *quality of relationship*, on the *alternatives to the existing marriage*, and on *external social barriers* which are opposed to divorce. Marital quality is attributed to *social and personal resources*, to *satisfaction with the life style*, and to *rewards of spousal interaction*. In accordance with the microeconomic theory, several authors also emphasized the role of *marital investments* because they increase the costs of divorce. Couples break up if the quality of relationship falls below the aspiration level and if the expected gain from alternatives (for example a

[1] Parts of this section have already been published in Wagner and Weiß (2002, 2003b).

relationship with another partner) exceeds the costs of divorce.

Based on the studies of Gary S. Becker, the microeconomic theory of the family suits exchange theory in many aspects. It assumes persons to organize their household in such a way that the utility of commodities is maximized. If the collective utility of marriage is less than the expected utility of the alternatives, the marriage will be divorced. Among other things, the rewards of marriage depend on the mode of *division of labor*, *investments in marital capital*, and the "partner-match". Because microeconomic theory gives 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 (Hill and Kopp, 1995).

Very little theoretical research deals with the question whether the explanatory power of the well-established divorce models depends on the wider societal context. Is the importance of certain determinants of divorce related to macro-level factors? In the following, we will present some hypotheses on how this societal context could affect divorce risks.

We confine our analysis to four theoretical constructs which will be explored in a comparative meta-analysis across European countries: premarital information level, marital investments, personal resources and divorce experiences.

3. Divorce risks and the societal context: some hypotheses

As it is not reasonable to develop different theories of marital stability for different countries it may well be that the strength of the proposed relationships between the variables of a divorce model or the importance of certain predictors vary according to the wider societal context. In empirical research, variation in societal context can be realized by a historical or a cross-national design. Historical studies are not only concerned with trends in divorce rates but also with historical changes of different kinds of divorce risks (e.g. Wagner, 1997; Wolfinger, 1996).

There are three types of comparative studies. 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 critized for their missing correspondence to an action-oriented explanation. Secondly, there are a number of new studies that compare marriage behavior or divorce risks with micro data between single countries (Brüderl and Diekmann, 1997; Diekmann and Schmidheiny, 2002). As these studies do not group the countries according to theoretical criteria they are usually descriptive without testing macro-micro hypotheses.

Thirdly, as Gerhards and Hölscher (2003) argue countries are not very meaningful units of sociological analysis. Rather the unit "country" should be replaced by dimensions which are assumed to affect processes at the meso or micro level. The authors develop three dimensions: the level of modernization, cultural or religious orientations and the type of family policy and welfare.

Another way of replacing countries by more theoretically validated constructs is the

construction of typologies. Welfare state typologies – like those from Esping-Andersen – have been applied to understand patterns of partner choice (Blossfeld and Müller, 2002), normative orientations toward women's employment (Künzler et al., 1999) or the economic consequences of separations (Uunk and Kalmijn, 2002). However, many of these studies revealed that the explanatory power of such welfare typologies is very restricted.

In the following, 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 of the marriage as an institution or of marital norms. The latter should indicate how much a society can be characterized by a more traditional marriage culture. Despite the fact that 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 the labor market chances of women affect divorce risks.

3.1. Modernization

If the level of modernization is high, individuals stay longer in the educational system and marry relatively late. So far as the "institution effects hypothesis" holds, marriage and family formation are highly incompatible with educational enrollment and a career orientation of women, early marriages should be especially "dysfunctional". From the perspective of the differentiation hypothesis, modernized countries are characterized by heterogenous marriage markets that require a longer partner search. Also for this reason, marriage age should matter more in these countries: The higher the level of modernization the stronger marriage age reduces the divorce risk.

The same is true in the case of cohabitation if we take cohabitation as an indicator of how much information about the partner is available before marriage. The higher the level of modernization the stronger cohabitation should reduce the divorce rate. It is known that it is important to control for selectivity processes, because those who do not cohabit before marriage might be very reluctant to divorce. Selectivity and modernization are likely to be linked in a U-shaped manner (Dourleijn and Liefbroer, 2003).

Research has clearly demonstrated that the presence of children is an important marital investment that lowers the divorce rate. It is still not clear to what extent economic, social or emotional factors account for the fact that children born in the marriage increase marital stability. Very little comparative research on children's influence on marital stability has been undertaken. Given economic factors play a role and countries differ with respect to the effect of children on marital stability, 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. However, insofar as children increase the costs of a divorce because parents do not want that their children grow up only with one parent, no correlation with the modernization level can be expected.

Whether the transmission effect is 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. If parental divorce leads to economic and educational disadvantages for the children that in turn affect their own marriage negatively, the transmission effect should be stronger in countries with a low modernization level.

The higher the level of modernization the higher the general level of resources among the members of the society. In that case, resources should play a lesser role for an explanation of divorce. For example, a partner is less dependent on the resources of another partner if many others potential partners exist with a similar level of resources.

3.2. Marriage culture: Barriers to divorce

In a country where marriage is highly institutionalized premarital cohabitors 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 risk.

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. For that reason, it can be stated that the effect of children on marital stability should be stronger with higher divorce barriers.

If a marriage is divorced despite there are children, the "pressure" to divorce should be very high. Therefore, children might suffer much more under such conditions. In countries with high barriers to divorce only very devasted 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. The transmission hypothesis should hold less in case of low divorce barriers.

Resources should play a greater role in a social context in which divorce barriers are high. The higher the costs of a divorce the more resources are necessary to overcome the divorce barriers. Moreover, in a high-divorce country more alternative partners are available which should reduce the role of resources that a given marriage partner can provide. Blossfeld et al. (1995) demonstrated that the educational attainment of women has its "liberating effect" mostly in countries with a high overall level of divorce (such as Italy). The same should be true with respect to women's employment status.

4. Data and methods

Meta-Analysis is a technique that covers the whole research process. We apply a five stage-model proposed by Cooper (1982): (1) research question, (2) literature retrieval, (3) data coding and data entry, (4) data analysis and (5) presentation of results (for details see Wagner and Weiß, 2003b).

If a meta-analysis about divorce risks in Europe is to be conducted, it is necessary to clarify which countries have to be included into the study. The countries considered here are the 18 countries of the European Economic Area (EEA)[2]; the candidate countries for

[2]The European Economic Area (EEA) exists since 1994 and includes the 15 countries of the European

Table 1: Modernization, strength of divorce barriers and divorce risks: hypotheses

Hypotheses	Modernization	Decrease of divorce barriers (Deinstitutionalization)
Marriage age $\overset{-}{\rightarrow}$ divorce rate	$+$	0
Cohabitation $\overset{+}{\rightarrow}$ divorce rate	$+$	$-$ (selectivity)
Children $\overset{-}{\rightarrow}$ divorce rate	0	$-$
Parental divorce $\overset{+}{\rightarrow}$ divorce rate	$(-)$	$-$
Women's emplyment status $\overset{+}{\rightarrow}$ divorce rate	$-$	$-$
Educational attainment $\overset{+}{\rightarrow}$ divorce rate	$-$	$-$
Father's educational attainment $\overset{+}{\rightarrow}$ divorce rate	$-$	$-$

the European Union, and Switzerland.

4.1. Literature retrieval and sample description[3]

According to our research question publications should meet the following criteria to be included in our meta-analysis: First, we were interested in publications where marital instability[4] had been analyzed. Secondly, we limited our search to publications that explicitly made use of European longitudinal datasets.

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 conducted three different literature retrievals:

1. The first search started in April 2003 with a stock of 52 German studies.
2. In a second step, we added a number of papers, e.g. collected during "The First Conference of the European Research Network on Divorce" in Florence 2002.
3. Again, in a third step, we included a number of papers collected during the second conference in Tilburg, 2003.

Some more additional literature has been found while 'chasing the footnotes' (White, 1994). That is, we checked all literature references for their potential benefit. We also

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.

[3]Parts of this section have already been published in Wagner and Weiß (2003b).

[4]As we included only papers which analyzed marital stability by means of event history models our dependent variable is a hazard rate. We did not differ between continuous and discrete-time models.

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 as a distinguishing feature phrases like 'divorce', 'marital dissolution', 'marital instability' and 'longitud$', 'event history' in order to obtain longitudinal studies. In a third step, we searched the World Wide Web for European longitudinal databases. These databases were also used as a further starting point for literature retrieval. It should be noted that these strategies of literature retrieval (footnote chasing, searching in databases, and searching in the World Wide Web) have not been conducted successively, rather simultaneously.

In total, we collected 261 publications from 15 European countries, but due to comparative publications, we are able to report empirical results for 21 European countries. Some papers cover more than one country. Compared to our paper presented in Tilburg (Wagner and Weiß, 2003b) we included 23 new publications.[5]

25 publications were untraceable and could thus not be checked. About 236 articles, books etc. have been found, but just 120 could be used for further meta-analytical examinations. As Figure 1 shows, most of the publications were published in 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 reasearch activities up to 2002. Noticeable are the parallel historical trend lines for publications which were included in our meta-analysis and which were not. The eldest publication was published in 1985 while the most recent papers stem from 2004.

A more substantial problem is related to the use of languages, especially when searching was performed in computerized databases. Nearly all of these databases are focused on literature published in English or German. So, while conducting a comparative study, it is necessary to make use of several sources (De Leeuw and Hox, 2003). In order to avoid biases, we tried to get as much studies as possible from all over Europe. Finally, we were confronted with nine different languages (Dutch, Flemish, French, Spain, Catalan, Italian, Hungarian, English and German).[6] Obviously there is some language bias. Nearly 90 % of the publications which we included in our meta-analysis were written in English or German. About 6 % were published in Dutch.

4.2. Levels of Analysis

We distinguish between four basic concepts: study, sample, publication and effect size. The Family and Fertility Survey is a good example for illustrating the underlying hierar-

[5] Literature research revealed a number of anomalies. We ignored double publications of identical or nearly identical texts. If a paper has been published twice with substantial modifications, this was counted as two publications and both were introduced in the meta-analysis. Moreover, it is possible that publications include empirical results which are based on two or even more different samples. These publications have been registered as two independent cases. For example, one publication made use of the 'Family and Fertility Survey' and reported empirical findings for sixteen countries (Diekmann and Schmidheiny, 2002). This paper has been counted sixteen times because it included results from sixteen independent samples.

