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Evidence from Austrian Register Data

by

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Assortative Mating and Divorce:
Evidence from Austrian Register Data[*]

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Abstract

This paper documents that changes in assortative mating patterns over the last four decades along the dimensions of age, ethnicity, religion and education are *not* responsible for the increasing marital instability. Quite the contrary, without the rise in the age at marriage, divorce rates would be considerably higher. Immigration and secularization, and the resulting supply of spouses with diverse ethnicity and religious denominations had no overall effect on divorce rates. Countervailing effects – in line with theoretical predictions – offset each other. The rise in the incidence in divorce is most probably caused by changing social norms.

JEL Classification: J12, J11, J15, Z12, D1, R2.
Keywords: Assortative mating, divorce, marital instability, immigration.

1 Introduction

The family in the western world has undergone radical changes over the last decades. Among these the increasing incidence of divorce which could be observed in most countries is often considered the most dramatic and the most far-reaching change (Amato, 2000).[1]

A large body of research across academic disciplines has documented a strong negative correlation between divorce and a wide range of outcomes.[2] Compared with married individuals, divorced individuals have lower levels of economic well-being (e. g. Aassve, Betti, Mazzuco and Mencarini, 2007) and do worse along many psychological (e. g. Blanchflower and Oswald, 2004) and health dimensions. Policy-makers and scholars are especially concerned about negative consequences of divorce for affected children. Many papers consistently show that children of divorced parents in various ways tend to fare worse compared to children from continuously married parents.[3] For instance, Gruber (2004) finds that they have lower educational attainment, lower incomes, marry earlier but separate more often, and have higher odds to commit suicide.

The potential negative consequences of divorce have spurred effort to identify the causes for (increased) marital instability. However, since the dramatic increase in divorce rates came along with an increased economic independence of women and radical changes in divorce law the causal link between demographic, economic and legal changes is non-trivial. So far, the economic literature has focused on changes in divorce law (Peters, 1986; Allen, 1992; Peters, 1992; Friedberg, 1998; Wolfers, 2006). These papers exploiting variation across U.S. states have furthered our understanding of the effect of divorce law on intra-household-bargaining and explained part of the changes in family formation, dissolution and behavior within marriage over the last decades. However, a large part of the changing divorce behavior over time is still unexplained.

Another strand of literature – more interested in personal behavior – analyzes whether certain combinations of spouses' characteristics can explain the likelihood of divorce. This question can be directly linked to economic theory, which regards marriage as a voluntary partnership for the purpose of joint production and joint consumption. The so-called marriage market determines the assignment of partners and the sharing of the gains of marriage (Becker, 1973, 1974, 1993; Ermisch, 2003). Traditionally, economists have emphasized the importance of joint production and have shown that an efficient marriage market is usually characterized by the match of spouses with similar characteristics. This so-called *positive*

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[1]In 2005, the crude divorce rate was – averaged across OECD-member countries – 2.1 per 1,000 people, twice the level recorded in 1970 and 0.2 points higher than in 2000. These figures turn out to be even more pronounced if one considers that most of these countries experienced declining marriage rates during that period. In 2005, the crude marriage rate was on average 5.3 per 1,000 people, which is more than a third less than the level recorded in 1970 (OECD, 2009).

[2]For a survey on the research conducted in the 1980s and 1990s see Kitson and Morgan (1990) and Amato (2000), respectively.

[3]While many of these studies look at correlations and thus cannot convincingly establish a true causal effect of divorce – because confounding factors that promote divorce may also be detrimental to the outcomes under consideration – a small number of promising studies has exploited natural experiments (Bedard and Deschenes, 2005; Björklund and Sundström, 2006; Ananat and Michaels, 2008) and gives diversified results.

assortative mating enhances complementarities in household production and may reinforce the intergenerational persistence of wealth, income, education, and other economic outcomes.[4] Sociologist (e.g. Kalmijn, 1998) refer to the matching of homogenous spouses as *endogamy* (marriage to the same type) or *homogamy* (marriage to a similar type). They study it in order to understand important social processes, such as the family's ability to pass on group values, or more generally, since it reveals how societies change over time.

Scholars in both disciplines have focused on four dimensions of spouses' characteristics: (i) age, (ii) ethnicity, (iii) religious denomination and (iv) education. As predicted by theory (Becker, Landes and Michael, 1977) a vast empirical literature has shown that assortative mating along these dimensions is important for a successful duration of a marriage. A higher age at first marriage is known to decrease the likelihood of divorce and differences in religion, ethnicity are associated with a higher risk of divorce (e.g. Lehrer and Chiswick, 1993; Kalmijn, de Graaf and Janssen, 2005). The effect of education is theoretically ambiguous and empirical estimates vary across countries and time (Härkönen and Dronkers, 2006).

Others have looked at changes in assortative mating patterns over time.[5] Most recently, Rosenfeld (2008) concludes that racial endogamy has declined sharply over the 20th century. Nevertheless, race is still the most powerful division in the U.S.-marriage market. The development of religious endogamy is diverse; while the division between Jews and Christians is still strong, the division between Catholics and Protestants has weakened over time. Educational homogamy increases throughout the last decades. This uniform trend was, however, driven by different portions of the education distribution in different periods (Schwartz and Mare, 2005). Finally, a sharp rise in the age at first marriage can be observed.[6]

Despite the fact that pronounced changes in marriage patterns over time are documented, surprisingly no research on their impact on the incidence of divorce over time has been conducted. This paper is the first attempt to examine whether the increased marital instability is driven by changing assortative mating patterns over time. To this end, we employ *Austrian Register Data*. Our choice can be rationalized by two facts: (i) this unique data-set covers the universe of all marriages and divorces in Austria between 1971 and 2007, and (ii) the Austrian marriage market has been radically affected by several waves of labor immigration, that have increased the incidence of both mixed religious and/or ethnic marriages. Furthermore, the sustained secularization of the native (traditionally Catholic) Austrian society has further altered the distribution of spouses' religious denominations. In addition, the rise in the age at first marriage has been pronounced in Austria. Since we

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[4]Positive assortative mating applies to all personal characteristics which are complements in household production (e.g. intelligence and physical attractiveness), while *negative assortative mating* would be optimal for substitutes, such as wage earning power (Becker, 1974).

[5]Most of the literature focuses on the U.S., see Kalmijn (1991*b,a*); Mare (1991); Kalmijn (1993, 1994); Pencavel (1998); Smits, Ultee and Lammers (2000); Schwartz and Mare (2005); Bodenhorn (2006); Gullickson (2006)

[6]Among OECD-member countries the average age of women at first marriage has increased from 24.8 years in 1990 to 27.7 in 2002/2003 (OECD, 2007).

observe all marriages formed over a period of four decades, we can analyze the patterns and changes of assortative mating over a longer period of time, and are able to assess their contributions to the rise in divorce rates. Moreover, our data allow us to examine the stability of the different dimensions of assortative mating on the risk of divorce over time. The only drawback of the data is that we observe spouses' educational attainment only for those with children. We, therefore, conduct our main analysis with the representative sample with all marriages and complement the argumentation about education with the smaller sample of spouses with children.

It turns out that changes in assortative mating do not contribute to the rising divorce rate. Neither immigration nor secularization are responsible for the upward trend in divorce. This outcome is the net-result of two countervailing effects: Mixed couples have (compared to a homogenous native couple) a higher risk of divorce, which is offset by a lower divorce hazard of homogenous non-native couples. In the case of age at marriage, we even observe that if spouses would have continued to marry at a young age, divorce rates would have increased more sharply. These results are also robust in the smaller sample of spouses with children. Moreover, changes in assortative mating in terms of education do not contribute to the trend in divorce over time as well. Most of these effects change in size over time. For instance, the destabilizing effect of mixed ethnic couples has tremendously increased, and the stabilizing effect of a higher age has somewhat decreased over time. We offer some possible explanations for these trends. Finally, we provide some evidence based on survey data that the rising trend in divorce may be the results of changing social norms.

2   Data and estimation strategy

Over the last decades the incidence of divorce has increased sharply throughout the western world. Yet considerable variation in the base level and the pace in the increase in divorce rates can be observed across countries, see Figure 1. Southern European countries such as Italy or Spain, which traditionally have had very low levels of divorce rates experienced the strongest increase. In fact, in both countries divorce has been legalized rather recently (Italy: 1971, Spain: 1982). Austria, similar to other Central European countries (e. g. Germany), shows a middle ranking among OECD-member countries and exhibits a divorce rate which is on average four times higher compared to the south of Europe. Scandinavian countries (e. g. Sweden) and Great Britain used to have slightly higher rates, but they have been converging to Central European levels recently. The U.S. has by far the highest divorce rates in the world and shows exceptional patterns over time. U.S.-divorce rates rose sharply starting in the mid-1960s, peaked in the early 1980s and have been declining since then.[7]

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[7]This downturn can partly be explained by the decline in the incidence of marriage but is also due to greater marital stability of younger cohorts (Stevenson and Wolfers, 2007a). The share of the U.S.-population which is divorced, however, continued to rise through the 1980s and 1990s and has only recently begun to decrease (Stevenson and Wolfers, 2007b).