[6] For translating Catalan, Dutch, Flemish and Spanish papers we received assistance of several experts. We thank Inara Stürckow, Michael Rosentreter and Stephan Lindner.

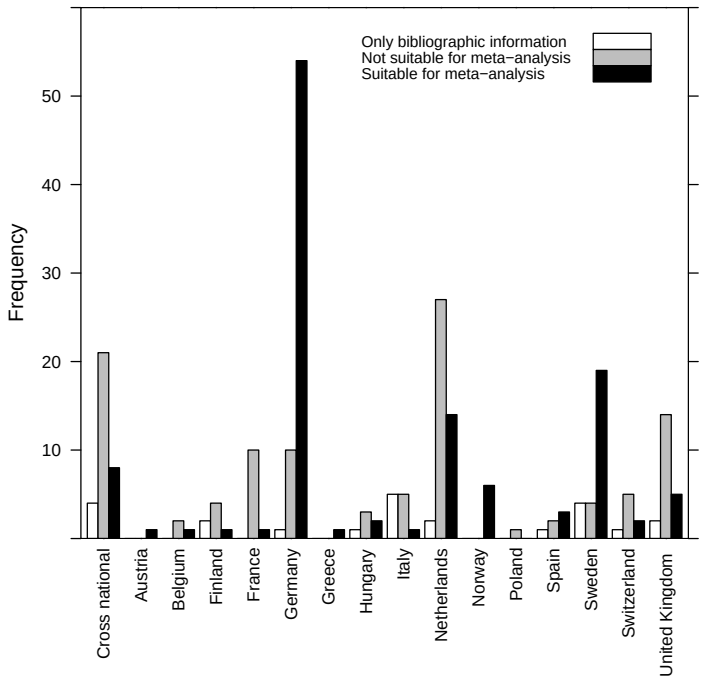


Figure 1: Results of literature retrieval by retrieval status and country

chical order (Figure 3): *Study* is defined as the institutional background responsible for the coordination and realisation of the survey, e.g. the "Population Activities Unit" of the "United Nations Economic Commission for Europe". For each member state one sample exists. *Publications* report empirical results that are based on single studies and samples, respectively. An *effect size* is a standardized research outcome on the degree of association between variables (Hedges and Olkin, 1985).

In meta-analysis, single publications can be regarded as the sampling units and reported effect sizes can be regarded as the units of analysis. The state of research could be related to the study and/or sample level.

It is important to note that empirical results might be valid only for specific subgroups. Sometimes, divorce risks are reported for West or for East Germany or for different marriage cohorts. Rather often for every single subgroup several event history models are estimated. Each of these models includes a different combination of covariates. Consequently, the effect sizes do not only depend on the studies or on the characteristics of the underlying sample but also on the particular subgroup and on the particular specification of the model.

4.3. Statistical methods

Our data analysis is performed in four steps: (1) preparation of data, (2) estimation of mean effect sizes, (3) tests for homogeneity and, if possible, (4) analysis of heterogeneity. The outcome of effect size integration is a set of different and pooled divorce factors.

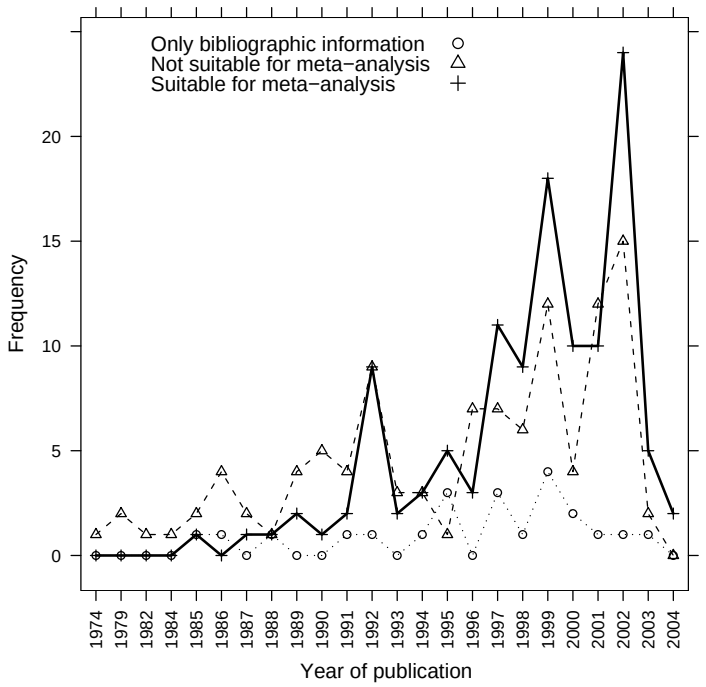


Figure 2: Results of literature retrieval by retrieval status and year

Integration will be done by means of calculating weighted mean effect sizes.

Many authors describe meta-analytical methods for pooling bivariate statistics (e.g. correlation coefficients, rank order correlations etc., see Bortz and Döring, 1995). In the present study we exclusively use regression coefficients[7]. The pooled effect sizes are attained through the computation of the weighted means of all effect sizes. Here, 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); (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. To meet these criteria, effect sizes for similar variables are aggregated for each study. In a second step, mean effect sizes are pooled across studies (Beelmann and Bliesener, 1994; Bortz and Döring, 1995).

To achieve 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 use the weighted arithmetic mean (Hedges and Olkin, 1985; Lipsey and Wilson, 2001; Shadish and Haddock, 1994). "Hence, larger weights are assigned to effect sizes from stud-

[7]Less information exists on synthesizing regression coefficients from multivariate event history models (cf. Greenland, 1987). However, many meta-analysts include such regression coefficients (Amato and Keith, 1991; Karney and Bradbury, 1995; Amato, 2001).

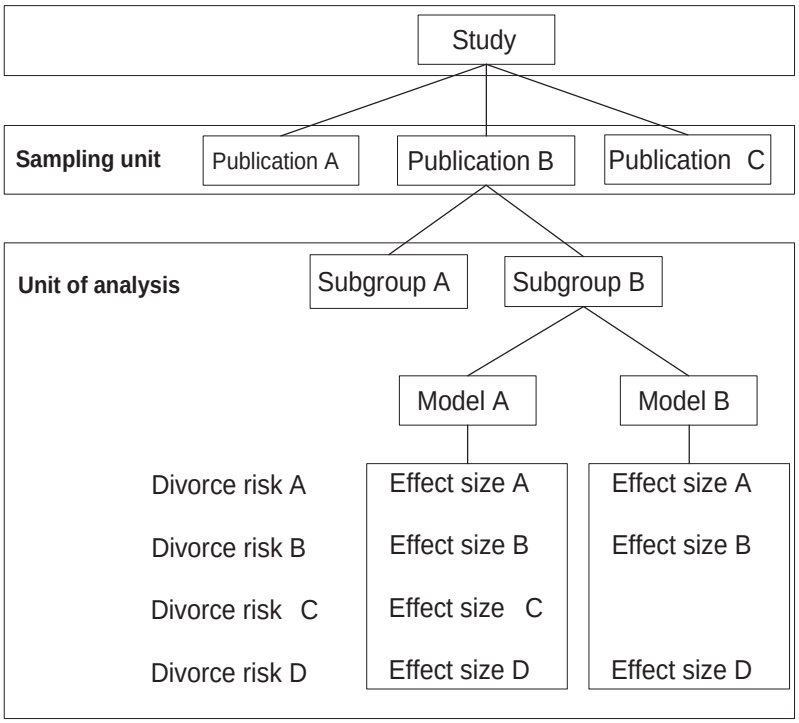


Figure 3: Levels of analysis

ies with smaller variances and larger withinstudy sample sizes" (Shadish and Haddock, 1994). Effect sizes based on a large sample show a higher reliability and will therefore get higher weights.

4.3.1. Synthesis

The mean effect size ES, weighted by its inverse variance v_i, is calculated for n independent effects sizes ES_i as follows:

$$ES = \frac{\sum w_i \times ES_i}{\sum w_i}, \tag{1}$$

where

$$w_i = \frac{1}{v_i} = \frac{1}{SE^2}. \tag{2}$$

The inverse variance v_i is a weight assigned to the study and equals the inverse squared standard error SE.

Another difficulty arises 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 (e.g. factor analysis or multiple regression). Only very few authors discuss this methodological problem (Amato, 2001; Lipsey and Wilson, 2001, 67 ff. and other meta-analyses cited in this book).[8]

[8]Some authors simply aggregate effect sizes of coefficients from multivariate models. For example, t-

4.3.2. 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 estimates reflects both a study-within-variance and a study-between-variance (Shadish and Haddock, 1994): $v_i^* = \sigma^2 + v_i$.

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 particularly make use of 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: $Q = \sum w_i(ES_i - \overline{ES})^2$.

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 an "analog to the analysis of variance" and weighted regression analysis. The meta-analysis analog to the analysis of variance is done by grouping effect sizes into mutually exclusive categories on the basis of an independent variable and tests the homogeneity among the effect sizes within categories and the differences between the categories. If the between category variance indicates significant differences, the mean effect size across groups differs by more than sampling error. In the following, we will report the Q_{within} and $Q_{between}$ as well as Q-total, which is by definition the sum of Q_{within} and $Q_{between}$ (Lipsey and Wilson, 2001, 120ff.).

Weighted regression analysis ("meta-regression") is conducted as proposed by Lipsey and Wilson (2001). We used a *mixed effects model* to control for heterogeneity. "A mixed effects 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).[9]

and p-values can be transformed into a correlation coefficient r in order to get a comparable effect size (Amato and Gilbreth, 1999; Karney and Bradbury, 1995). 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, years) and which also estimate different parameters, it is reasonable to use this method.

[9] All analysis concerning the ANOVA analog model and the mixed effects model were done by using SPSS macros provided by David B. Wilson, available at `http://mason.gmu.edu/~dwilsonb/ma.html`. For calculating the weighted means of the effect sizes we used "R: A language and environment for

4.3.3. Estimation of weights

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 % 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).