In this paper we focus on Austria, where the quality of the available data is exceptional.[8] We combine data from the *Austrian Marriage Register*, covering all marriages from 1971 to 2007, with the *Austrian Divorce Register*, covering all divorces for the same time period. Our sample is based on all $1.646,091$ marriages which took place between 1971 and 2007. The marriage register includes information on the date of marriage, the spouses' former family status, place of residence, age at marriage, religious denomination and ethnicity. Since 1984 information on the spouses' country of birth and the number, age and sex of any premarital children is also recorded. We enhance our data set with information on community size and the distance between communities (of husband and wife) measured in hours.[9] For our main estimations we use $1.585,480$ marriages. From these marriages, $358,114$ got divorced by the end of 2007.[10] For couples with children we obtain information on the spouses' educational attainment through the *Austrian Birth Register*. For this important sub-sample we can examine the effect of education. Even more importantly we will show that the exclusion of information on education has no impact on the other results.

In order to examine the effect of assortative mating on the probability of divorce over time we present non-parametric Kaplan-Meier estimates to get a first picture of changes in marital stability over time. Subsequently, to analyze the contributions of assortative mating on the duration of marriage we use Cox (proportional hazard) models (Cox, 1972). In such a model, the hazard rate at time t – i.e. the risk that a marriage dissolves at time t, provided it lasted that long – is explained by a non-parametric baseline hazard $h_0(t)$ which is augmented due to the influence of covariates $\mathbf{X} = (X_1, X_2, \ldots, X_n)$:

$$h(t|\mathbf{X}) = h_0(t) \exp(\sum_{i=1}^{n} X_i \beta_i). \tag{1}$$

A Cox model is flexible, because the baseline hazard remains unspecified. Our results are presented as hazard ratios that is the hazard rate of spouses with characteristics $\mathbf{X}^*$ relative to the hazard rate of the base group $\mathbf{X}$, $\frac{h(t|\mathbf{X}^*)}{h(t|\mathbf{X})}$.

We use all important dimensions of assortative mating. In particular, we look at age, ethnicity, religious denomination and educational attainment. We consider the effect of the spouses' age, as well as the importance of the spouses' age difference. To study ethnicity

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[8]Surprisingly, these data have not been used on a micro-level so far. In general, research on divorce in Austria is scarce, and exists almost exclusively as a part of cross-national studies using survey data such as the *Family and Fertility Survey*. The only exceptions we are aware of are Diekmann and Mitter (1984); Prioux (1992, 1993).

[9]The information on community size before 2002 is based on the decennial *Austrian Census* from 1971 to 2001, where we imputed for the missing years by linear interpolation. From 2002 onwards yearly data is derived from the newly launched electronic *Austrian Population Register*. Driving distance between communities comes from the *Austrian Conference on Spatial Planning*.

[10]We lose 844 observations, which were not uniquely identified with respect to birthdays and marriage date of the spouses, and 40 observations, which took place on the last day of our observation period. Furthermore we have to disregard $60,611$ marriages due to missing information on the spouses' communities and/or on the distance between communities. The lack of information is due to changes in the composition of communities, which took mainly place between 1971 and 1973.

we first run a simple specification (covering the years 1971 through 2007) where we utilize the information on citizenship only. In a further step we also exploit information on the country of birth (available since 1984), which finally gives us nine different combinations relative to our base group. Given the Austrian institutional setting this allows us to draw conclusions about the effects of intermarriage among natives, first and further generation immigrants – as well as the impact of naturalization of foreign-born persons. With respect to religious denomination we differentiate between the three quantitatively most important religious affiliations in Austria: Catholic (73.6 percent), no religious denomination (12.0 percent) and others (14.4 percent).[11] This gives rise to six possible combinations, where the marriage between two Catholics will serve as the base group. Educational attainment is captured by four categories: compulsory schooling, apprentice training, secondary school and university degree. Based on that scaling we code whether one of the spouses has higher education as the other.

As additional control variables we only include exogenous factors (i.e. pre-determined at the time of marriage): the number of pre-marital female and male children, size of the spouses' communities (at the time of marriage), the distance between the two communities (in hours), as well as month and 115 district fixed-effects. It can be argued that all other factors which might also have an important impact on divorce risk are endogenous with respect to the viability of the marriage: e.g. the number of post-marital children, labor supply of either partner or marital satisfaction. If the quality of the marriage is bad and the risk of divorce is relatively high, it can be expected that both partners might invest less in marriage-specific capital, like joint children or joint enterprises of any kind, and that specialization in the household might be different with corresponding changes in labor supply. For these reasons we refrain from using such potentially endogenous regressors.

Administrative data allow us to actually measure the three dimensions of assortative mating at the time of marriage. It is well known that spouses become more alike during marriage – i.e. partners may change religious denomination (Glenn, 1982) or get a new citizenship. Using retrospective or current information about these characteristics might therefore overestimate the degree of endogamy.

3   Estimation results

We perform two different specifications – for the whole period (1971-2007) and a sub-period (1984-2007) – where we distinguish between first and further marriages each. First marriages are couples where both spouses are in their first marriage. All other marriages are denoted as further marriages. Approximately 72 percent of all marriages are first marriages. In a further step we estimate separate models for each decade. This allows us to test if the effect of the different dimensions of assortative mating has changed over time.

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[11]The other denominations were (*Austrian Census* from 2001) 4.7 percent Protestants, 4.2 percent Muslims, 0.2 percent Old Catholics, 0.1 percent Jewish, 3.2 percent with another religious denomination, and 2.0 percent with missing information.

3.1 Assortative mating and the increasing marital instability

The Kaplan-Meier estimates for first (Figure 2) and further marriages (Figure 3) show survival probabilities for marriages formed in the decades from the 1970s to the 2000s. Both for first as well as further marriages we see monotonically declining survival probabilities over time. For instance, 84 percent of marriages formed in the 1970s are still intact after 15 years, this value is only 77 percent for marriages formed in the 1990s. The pattern is similar for further marriages; albeit at a lower level.[12]

In order to estimate how the likelihood of divorces would have evolved over time if assortative mating patterns would not have changed, we start with a parsimonious model and enrich it stepwise. Columns (Ia) and (IIa) in Table 1 replicate the descriptive life-tables by only including dummies for the different decades in a Cox model – along with district dummies. In case of first marriages (Ia) shows that marriages formed in the 1980s have a 31.9 percent higher risk of divorce – compared to marriages in the 1970s, our base group. The equivalent values for marriages formed in the 1990s and in the 2000s are equal to 47.0 percent and 48.6 percent, respectively. Thus, we mainly see an increase in divorce risk in the 1980s and somewhat less in the 1990s. A similar development can be observed for further marriages, see Column (IIa), but here the increase in divorce risk is smoother over time.

We are interested to see if developments in assortative mating can explain (part of) the trend towards higher divorce rates over time in Austria. When looking at the three dimensions of assortative mating – age, ethnicity and religion – it turns out that only age really matters. Changes over time both in ethnicity and religion affect the trend in marriages only marginally. We therefore introduce in a first step the effect of age and age difference at the time of marriage in our Columns (Ib) and (IIb) and include all other variables together in Columns (Ic) and (IIc).[13]

During the last decades, Austria witnessed a sharp increase in the age at first marriage, see Figure 4. While in the 1970s, the average age at first marriage was 21.6 for women and 24.5 for men, in the 1990s it had increased to 22.9 for women and 25.4 for men. By 2007, the average age at marriage had reached 28.8 for women and 31.6 for men. In the period from 1970 to 2007 husbands were on average 2.6 years older than their wives. The variation in the difference in age was less pronounced over time, see Figure 4. However, one could observe a modest decrease starting in the mid 1970s until the mid 1990s, and an equivalent increase thereafter.

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[12]As expected, the probability of divorce is higher for further marriages compared to first marriages. This can be explained by the fact that spouses in second marriages are not randomly selected (i. e. they have a higher inherent divorce propensity) and marital-specific investments (e. g. children) from former marriages lower the gain from subsequent marriages (Becker et al., 1977).

[13]In the case of first marriages the divorce rate would be marginally lower in the absence of changing assortative mating along the dimensions of ethnicity and religion. The same is true for further marriages in the case of religion. The only mentionable exception is the impact of the dimension of ethnicity in the case of further marriages. Divorce risk would have been somewhat lower in the absence of immigration; details are provided below. All results from estimations where we introduce our different measures of assortative mating step-by-step are available upon request.