5. Results

The aim of this chapter is to describe the variation of effect sizes between and within European countries. We analyze age at marriage (in years) and premarital cohabitation as indicators of the information level, the birth of children after marriage as indicators of marital investments and serveral social resources like the educational attainment of the respondents and of the father's as well as women's employment status.

We use different methods to estimate the variability of effect sizes. First, Box-and-whiskers-plots inform about the distribution of effect sizes for each country. Black points indicate the median and the left and right side of the boxes the 25% and the 75% percentile, respectively. Outlier are indicated by dots. A second way to display the variation of effect sizes is to report the Q-statistics for each variable and country. This is done in Tables 2 to Table 8.

Thirdly, to test for differences of effects size distributions between and within countries we apply a type of ANOVA (Lipsey and Wilson, 2001) which has been adopted to the requirements of meta-analysis (see above).

5.1. Country-specific divorce risks and their European summaries

5.1.1. Premarital cohabitation

Figure 4 displays the crude distribution of cohabitation effect sizes by country, i.e. before any meta-analytical computations are done. It can be seen that most of the publications report positive effects for premarital cohabitation on the divorce risk. Exceptions are Norway, Latvia, Greece and Belgium. Some countries as Sweden, Slovenia, Germany or Belgium 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 shown in Table 2. 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 (Belgium, Czech Republic, Estonia, France, Germany, Greece, Italy, Hungary, Lithuania, the Netherlands, Norway, Poland, Spain, Sweden, Switzerland and the United Kingdom), in some

statistical computing" (R Development Core Team, 2004) and an appropriate package for meta-analysis written by Lumley (2004).

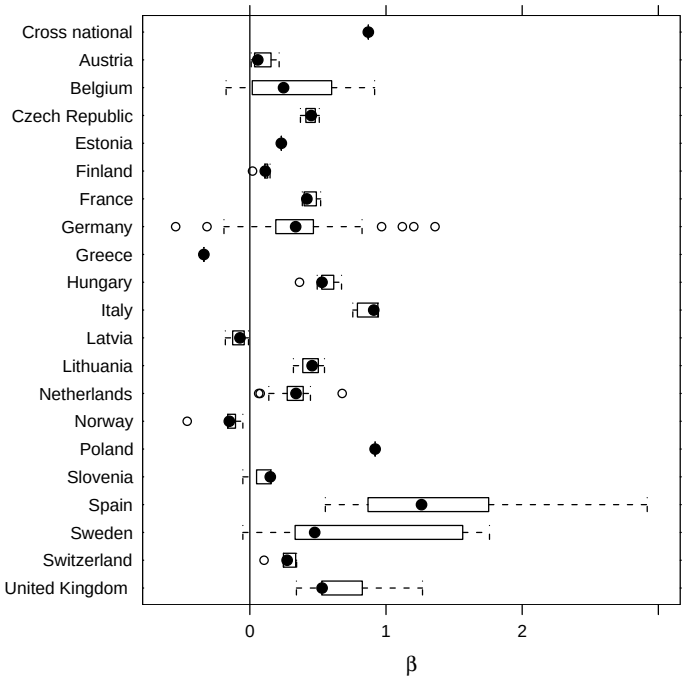


Figure 4: Box-and-whiskers plot for premarital cohabitation by country

countries it is not related to marital stability (Austria, Finland, Latvia, Slovenia), and in one country – Greece – it increases marital stability.

Heterogeneity tests reveal considerable variation of the cohabitation effect within countries (Belgium, Germany, the Netherlands, Sweden and United Kingdom). This might be due to the fact that 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 positve relationship between cohabitation and the risk of divorce, i.e. cohabiting couples have a 31% higher risk to divorce than couples who do not share a common household before marriage.

A graphical representation of these findings can be found in Figure 13 (appendix). This type of plot is called *forest plot*. Each country-specific effect size and its 95 %-confidence interval is plotted. The overall value for Europe can be found at the bottom of the Figure. Each effect size is inverse proportional to its standard error, i.e. "better" estimates are indicated by larger squares.

5.1.2. Age at Marriage

Most of the effect sizes indicate a negative association between the age at marriage and the divorce risk (Figure 5). However, many countries report only one effect size (see also Table 3).

Nearly in every country – exceptions are Greece, the Netherlands and Poland – age at

Table 2: Effect sizes of premarital cohabitation by country and at the European level

Country	N	Effect size	in %	Standard error	Q	
Cross national	1	0.87**	138.69	0.34	0.00	NA
Austria	7	0.02	1.60	0.01	1.75	
Belgium	4	0.23***	25.98	0.07	8.57	*
Czech Republic	3	0.43***	54.16	0.09	0.35	
Estonia	1	0.23*	26.00	0.12	0.00	NA
Finland	5	0.03	2.99	0.03	1.15	
France	5	0.43***	53.82	0.08	0.43	
Germany	97	0.11***	12.00	0.01	499.94	*
Greece	1	−0.34*	−28.65	0.21	0.00	NA
Hungary	13	0.53***	69.70	0.05	2.72	
Italy	5	0.85***	134.02	0.12	0.44	
Latvia	3	−0.01	−1.17	0.01	0.72	
Lithuania	3	0.45***	57.39	0.10	0.79	
Netherlands	21	0.09***	8.90	0.01	92.06	*
Norway	5	−0.12**	−11.21	0.06	4.49	
Poland	1	0.92**	150.93	0.47	0.00	NA
Slovenia	3	−0.01	−1.38	0.07	1.31	
Spain	12	1.05***	186.41	0.13	8.04	
Sweden	27	0.50***	65.03	0.04	230.75	*
Switzerland	6	0.27***	31.52	0.05	1.78	
United Kingdom	10	0.57***	76.85	0.03	28.60	*
Europe	21	0.28***	32.08	0.04	782.38	*

*** $p \leq 0.01$; ** $p \leq 0.05$; * $p \leq 0.10$

marriage in years increases the marital stability. The highest effect size was observed for Norway (-19% per year), the lowest for the Netherlands (0.56%). For the European level we get a mean effect size of -6.12% (Table 3).

For six countries we can estimate the heterogeneity. In three cases the Q-statistic is significant (therefore heterogeneity is substantial), in three cases it is not.

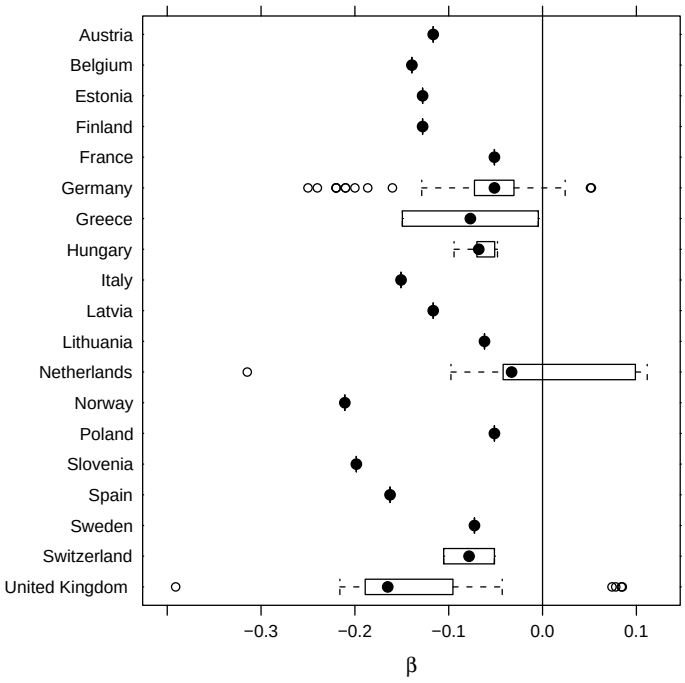


Figure 5: Box-and-whiskers plot for age at marriage by country

Table 3: Age at marriage in years

Country	N	Effect size	in %	Standard error	Q	
Austria	1	−0.12***	−11.00	0.04	0.00	NA
Belgium	1	−0.14***	−13.00	0.04	0.00	NA
Estonia	1	−0.13***	−12.00	0.04	0.00	NA
Finland	1	−0.13***	−12.00	0.04	0.00	NA
France	1	−0.05***	−5.00	0.02	0.00	NA
Germany	225	−0.02***	−1.95	0.00	841.84	*
Greece	2	−0.01	−0.64	0.01	6.16	
Hungary	17	−0.06***	−5.58	0.00	6.43	
Italy	1	−0.15***	−14.00	0.05	0.00	NA
Latvia	1	−0.12***	−11.00	0.04	0.00	NA
Lithuania	1	−0.06**	−6.00	0.02	0.00	NA
Netherlands	10	0.01***	0.56	0.00	138.16	*
Norway	1	−0.21***	−19.00	0.06	0.00	NA
Poland	1	−0.05	−5.00	0.08	0.00	NA
Slovenia	1	−0.20***	−18.00	0.06	0.00	NA
Spain	1	−0.16***	−15.00	0.05	0.00	NA
Sweden	1	−0.07**	−7.00	0.03	0.00	NA
Switzerland	2	−0.07***	−6.42	0.02	2.06	
United Kingdom	35	−0.05***	−5.19	0.00	1877.58	*
Europe	19	−0.06***	−6.12	0.01	978.99	*

*** $p \leq 0.01$; ** $p \leq 0.05$; * $p \leq 0.10$

5.1.3. Experiences with parental divorce

A similar strong evidence can be found looking at the consequences of parental divorce on child's marriage. Nearly all of the reported effect sizes indicate positive associations between the stability of the parental marriage and the stability of children's marriage (Figure 6). Only in Germany and Sweden some negative results can be found but also, here we get a positive mean value.