Partialing out the effects of age and age difference at the time of marriage in Columns (Ib) and (IIb) we see that divorce risk would have increased even more sharply in the absence of these trends. For first marriages the decade effects would have increased to 45.0 percent (the 1980s), 93.3 percent (the 1990:) and 126.8 percent (the 2000s). Therefore, compared to the effects estimated above, divorce hazards in the 1990s have doubled and those in the 2000s even have tripled. This pattern is similar for further marriages: taking age (differences) into account increases the rising trend in marriage dissolution. A simulation in Figure 5 illustrates how divorce rates would have evolved if the age of the wife at her first marriage would have been constant to its level in 1970.

Accordingly, we find that an increase of the wife's age at the time of first marriage (a further marriage) by one year leads to a reduction in the risk of divorce by 10.0 percent (6.5 percent). Lehrer (2008) explains this phenomenon by the so-called maturity effect, describing that individuals marrying relatively young are less informed about themselves, their spouses, and the marriage market. On the other hand, a larger age difference between the spouses is – within some limits – beneficial for the stability of the marriage. Ideally, the husband is about ten years older than the wife.

In a further step we study the impact of ethnicity. Austria's post-World War II economic boom led to several waves of labor immigration. While in 1961 only 1.4 percent of the resident population where foreign citizens, this share has doubled by 1971, steadily increased over time and amounted to 6.6 percent in 2001. The two main recruitment regions were former Yugoslavia and Turkey. Though active labor recruitment was stopped by the late 1980s it had clearly lasting effects on subsequent migration inflows (e. g. due to the political crisis in the disintegrating Yugoslavia in the early 1990s) and on the current composition of the foreign resident population in Austria. In 2001, 63.2 percent of the total foreign resident population came from former Yugoslavia (45.3 percent) and Turkey (17.9 percent). Other important immigrant groups were Germans (10.2 percent) and Asians (4.9 percent). These immigration flows had a clear impact on the Austrian marriage market. While in 1971 94.1 percent of all marrying couples consisted of two Austrians spouses, this number decreased over time (see Figure 6), and was equal to 76.9 percent in 2007. Couples with one foreign and one native spouse accounted for 18.2 percent, and the remaining 4.9 percent were marriages between two foreigners. To study the impact of inter-ethnic marriages we start with a simple specification where we distinguish between couples, where the wife is a foreign citizen, the husband is a foreigner, or where both spouses are foreigners and compare them with the hazard of two Austrian spouses. As said before, the rising participation of foreigners on the Austrian marriage market has had only negligible effects on the decade effects of first marriages, and is therefore not responsible for the increasing incidence of divorce overt time. In the case of further marriages we find some effects. In the absence of immigration, the actual decade effects in Columns (IIa) would have decreased to 13.9 percent (the 1980s), 18.5 percent (the 1990:) and 26.2 percent (the 2000s). Detailed output is available on request.

In substance, our results corroborate what theory predicts and confirm earlier studies

(Kalmijn, de Graaf and Janssen, 2005). A discrepancy between the spouses' ethnic background increases the probability of divorce. This can be explained by lower gains from marriage (Becker, Landes and Michael, 1977). For instance in the case of first marriages, compared to an Austrian couple, a mixed couple has, depending on whether the wife or the husband is a foreign citizen, a 25.6 or 42.6 percent higher risk of divorce. On the other hand, a couple, where both spouses are foreigners, has (compared to a native couple) a 60.9 percent lower risk of dissolution. This is in line with what one would expect on the basis of more traditional value orientation among Yugoslav and Turkish citizens. It seems that these two countervailing effects – the larger divorce risk of mixed couples and the lower divorce risk of a foreign couple – are almost balanced, and in sum we observe no overall impact of immigration on marital stability in Austria over time.

Two developments have changed the distribution of religious denominations in Austria. Firstly, the outlined waves of (labor) immigration have increased the share of residents with religious affiliations other than Roman Catholic. Most importantly, almost all immigrants from Turkey and a large share of those from former Yugoslavia are Muslims. While in 1971 only 0.3 percent of the population of Austria were Muslim, this pattern has increased over time and amounted to 4.2 percent in 2001. Secondly, due to a high degree of secularization the share of Roman Catholics (1971: 87.4 percent, 2001: 73.6 percent) decreased in favor of residents without any religious affiliation (1971: 4.3 percent, 2001: 12.0 percent). Accordingly, we observe a changing composition of spouses over time (see Figure 7).