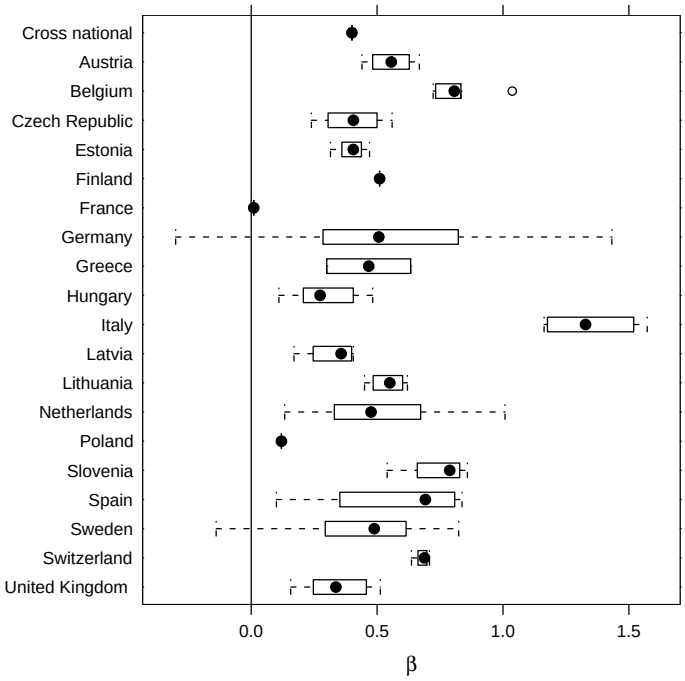


Figure 6: Box-and-whiskers plot for experiences with parental divorce by country

On the meta-analytical level, the transmission of the divorce risk between generations can be observed nearly in every country. Only in France and Poland, the transmission effect is not significant. The mean "European" transmission effect is 53.3%. However, it reaches 273.9% in Italy and falls down to 1% in France.

5.1.4. Presence of children

The presence of children strongly decreases the risk of divorce (Figure 7, Table 5). Albeit, we find a considerable variance at the country level. The lowest value, we get for Germany where the divorce rate is reduced by 8% if children are present. The highest value of -69.9 % was observed for the Netherlands.

We excluded the effect sizes for the United Kingdom which must be characterized as outliers. These 12 reported effect sizes stem from two papers published by Chan and Halpin (2002, 2000). Including the findings from UK lowers the mean effect size to -36.50 % and increases the standard error to 0.13 while the Q-value explodes from 402.24 to 1293.90.

Table 4: Effect sizes of parental divorce by country and at the European level

Country	N	Effect size	in %	Standard error	Q	
Cross national	1	0.40	49.18	0.60	0.00	NA
Austria	4	0.54***	72.36	0.09	0.82	
Belgium	6	0.81***	125.03	0.12	0.74	
Czech Republic	4	0.45***	56.24	0.10	0.94	
Estonia	3	0.39***	47.24	0.08	0.70	
Finland	1	0.51**	66.53	0.20	0.00	NA
France	1	0.01	1.01	0.01	0.00	NA
Germany	145	0.17***	18.85	0.01	614.08	*
Greece	2	0.52**	68.08	0.26	0.36	
Hungary	18	0.30***	34.51	0.05	3.95	
Italy	4	1.32***	273.93	0.21	0.66	
Latvia	4	0.36***	43.25	0.07	0.86	
Lithuania	4	0.54***	71.36	0.09	0.52	
Netherlands	14	0.25***	28.76	0.04	10.43	
Poland	1	0.12	12.75	0.18	0.00	NA
Slovenia	4	0.74***	108.93	0.14	0.73	
Spain	4	0.39***	48.43	0.11	8.85	*
Sweden	37	0.47***	59.64	0.04	30.91	
Switzerland	3	0.67***	96.37	0.12	0.07	
United Kingdom	6	0.31***	36.81	0.07	1.73	
Europe	20	0.43***	53.34	0.05	357.10	*

*** $p \leq 0.01$; ** $p \leq 0.05$; * $p \leq 0.10$

5.1.5. Resources

With respect to social resources we analyzed the respondent's (high) level of educational attainment, father's educational attainment and women's employment status. At the European level, we did not find any strong evidence that the educational variables are related to marital stability. The effect on marital stability is either 0 or not significant (see Table 6 and 7).

If we go into details, especially for the respondent's level of educational attainment, we find some variations at the country level. In most countries, we do not find any significant effect sizes. Very strong positive effects were reported for Italy, the Netherlands and the United Kingdom while we find a negative effect in Sweden. It is not surprising that we find a heterogeneous effect size distribution at the European level. Father's educational attainment level strongly increases the divorce rate for Germany but not for France (Table 7, Figure 9).

If we have a look at women's employment status, we find some evidence of a negative relation to marital stability (Figure 10). The European total is near to 35 %. Exceptions are the findings for Belgium, Switzerland and France while the first two are not significant.

Nevertheless, the total distribution is very heterogeneous and indicates considerable differences between the countries. The largest effect can be found in Finland with about 150 % while the smallest positive and significant effect can be found in Norway with about 45 %.

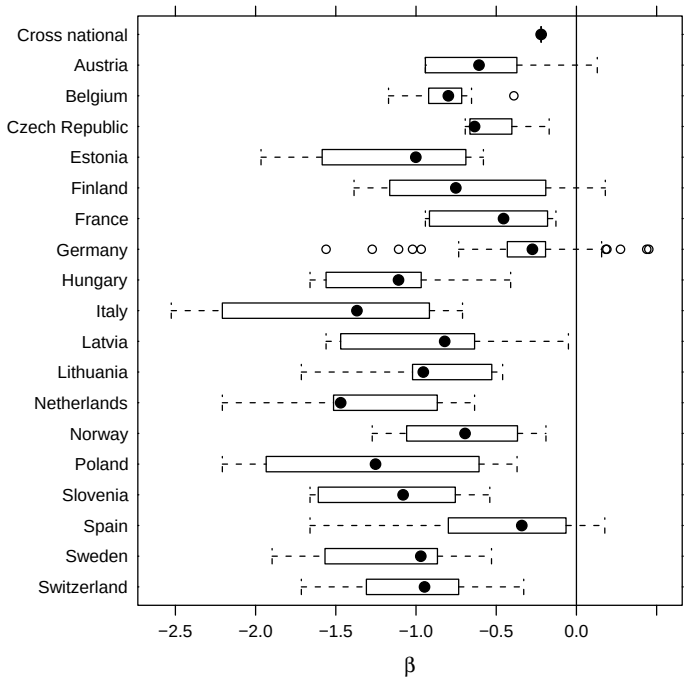


Figure 7: Box-and-whiskers plot for presence of children by country

Table 5: Effect sizes of presence of children by country and at the European level

Country	N	Effect size	in %	Standard error	Q	
Cross national	1	−0.22**	−19.75	0.09	0.00	NA
Austria	6	−0.48***	−37.86	0.09	16.38	*
Belgium	7	−0.67***	−49.08	0.10	7.40	
Czech Republic	3	−0.54***	−41.95	0.12	2.90	
Estonia	4	−0.90***	−59.21	0.16	5.22	
Finland	4	−0.55***	−42.13	0.12	13.20	*
France	6	−0.41***	−33.50	0.09	7.21	
Germany	91	−0.08***	−8.09	0.01	199.69	*
Hungary	6	−0.78***	−54.32	0.11	13.47	*
Italy	6	−1.11***	−67.06	0.16	9.45	*
Latvia	6	−0.27***	−23.58	0.06	36.64	*
Lithuania	6	−0.72***	−51.13	0.10	8.90	
Netherlands	9	−1.19***	−69.61	0.19	5.62	
Norway	4	−0.63***	−46.90	0.13	6.03	
Poland	4	−1.03***	−64.44	0.20	6.60	*
Slovenia	6	−0.88***	−58.51	0.14	7.26	
Spain	10	−0.12***	−11.48	0.04	40.59	*
Sweden	11	−0.92***	−60.11	0.11	10.25	
Switzerland	6	−0.71***	−50.71	0.10	12.59	*
Europe	19	−0.62***	−46.20	0.08	402.24	*

*** $p \leq 0.01$; ** $p \leq 0.05$; * $p \leq 0.10$

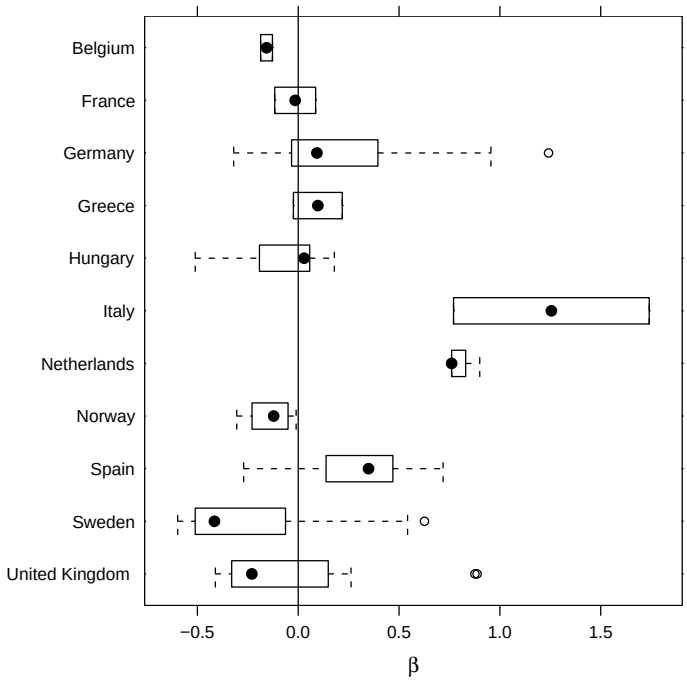


Figure 8: Box-and-whiskers plot for high level of educational attainment by country

Table 6: Effect sizes of high level of educational attainment by country and at the European level

Country	N	Effect size	in %	Standard error	Q	
Belgium	2	−0.15	−13.63	0.16	0.03	
France	2	0.01	1.46	0.10	0.88	
Germany	51	0.01	0.70	0.01	38.61	
Greece	2	−0.02	−2.08	0.04	0.55	
Hungary	12	0.03	2.75	0.02	6.20	
Italy	2	0.93***	153.19	0.36	1.00	
Netherlands	3	0.81***	125.69	0.22	0.10	
Norway	4	−0.15	−13.53	0.09	1.55	
Spain	12	0.05	5.21	0.04	21.36	*
Sweden	21	−0.29***	−25.32	0.05	45.30	*
United Kingdom	19	0.12***	12.49	0.04	53.73	*
Europe	11	0.00	0.05	0.03	78.67	*

*** $p \leq 0.01$; ** $p \leq 0.05$; * $p \leq 0.10$

Table 7: Effect sizes of father's educational attainment by country and at the European level