Changes in religious composition as well as the increasing prevalence of mixed-religion couples cannot explain the rising trend in divorce rates. Again, countervailing effects are almost balanced and in sum we observe no overall impact of changes in religious composition on marital stability over time. Persons who marry outside of their religion are much more likely to dissolve the marriage. Again, this is in line with theory and previous studies (Lehrer and Chiswick, 1993). Compared to the base group (a catholic couple), a marriage between a catholic spouse and a spouse with a different (or without any) denomination has a 26.1 percent (or 44.2 percent) higher divorce risk. Marriages between spouses where one spouse belongs to another denomination (predominantly muslim) and the other is without any denomination have the highest risk to end in divorce (plus 45.2 percent). Marriages between spouses without any religion are also less stable (plus 26.5 percent). Marriages between spouses who both belong to another denomination (predominantly muslim) are the most stable (minus 17.8 percent). This might be due to a stability-increasing influence of religion on family life.

Our additional control variables show consistent results across different specifications. The larger the spouses' communities of residence (at the time of marriage) the higher the risk of divorce. This may show different family values or higher social stigma of divorce in rural areas as compared to large cities. The distance between the spouses' communities is also a significant predictor of divorce. An additional hour reduces the probability of divorce in a first marriage by 1.3 percent.

There is a clear seasonal pattern of marital stability which is most likely due to selec-

tion effects and can't be interpreted causally: Marriages formed in May are by far most stable, followed by those formed in April and June. In fact, the merry month of May has traditionally always been the preferred month to marry; in particular for those couples who plan well in advance and arrange larger marriage ceremonies. At the other extreme are marriages formed in December whose hazard of divorce is more than twenty percent higher as the hazard of May marriages. The catholic church was and is quite reluctant to arrange marriages during the pre-Christmas season. Therefore, couples wedding in December might either be less religious or it might be an indication of a shot-gun marriage. Again, as expected, calendar effects are much less pronounced for second marriages.

Summarizing we see a clear downward trend in marital stability in Austria across the last four decades; this trend is only intensified if we take changes in assortative mating over time into account.

3.2   Ethnicity and country of birth

For marriages after 1983 the country of birth of the spouses is available. In the previous estimations we could only observe citizenship of the spouses; due to the possibility of naturalization, this specification would mix up Austrian-born individuals with foreign-born immigrants who already got an Austrian citizenship. With this additional information we can now distinguish between four types of individuals, which give rise to ten different pairings that allow us to look at ethnicity and origin of birth separately, and to distinguish between natives, first and second generation immigrants.[14]

Therefore, we rerun our analysis with this more elaborate specification of ethnical background and include also some additional control variables. As before, we use two native Austrians as our base group. Looking at Table 2, this specification confirms the basic results from above, and provides further insights. Again, we find that the rising share of spouses with migration background had no overall impact on long-run divorce trends and homogenous couples have a lower divorce risk compared to mixed ones. Table 3 re-arranges the results to highlight the added value of this specification. Relative to the base group, we see that couples with a joint migration background do fare better in terms of marriage stability, whereas those of a mixed background do fare worse.[15] Within immigrants, those 'closer' to the Austrian society – either those in the second generation or those having gained Austrian nationality over time – are also closer to the Austrians in terms of marital stability: we see that the lowest divorce risk is encountered by first

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[14]In particular, we distinguish between a native Austrian (born in Austria, Austrian citizenship), a second generation immigrant without citizenship (born in Austria, no Austrian citizenship), a first generation immigrant with citizenship (not born in Austria, Austrian citizenship) and first generation immigrant without citizenship (not born in Austria, no Austrian citizenship). It has to be said that we potentially misclassify second or further generation immigrants who already gained Austrian citizenship as a native Austrian. Therefore, our estimates of a higher divorce risk of mixed couples are potentially downward biased.

[15]There is only one exception: the combination of a first generation immigrant with Austrian citizenship and a first generation immigrant without an Austrian citizenship has a higher divorce risk than a native Austrian couple.

generation immigrants without Austrian citizenship (minus 60.3 percent). Among mixed couples, consisting of a native Austrian and an immigrant, the more dissimilar they are, the higher their relative divorce risk; a native Austrian and a first generation immigrant without Austrian citizenship have the highest likelihood of divorce (plus 48.1 percent). For further marriages, we observe quite similar qualitative and quantitative effects.