Country	N	Effect size	in %	Standard error	Q	
France	8	0.02	2.38	0.02	2.23	
Germany	38	0.28***	31.97	0.03	55.70	*
Europe	2	0.15	16.14	0.13	52.26	*

*** $p \leq 0.01$; ** $p \leq 0.05$; * $p \leq 0.10$

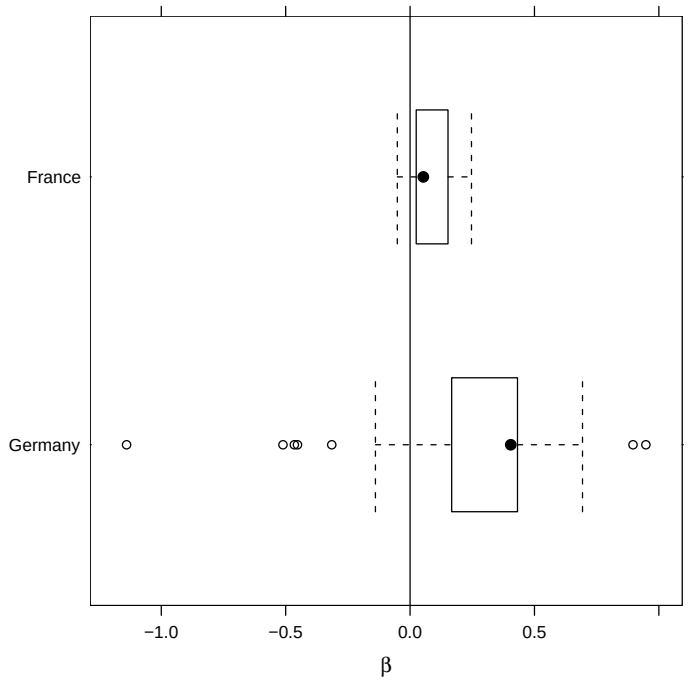


Figure 9: Box-and-whiskers plot for father's educational attainment by country

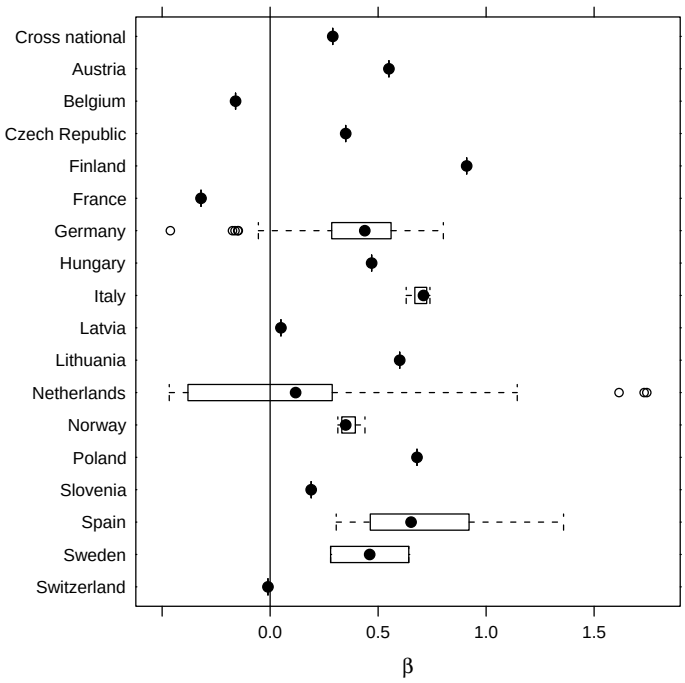


Figure 10: Box-and-whiskers plot for women's employment status by country

Table 8: Effect sizes of women's employment status by country and at the European level

Country	N	Effect size	in %	Standard error	Q	
Cross national	1	0.29	33.64	0.43	0.00	NA
Austria	1	0.55**	73.33	0.21	0.00	NA
Belgium	1	−0.16	−14.79	0.24	0.00	NA
Czech Republic	1	0.35	41.91	0.21	0.00	NA
Finland	1	0.91**	148.43	0.35	0.00	NA
France	1	−0.32**	−27.39	0.12	0.00	NA
Germany	61	0.29***	34.14	0.02	103.96	*
Hungary	1	0.47*	60.00	0.24	0.00	NA
Italy	3	0.69***	99.02	0.10	0.28	
Latvia	1	0.05	5.13	0.07	0.00	NA
Lithuania	1	0.60**	82.21	0.23	0.00	NA
Netherlands	55	0.02	2.13	0.02	186.50	*
Norway	3	0.37***	45.15	0.08	0.44	
Poland	1	0.68**	97.39	0.26	0.00	NA
Slovenia	1	0.19	20.92	0.28	0.00	NA
Spain	10	0.52***	67.98	0.07	10.58	
Sweden	2	0.45***	56.59	0.08	5.16	
Switzerland	1	−0.01	−1.00	0.02	0.00	NA
Europe	18	0.29***	33.14	0.06	290.56	*

*** $p \leq 0.01$; ** $p \leq 0.05$; * $p \leq 0.10$

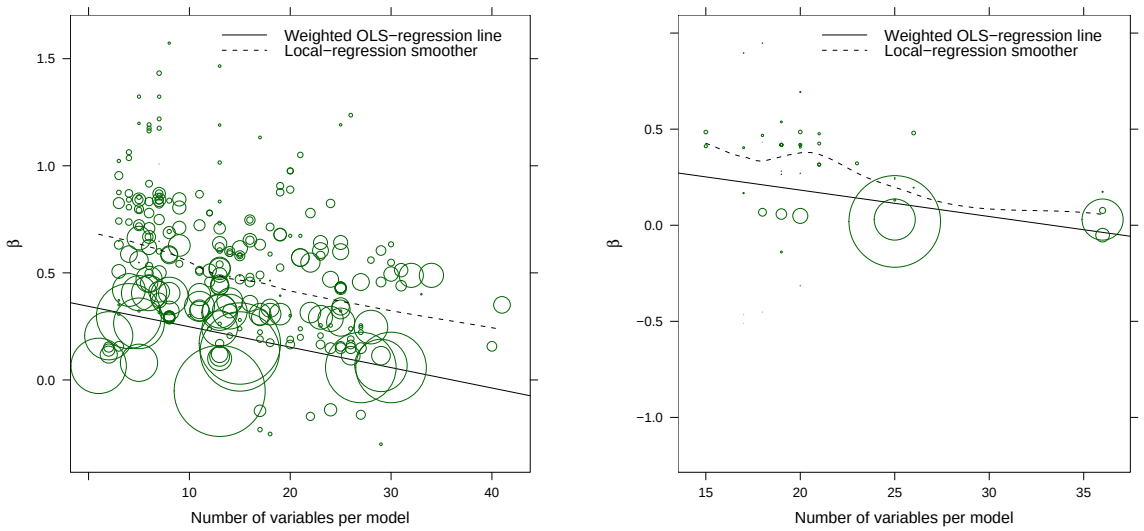
5.2. Publication characteristics and divorce risks

We found strong evidence that all mean effect sizes at the European level are significantly heterogeneous. This heterogeneity could be a consequence of societal factors or of different measurement issues and model specifications.

In the following, we test whether the number of variables per model affects the effect sizes. Table 9 presents the results from a number of bivariate regressions. All analyses were performed at the level of effect sizes, not countries. For example: the analysis for cohabitation was based on 233 effect sizes.

In case of parent's divorce, women's employment status and father's educational attainment and the presence of children, effect sizes decrease significantly if the number of variables increases. This is not true for cohabitation and age at marriage. Obviously, despite of significant results, the explained variance is below two percent, except father's educational attainment and parent's divorce where 28.6 % and 10.9 %, respectively, are explained by the number of variables per model.

To get a visual impression, Figure 11 shows scatterplots for the number of variables per model, parent's divorce and father's educational attainment, respectively. There are two regression lines in each plot: a local regression smoother to demonstrate the unweighted associations and a line for the regression weighted by the inverse variance. The size of the dots corresponds to its inverse variance, i.e. large circles indicate small standard errors.



(a) Parental divorce

(b) Father's educational attainment

Figure 11: Effect sizes and number of variables per model

An important result of our analysis is that we can not rule out any methodological influences on the divorce risks. However, we can assume that such influences do not account for the total variation of the effect sizes across European countries. It is not likely that model specifications differ between countries. Therefore, it is reasonable to examine macro-level factors and their possible effects on divorce risks.

Table 9: Results from bivariate weighted ols-regressions for number of variables per model, unstandardized regression coefficients

	b	SE
Intercept	0.081***	0.021
Premarital cohabition	0.003	0.002
N	233	
adj. R^2	0.005	
Intercept	0.343***	0.033
Parental divorce	−0.010***	0.002
N	266	
adj. R^2	0.109	
Intercept	0.212***	0.021
Women's employment	−0.004**	0.002
N	146	
adj. R^2	0.043	
Intercept	−0.007	0.003
Age at marriage	−0.000	0.000
N	304	
adj. R^2	0.009	
Intercept	0.365***	0.077
Father's educational attainment	−0.010***	0.021
N	42	
adj. R^2	0.276	
Intercept	−0.354***	0.064
Presence of children	0.010**	0.003
N	196	
adj. R^2	0.047	
Intercept	0.069	0.034
High level of educational attainment	−0.003	0.000
N	130	
adj. R^2	0.020	

*** $p \leq 0.01$; ** $p \leq 0.05$; * $p \leq 0.10$

5.3. Context variables and divorce risks

5.3.1. Macro-level indicators

As stated in Section 3, we concentrate on two macro level factors: the degree of socioeconomic development ("modernization level") and a more cultural factor that captures the strength of the marriage as an institution or of marital norms ("strength of divorce barriers"). The operationalization of these two concepts is based on a number of country statistics (Table 10). We selected five macro-level indicators, namely the "crude divorce rate in divorces per 1000 inhabitants", the "proportion of catholics in %", the "meanage of women at first marriage", the "gross domestic product per capita" and the "gross domestic product composition by third sector in %".

Table 10: Country-specific indicators

Country	Crude divorce rate in divorces per 1000 inhabitants	Proportion of catholics in %	Meanage of women at first marriage	Gross domestic product per capita	Gross domestic product composition by third sector in %
Austria	2.4	75.1	25.8	27900	70.9
Belgium	3.0	80.9	25.2	29200	71.8
Bulgaria	1.3	0.9	22.3	6500	58.6
Czech Republic	3.1	39.0	22.3	15300	61.4
Estonia	3.0	0.4	23.5	11000	64.8
Finland	2.6	1.0	26.7	25800	62.9
France	1.9	65.5	26.7	26000	72.9
Germany	2.5	33.5	28.8	26200	68.0
Greece	1.1	0.5	25.5	19100	71.2
Hungary	2.5	60.1	22.7	13300	64.2
Italy	0.7	79.9	26.3	25100	68.9
Latvia	2.5	14.8	22.6	8900	70.9
Lithuania	3.0	72.1	22.2	8400	62.6
Netherlands	2.1	31.0	27.0	27200	73.1
Norway	2.3	0.8	27.1	33000	61.2
Poland	1.2	90.7	23.0	9700	65.9
Slovenia	1.2	82.9	24.8	19200	57.3
Spain	0.9	92.0	26.5	21200	67.8
Sweden	2.4	1.8	28.5	26000	69.0
Switzerland	2.2	46.1	27.2	32000	64.5
United Kingdom	2.7	9.3	26.1	25500	72.6

Sources: Rothenbacher, F. 1996: European Family Indicators. EURODATA. Newsletter No. 3; `http://www.spiegel.de/jahrbuch/` (27.10.2003); Statistisches Bundesamt (Hrsg.) 2004: Statistisches Jahrbuch 2004. Für das Ausland. Wiesbaden; Statistisches Bundesamt (Hrsg.) 2004: Statistisches Jahrbuch 2004. Für die Bundesrepublik Deutschland. Wiesbaden.; The World Factbook `http://www.odci.gov/cia/publications/factbook/geos/gm.html`.

Table 11: Eigenvalues and proportion of explained variance of principal component analysis

Factor	Eigenvalue	% of Variance	Cumulative %
1	2.13	42.51	42.51
2	1.30	26.02	68.54
3	0.83	16.59	
4	0.65	13.03	
5	0.09	1.83	

The highest divorce rates can be found in the Czech Republic (3.1), Belgium (3.0) and Lithuania (3.0), wheras the lowest rates appear in Italy (0.7), Spain (0.9) and Greece (1.1). On the other hand, Spain (92%) and Poland (90,7%) by far have the highest proportion of catholics in contrast to Estonia (0.4%), Norway (0.8%) and Bulgaria (0.9%). In addition, Bulgaria possesses one of the lowest meanage of women at their first marriage (22.3) along with the Czech Republic (22.3) and Lithuania (22.2). In particular, Germany (28.8) and Sweden (28.5) show the highest meanage. Regarding the gross domestic product two facts can be stated: First of all, Bulgaria is the country having the lowest gross domestic product per capita (6500), followed by Lithuania (8400) and Latvia (8900). Contrarywise, Norway (33000) and Switzerland (32000) achieve the highest gross domestic products. Finally, analyzing the gross domestic product by its composition, mainly the third sector in %, it shows that Bulgaria has not only the lowest gross domestic product per capita but is also one of the both countries (along with Slovenia (57.3%)) where the third sector is not distinct (58.6%). In comparison, the Netherlands (73.1%), France (72.9%) and the United Kingdom (72.6%) exhibit a high proportion of the third sector determining the gross domestic product.

Based on these five indicators we conducted a principal component analysis which revealed a two-factor solution. Table 11 displays the eigenvalues and proportion of explained variance.

The factor loadings can be seen at Table 12. 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 "strength divorce barriers" and the second one "level of modernization".

Figure 12 gives an impression on how the countries are distributed 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, Latvia). Clockwise aside there are countries plotted which have relatively weak divorce barriers and reached a relatively high level of modernization (Finland, United Kingdom, Norway, Sweden Germany, the Netherlands, Belgium, 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

Table 12: Factor loadings of principal component analysis

Variables	Factor 1	Factor 2
Crude divorce rate in divorces per 1000 inhabitants	−0.04	0.81
Proportion of catholics in %	−0.05	−0.81
Meanage of women at first marriage	0.94	0.01
Gross domestic product per capita	0.92	0.03
Gross domestic product composition by third sector in %	0.62	−0.03

to the socioeconomic development. Hungary, Poland and Slovenia are characterized by relatively strong divorce barriers and a relatively low level of modernization.

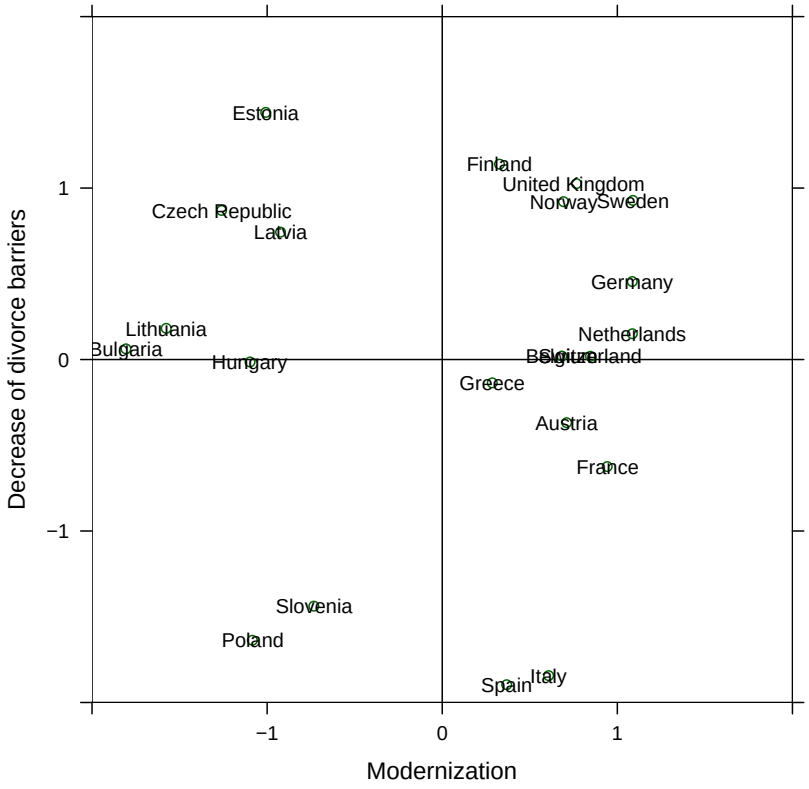


Figure 12: Classification of European countries by decrease of divorce barriers and modernization level (factor scores)

5.3.2. Results for heterogeneity analysis by macro-level indicators

To test our hypotheses we computed ANOVA heterogeneity statistics (Tables 13 and 14) and a number of meta-regressions with the two macro-level factors as independent vari-

ables[10] (Tabels 15 to 20). An inspection of the variance analyses shows that only the effect sizes of age at marriage depend on the modernization level and the effect sizes of premarital cohabitation on the strength of the divorce barriers. However, as Table 13 and Table 16 show, age at marriage has a stronger negative effect in those countries that are less modernized. This result is in contrast to our expectations. Cohabitation is less important if divorce barriers are low. This finding underlines the selectivity hypothesis. A third finding is that educational attainment is weakly associated ($p \leq 0.15$) with the strength of divorce barriers (Table 20). All of the other divorce risks we explored are not related to any of the two macro factors.

Table 13: Mean effect sizes by modernization level

	High		Low		Heterogeneity statistic					
Variable	$\overline{\beta}$	N	$\overline{\beta}$	N	$Q_{between}$		Q_{within}		Q_{total}	
Age at marriage	-0.05	13	-0.08	6	2.46	$^{+}$	37.88	***	40.34	***
Cohabitation	0.28	14	0.27	7	0.02		61.53	***	61.55	***
Presence of children	-0.56	12	-0.71	7	0.95		17.76		18.71	
Parental divorce	0.43	13	0.41	7	0.03		28.97	**	29.01	*
Women's employment	0.27	12	0.34	6	0.25		23.68	*	23.93	$^{+}$
Educational attainment	0.00	10	0.03	1	0.04		26.25	***	26.29	***

*** $p \leq 0.01$; ** $p \leq 0.05$; * $p \leq 0.10$; $^{+}$ $p \leq 0.15$

Table 14: Mean effect sizes by the strength of divorce barriers

	Weak		Strong		Heterogeneity statistic					
Variable	$\overline{\beta}$	N	$\overline{\beta}$	N	$Q_{between}$		Q_{within}		Q_{total}	
Age at marriage	-0.06	11	-0.07	8	0.14		39.24	***	39.38	***
Cohabitation	0.24	13	0.38	8	2.65	$^{+}$	56.69	***	59.34	***
Presence of children	-0.60	12	-0.66	7	0.12		12.77		12.89	
Parental divorce	0.43	12	0.44	8	0.00		21.29		21.30	
Women's employment	0.23	11	0.39	7	1.73		24.92	*	26.66	*
Educational attainment	-0.02	6	0.04	5	0.61		24.45	***	25.05	***

*** $p \leq 0.01$; ** $p \leq 0.05$; * $p \leq 0.10$; $^{+}$ $p \leq 0.15$

[10]For variable "Father's educational attainment" there are too little cases to do some regression analysis.