Further control variables in Table 2 concern the impact of pre-marital joint children and the impact of previous marriages (in the case of further marriages). We find that pre-marital children increase the divorce risk of first marriages, while they stabilize further marriages. In the case of first marriages, the effect is however only statistically significant for female pre-marital children (plus 3.4 percent per child). In the next section we show that it is decisive to allow for parameter changes over time in order to resolve this discrepancy. In the case of further marriages we can distinguish if only one or already both spouses are in their second union. As expected, the highest divorce risk is observed for cases where both spouses have already married before (base group). In the case, where only one spouses was married before, the marriage is less stable, if this was the wife. This is plausible, since in the presence of children usually mothers are assigned custody, which lowers the gains of subsequent marriages. Finally, it should be noted that our results are robust to controlling for whether the spouses where living together before marriage (information is available since 1989). This pre-marital cohabitation itself is correlated with a lower risk of divorce in the 1990s and with a higher risk in the 2000s, though the effect of the latter is small.[16]

3.3 The effect of education

The estimations we presented so far did not control for the spouses' education. Fortunately, we can use the important sub-sample of spouses with children – which account for more than 55 percent of all couples – to check whether the exclusion of this information is innocuous. To control for education we include the wives' educational attainment[17] and binary variables capturing whether the spouses have a similar level of educational attainment (base group), and whether the husband or the wife has a higher level. The share of spouses with a similar level of educational attainment has been pretty stable over time (about 65 percent). However, the share of couples where the husband has more education has decreased (1980s: 25.6, 1990s: 20.4 and 2000s: 17.4) in favor of couples with relatively better educated wives (1980s: 10.5, 1990s: 13.0 and 2000s: 17.0.)

In Table 4 in Columns (Ib) and (Ic) we first show estimation results for spouses with children based on the previous specifications (without controlling for education). A comparison of Columns (Ib) and (Ic) from Table 2 with the respective columns from Table 4 shows that the decade effects are smaller for couples with children. That means, the increase in marital stability over time (especially in the 2000s) is mainly driven by couples

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[16]Svarer (2004); Mazzuco (2008) discuss whether this result is driven by self-selection or a true causal effect.

[17]We use four binary variables: compulsory schooling (base group), apprentice training, secondary school and university degree.

without children. The impact of assortative mating along any dimension is, however, very similar among these two groups. In a second step we add the information on the spouses' education, see Columns (Ib + education) and (Ic + education). We can see that the inclusion of this information has practically no impact on the aforementioned results. The quantitative impact of the decade of marriage and the spouses' characteristics is almost unchanged. Therefore, we are confident that the exclusion of spouses' education in the results discussed above does not pose big problems.

Theoretically, there are two different effects of education on the risk to divorce. On the one hand, education typically reduces the degree of the division of labor between spouses and thus lowers the gains from marriage. On the other hand, highly educated spouses have greater gains of marriage – at any given division of labor – because of their high level of market and non-market skills (e.g. communication skills) (Becker et al., 1977). Moreover, spouses with higher education may select their partners more carefully. For Austria we find that highly educated spouses are less likely to divorce. For instance, a couple where the wife has a university degree is (compared to a wife with compulsory schooling only) *ceteris paribus* by 57 percent less likely to divorce.[18] This is in line with the prediction that higher education increases the gains from marriage at any level of specialization.

Our results for assortative mating confirm traditional views about division of labor. Couples where the husband has higher educational attainment are – compared to spouses with a similar level – less likely to divorce (minus 16.9 percent). The reverse can be observed for couples with relatively well educated wives (plus 24.6 percent). That means, any combination of spouses' educational attainment that would imply a specialization that deviates from the traditional division of labor decreases marital stability.

3.4   The impact of assortative mating over time

Due to our long data set, covering four decades, we can look at patterns and consequences of assortative mating over time. It is *a priori* not clear whether the overall decrease in homogamy should increase or decrease the penalty for a mixed religious or ethnic marriage in terms of divorce risk. On the one hand, one could think that increased immigration and sustained secularization has reduced the importance of ethnicity and religion in social life, and one would expect a convergence of homogeneous and heterogeneous couples in terms of marital stability. On the other hand, even given the increased incidence of mixed couples, boundaries between religious and ethical groups may have stagnated or even increased along other dimensions that affect marital stability of these unions. Arguably, marital stability is not only the result of the spouses' interaction, but can also be influenced by third parties, such as families or institutions. Moreover, the decrease in homogamy may simple be the result of more opportunities to meet individuals outside the own group (e.g. at school or at work), and not due to a substantial integration of different groups. Finally, the impact of assortative mating on divorce risk over time could change too due

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[18]Earlier studies (CITE) find varying effects across countries; however, they observe that the effect of education on divorce becomes stronger over time.

to (unobserved) compositional effects of heterogeneous (and/or homogeneous) couples. For instance, spouses accounting for the 'additional' mixed marriages today, may have a different inherent divorce risk compared to those spouses who engaged in mixed marriages in the past. In sum, it remains an empirical question if and how the overall decrease in homogamy affects the relative divorce hazard of mixed couples.