Table 15: Premarital cohabitation by modernization and decrease of divorce barriers (mixed effects regression, unstandardized regression coefficients)

	b	SE	b	SE	b	SE
Intercept	0.277^{***}	0.041	0.291^{***}	0.040	0.297^{***}	0.044
Modernization	-0.016	0.045			-0.023	0.047
Decrease of divorce barriers			-0.122^{***}	0.043	-0.126^{***}	0.046
R^2	0.002		0.130		0.142	
N	20		20		20	

$^{***}\ p \leq 0.01$; $^{**}\ p \leq 0.05$; $^{*}\ p \leq 0.10$; $^{+}\ p \leq 0.15$

Table 16: Age at marriage by modernization and decrease of divorce barriers (mixed effects regression, unstandardized regression coefficients)

	b	SE	b	SE	b	SE
Intercept	-0.065^{***}	0.008	-0.060^{***}	0.008	-0.055^{***}	0.006
Modernization	0.016^{*}	0.009	0.000		0.017^{***}	0.006
Decrease of divorce barriers			0.009	0.010	0.003	0.009
R^2	0.080		0.017		0.115	
N	19		19		19	

$^{***}\ p \leq 0.01$; $^{**}\ p \leq 0.05$; $^{*}\ p \leq 0.10$; $^{+}\ p \leq 0.15$

Table 17: Presence of children by modernization and decrease of divorce barriers (mixed effects regression, unstandardized regression coefficients)

	b	SE	b	SE	b	SE
Intercept	-0.646^{***}	0.080	-0.649^{***}	0.096	-0.650^{***}	0.094
Modernization	0.043	0.085	0.000		0.042	0.100
Decrease of divorce barriers			0.027	0.095	0.028	0.092
R^2	0.017		0.008		0.024	
N	18		18		18	

$^{***}\ p \leq 0.01$; $^{**}\ p \leq 0.05$; $^{*}\ p \leq 0.10$; $^{+}\ p \leq 0.15$

Table 18: Parental divorce by modernization and decrease of divorce barriers (mixed effects regression, unstandardized regression coefficients)

	b	SE	b	SE	b	SE
Intercept	0.427^{***}	0.048	0.434^{***}	0.052	0.433^{***}	0.050
Modernization	-0.012	0.049	0.000		-0.013	0.052
Decrease of divorce barriers			-0.056	0.055	-0.055	0.053
R^2	0.002		0.042		0.043	
N	19		19		19	

$^{***}\ p \leq 0.01$; $^{**}\ p \leq 0.05$; $^{*}\ p \leq 0.10$; $^{+}\ p \leq 0.15$

Table 19: Women's employment status by modernization and decrease of divorce barriers (mixed effects regression, unstandardized regression coefficients)

	b	SE	b	SE	b	SE
Intercept	0.314^{***}	0.066	0.281^{***}	0.064	0.307^{***}	0.069
Modernization	-0.086	0.071	0.000		-0.085	0.073
Decrease of divorce barriers			-0.066	0.065	-0.063	0.066
R^2	0.063		0.046		0.106	
N	17		17		17	

$^{***}\ p \leq 0.01$; $^{**}\ p \leq 0.05$; $^{*}\ p \leq 0.10$; $^{+}\ p \leq 0.15$

Table 20: High level of educational attainment by modernization and decrease of divorce barriers (mixed effects regression, unstandardized regression coefficients)

	b	SE	b	SE	b	SE
Intercept	0.018	0.054	0.058	0.037	0.009	0.059
Modernization	-0.018	0.064	0.000		0.012	0.072
Decrease of divorce barriers			-0.062^{+}	0.040	-0.076^{+}	0.053
R^2	0.003		0.083		0.091	
N	11		11		11	

$^{***}\ p \leq 0.01$; $^{**}\ p \leq 0.05$; $^{*}\ p \leq 0.10$; $^{+}\ p \leq 0.15$

6. Discussion

The aim of this paper 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, social resources and divorce experiences.

European divorce research produced 120 publications that report divorce risks. These publications appeared between the years 1985 and 2004. If one is interested in finding out what the results of this research are, there is no alternative to meta-analysis. It is the only technique that allows an exact review of empirical research.

In a first step, we estimated the strength of divorce risks for 21 European countries. On the one hand, we found that rather often estimates of divorce risks vary significantly within countries. This is per se an important finding as it shows that we cannot be sure about the strength of the relationships between the variables even at the national level. In that case, one has to be cautious when calculating a mean effect size as they do not represent the distribution of effect sizes adequately. On the other hand, for quite a number of countries divorce risks do not a show strong internal variation. For example, the transmission effects or the effects for educational attainment do not vary a lot within the countries. Here, we get rather precise national estimates for certain divorce risks.

A central aim of this study was to explain the variation of the national divorce risks across Europe. We developed two types of hypotheses. First, we asked whether the modernization level affects divorce risks. As a second macro factor we introduced the prevalence of traditional marriage norms.

Despite of a small sample size, two macro-micro relations were empirically confirmed. Both concern the level of information about the partner before marriage. But – not as it has been hypothesized – the age effect is not stronger in highly modernized countries but in less modernized countries. The higher the level of modernization the weaker age at marriage affects marital stability. In highly modernized European countries individuals marry late and an early marriage is often not compatible with the requirements of the educational system and the labor market. Early marriages are burdened and are likely to break up. But irrespective of this consideration in Eastern Europe – where the modernization level is relatively low – age at marriage is even more important for an explanation of marital stability.

A second hypothesis that has been confirmed is about the association of cohabitation on the divorce rate. In countries where traditional marriage norms are strongly institutionalized, cohabitation has a stronger effect than in countries where marriage norms are weaker. This result underlines the selectivity hypothesis.

A third hypothesis that was "nearly" confirmed is related to the role of social resources: the weaker divorce norms are the less important social resources are for an explanation of divorce. The reason should be that social resources are needed to overcome the costs of a divorce. The higher these costs are the more social resources are required to overcome these costs.

No empirical support was found with respect to our hypothesis that the association between marital investments and marital stability depends on the modernization level or the strength of divorce norms. It might be that a country indicator that captures the family policy and the infrastructure of child custody is a better explanatory variable. For

example, Gerhards/Hölscher 2003 differentiate between three models of family policy "family support", market oriented" and "dual earner". Especially, the implementation of the "dual career" model like in Sweden or in East European countries should facilitate a divorce in case of the presence of children. However, one has to take 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 procedure to get good estimators of effect sizes at the national level. An effect size that is based on many studies is better than a 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 transmission effect and father's educational level but surprisingly not for the cohabitation effect. 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.

Nevertheless, this study showed that it is difficult to explain the pattern of divorce risks across Europe. Most of our hypotheses did not find any empirical support. We do not have a strong theory and empirical results demonstrate that such factors as the modernization level or the degree at which traditional marriage norms are established in a country are poor predictors of how divorce risks are distributed across Europe.

References

Amato, Paul R. 2001. "Children of Divorce in the 1990s: An Update of the Amato and Keith (1991) Meta-Analysis." *Journal of Family Psychology* 15:355–370.

Amato, Paul R. and Joan G. Gilbreth. 1999. "Nonresident Father's and Children's Well-Being: A Meta-Analysis." *Journal of Marriage and the Family* 61:557–573.

Amato, Paul R. and Bruce Keith. 1991. "Parental Divorce and the Well-Being of Children: A Meta-Analysis." *Psychological Bulletin* 110:26–46.

Beelmann, A. and T. Bliesener. 1994. "Aktuelle Probleme und Strategien der Metaanalyse." *Psychologische Rundschau* 45:211–233.

Blossfeld, Hans-Peter, Alessandra De Rose, Jan M. Hoem, and Götz Rohwer. 1995. "Education, Modernization, and the Risk of Marriage Disruption in Sweden, West Germany, and Italy." In *Gender and Family Change in Industrialized Countries*, edited by Karen Oppenheim Mason and An-Magritt Jensen, pp. 200–222. Oxford: Clarendon Press.

Blossfeld, Hans-Peter and Rolf Müller. 2002. "Union Disruption in Comparative perspective: The Role of Assortative Partner Choice and Careers of Couples." *International Journal of Sociology* 32:3–35.

Bortz, Jürgen and Nicola Döring. 1995. *Forschungsmethoden und Evaluation für Sozialwissenschaftler*. Berlin/Heidelberg: Springer-Verlag.

Brüderl, Josef and Andreas Diekmann. 1997. "Education and Marriage. A Comparative Study." Manuscript.

Chan, Tak Wing and Brendan Halpin. 2000. "Union Dissolution in the UK." http://citeseer.ist.psu.edu/492462.html.

Chan, Tak Wing and Brendan Halpin. 2002. "Children and Marital Instability in the UK." http://citeseer.ist.psu.edu/498477.html.

Cooper, Harris M. 1982. "Scientific guidelines for conducting integrative research reviews." *Review of Educational Research* 52:291–302.

De Leeuw, Edith and Joop J. Hox. 2003. "The Use of Meta-Analysis in Crossnational Studies." In *Cross-Cultural Survey Methods*, edited by Janet A. Harkness, Fons van de Vijver, and Peter Ph. Mohler, pp. 329–399. Hoboken: John Wiley & Sons.

Diekmann, Andreas and Kurt Schmidheiny. 2002. "The Intergenerational Transmission of Divorce. Results From a Sixteen-Country Study with the Fertility and Family Survey." The Second Conference of the European Research Network on Divorce, Tilburg University, Netherlands, November 13-14, 2003.

Dourleijn, Edith and Aart C. Liefbroer. 2003. "Unmarried cohabitation and union stability: Testing the role of diffusion using data from 16 European countries." Manuscript.

Fricke, Reiner and Gerhard Treinies. 1985. *Einführung in die Metaanalyse*. Bern: Huber.

Gerhards, Jürgen and Michael Hölscher. 2003. "Kulturelle Unterschiede zwischen Mitglieds- und Beitrittsländern der EU. Das Beispiel Familien- und Gleichberechtigungsvorstellungen." *Zeitschrift für Soziologie* 32:206–225.

Greenland, Sander. 1987. "Quantitative Methods in the Review of Epidemiologic Literature." *Epidemiologic Reviews* 9:1–30.

Hedges, Larry V. and Ingram Olkin. 1985. *Statistical Methods for Meta-Analysis*. Orlando: Academic Press.

Hill, Paul Bernhard and Johannes Kopp. 1995. *Familiensoziologie. Grundlagen und theoretische Perspektiven*. Stuttgart: Teubner.

Karney, Benjamin R. and Thomas N. Bradbury. 1995. "The Longitudinal Course of Marital Quality and Stability: A Review of Theory, Method and Research." *Psychological Bulletin* 118:3–34.

Künzler, Jan, Hans-Joachim Schulze, and Suus M.J. van Hekken. 1999. "Welfare States and Normative Orientations Towards Women's Employment." *Comparative Social Research* 18:197–225.

Levinger, George. 1965. "Marital Cohesiveness and Dissolution: An Integrative Review." *Journal of Marriage and the Family* 27:19–28.

Levinger, George. 1982. "A Social Exchange View on the Dissolution of Pair Relationships." In *Family Relationships. Rewards and Costs*, edited by F. Ivan Nye, pp. 97–121. Beverly Hills: Sage.

Lewis, Robert A. and Graham B. Spanier. 1979. "Theorizing about the Quality and Stability of Marriage." In *Contemporary Theories About the Family. General Theories/Theoretical Orientations*, edited by Wesley R. Burr, Reuben Hill, F. Ivan Nye, and Ira L. Reiss, volume I, pp. 268–294. New York: Free Press.

Lipsey, Mark W. and David B. Wilson. 2001. *Practical Meta-Analysis*. Thousand Oaks, California: Sage Publications.

Lumley, Thomas. 2004. *rmeta: Meta-analysis*. R package version 2.12.

Normand, Sharon-Lise T. 1999. "Tutorial in Biostatistics. Meta-Analysis: Formulating, Evaluating, Combining, and Reporting." *Statistics in Medicine* 18:321–359.

R Development Core Team. 2004. *R: A language and environment for statistical computing*. R Foundation for Statistical Computing, Vienna, Austria. ISBN 3-900051-07-0.

Sabatelli, Ronald M. and Constance L. Shehan. 1993. "Exchange and Resource Theories." In *Sourcebook of Family Theories and Methods. A Contextual Approach*, edited by Pauline G. Boss, William J. Doherty, Ralph LaRossa, Walter R. Schumm, and Suzanne K. Steinmetz, pp. 385–417. New York: Plenum Press.

Shadish, William R. and Keith C. Haddock. 1994. "Combining Estimates of Effect Size." In *The Handbook of Research Synthesis*, edited by Harris M. Cooper and Larry V. Hedges, pp. 261–281. New York: Russel Sage Foundation.

Trent, Katherine and Scott J. South. 1989. "Structural Determinants of the Divorce Rate: A Cross-societal Analysis." *Journal of Marriage and the Family* 51:391–404.

Uunk, Wilfred and Matthijs Kalmijn. 2002. "Welfare State Regimes and the Economic Consequences of Separation: Evidence from the European Household Panel Survey, 1994–1998." Paper prepared for "The First Conference of the European Research Network on Divorce", Florence, Italy, November 14–15, 2002.

Wagner, Michael. 1997. *Scheidung in Ost- und Westdeutschland: Zum Verhältnis von Ehestabilität und Sozialstruktur*. Frankfurt/Main: Campus.

Wagner, Michael and Bernd Weiß. 2002. "A Meta-Analysis of German Research on Divorce Risks." Paper prepared for "The First Conference of the European Research Network on Divorce", Florence, Italy, November 14–15, 2002.

Wagner, Michael and Bernd Weiß. 2003a. "Bilanz der deutschen Scheidungsforschung. Versuch einer Meta-Analyse." *Zeitschrift für Soziologie* 32:29–49.

Wagner, Michael and Bernd Weiß. 2003b. "Divorce Risks in Europe: An Overview." Paper prepared for "The Second Conference of the European Research Network on Divorce", Tilburg University, Netherlands, November 13-14, 2003.

Wagner, Michael and Bernd Weiß. 2004. "Scheidungsrisiken in Deutschland: Eine Meta-Analyse von empirischen Befunden der Jahre 1987 bis 2003." In *Angewandte Soziologie*, edited by Robert Kecskes, Michael Wagner, and Christof Wolf, pp. 381–409. Wiesbaden: Verlag für Sozialwissenschaften.

White, Howard D. 1994. "Scientific Communication and Literature Retrieval." In *The Handbook of Research Synthesis*, edited by Harris M. Cooper and Larry V. Hedges, pp. 41–55. New York: Russel Sage Foundation.

Wolfinger, Nicholas H. 1996. "Time Trends in the Intergenerational Transmission of Divorce." Paper prepared for presentation at the 1996 Annual Meeting of the Society for the Study of Social Problems and the 1996 Annual Meeting of the American Sociological Association.

A. Forest plots

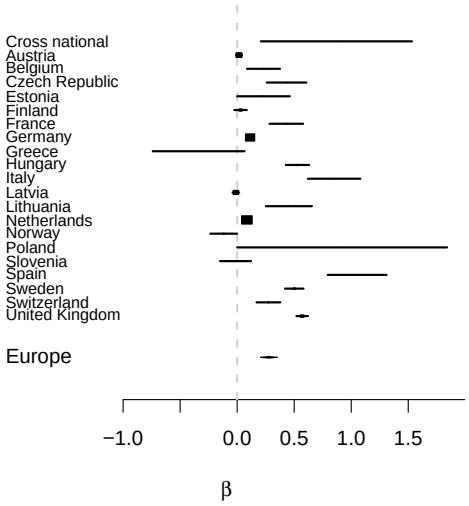


Figure 13: Meta-analytical results for premarital cohabitation by country and at the European level

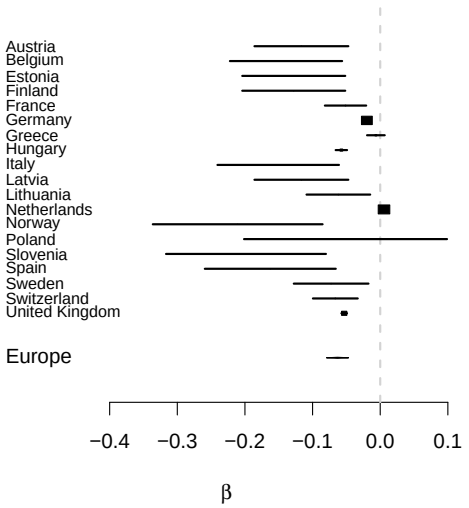


Figure 14: Meta-analytical results for age at marriage by country and at the European level

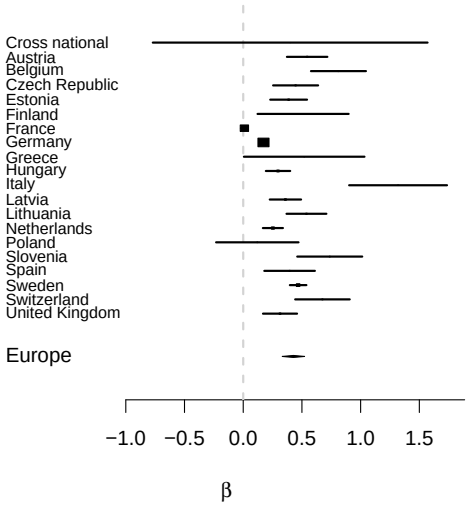


Figure 15: Meta-analytical results for experiences with parents' divorce by country and at the European level

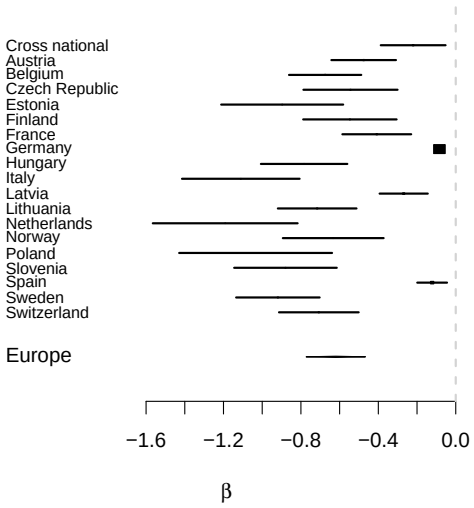


Figure 16: Meta-analytical results for presence of children by country and at the European level

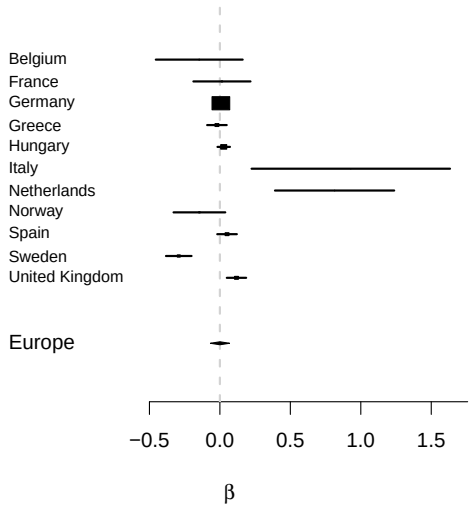


Figure 17: Meta-analytical results for high level of educational attainment by country and at the European level

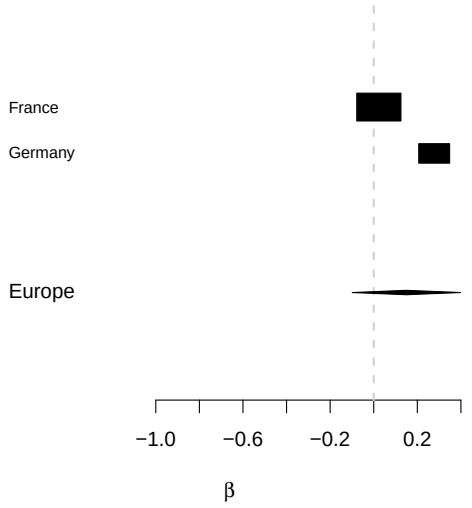


Figure 18: Meta-analytical results for father's educational attainment by country and at the European level

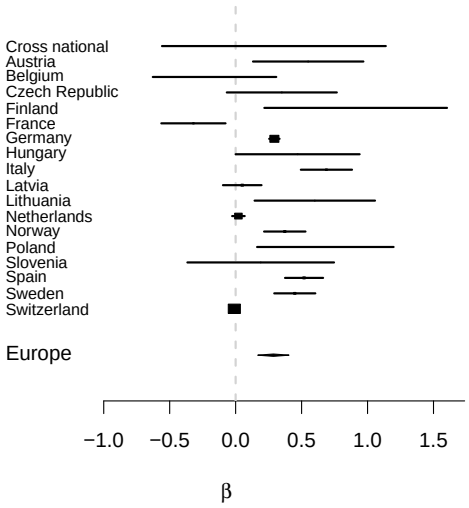


Figure 19: Meta-analytical results for women's employment by country and at the European level