In general, there is little research on the stability of determinants of divorce over different marriage cohorts. Teachman (2002) analyzes marriages formed between 1950 and 1984 based on U.S. retrospective survey data, and finds that with the exception of race (convergence of divorce hazards of whites and blacks), the effects of major socio-demographic predictors have not changed over time. De Graaf and Kalmijn (2006), also employing retrospective survey data (Dutch marriage cohorts from 1942 through 1999), corroborate the basic results of Teachman (2002). They find in general no changes in divorce risk factors over time; the only exception is educational attainment. The effect of education has changed from a positive to a negative effect. However, the authors admit that larger data-sets may be necessary to identify trends in determinants of divorce over time.

Our estimations, separately done for each decade, are summarized in Tables 5 and 6. The results reveal that the stabilizing effect of a higher age at the time of marriage has somewhat decreased over time. While in the 1970s an increase in the wife's age by one year reduced the likelihood of divorce by 12.3 percent, the effect decreased to 9.5 percent in the 1990s and 10.3 percent in the 2000s. The optimal age difference between husband and wife for first marriages decreased from 13.33 years in the 1970s to 9.83 years in the 2000s. Similar trends can be observed for further marriages. Given that Stevenson and Wolfers (2007a) argue that production complementarities are less and less relevant for marriage in the western world, and consumption complementarities and the insurance motive gain importance, our findings could indicate that a higher age (difference) at marriage is important to realize production complementarities, but it is less efficient with respect to consumption complementarities and risk sharing.

In terms of nationality, we find that the destabilizing effect of marriages between natives and immigrants has tremendously increased over time, this applies both to first as well as further marriages and is particularly severe if a non-Austrian husband is involved. If the wife is a foreign citizen, the couple faces a 17.4 percent higher divorce risk – as compared to an Austrian couple – in the 1970s, this difference increases up to almost 50 percent for marriages formed in the 2000s. Almost exactly the same trend is to be observed for further marriages. If the husband is a foreign citizen, the couple's divorce risk is 13.6 percent higher as a native couple in the 1970s; the respective difference increases to close to 100 percent in the 2000s. The pattern is even stronger for further marriages. Several reasons could explain this development. One obvious interpretation is that cultural assimilation of foreign citizens – in particular men – in Austria is weak and gets worse over time. Before jumping to such strong conclusions we have to make sure, that this pattern is not due to structural changes over time. It might be that mixed-ethnic marriages in the 1970s were formed with different partners as in the 2000s. Looking at the evolution of mixed

marriages over time, we see that in the 1970s almost 40 percent of all mixed marriages of Austrians were with ethnic-similar Germans and Swiss, who speak the same language. Indeed, this share went down to about 11 percent after 2000. During this time, the share of Austrian mixed marriages with immigrants from former Yugoslavia and Turkey increased considerably. In the case of marriages between spouses who are both foreigner, we find, that their initially relatively low divorce risk is rising over time. Again, this can be partly explained by compositional effects: While in the 1970s almost 97 percent of these spouses shared the same citizenship code, this rate dropped to less than 78 percent after 2000.

For mixed marriages in terms of religion, the pattern is less pronounced. For both, first and further marries, we observe a moderate increase in the relative divorce risk of all three types of mixed couples. It seems that – though religious endogamy is declining – the integration of different religious denominations is still challenging. The relative divorce risk of spouses without religious denomination is slightly decreasing for first marriages and quite stable for further marriages. The former effect may reflect the attenuation of the negative selection of this group due to an increasing secularization. For marriages between spouses who both belong to another denomination, we find, for first marriages an increasing marital stability, while in the case of further marriages, the effect even changes sign.

In our more detailed results in Table 6 we see that couples with mixed immigration background experienced the strongest increase in divorce hazards since the 1980s: The relative divorce risk of a native Austrian and a first generation immigrant without Austrian citizenship increased by 40.0 percentage points. However, at the same time some convergence of couples with a joint migration background (e.g. two first generation immigrants without Austrian citizenship, or a second and a first generation immigrant, both without Austrian citizenship) to Austrian couples in terms of higher levels of marital instability can be observed.

Concerning previous joint children, we see a remarkable change over time: while in the first periods, the existence of pre-marital children was detrimental for marital stability of first marriages, this pattern has reversed later on. This result can be explained by a changing process of self-selection. Traditionally, cohabitation and in particular out-of-wedlock births have been deemed as morally wrong and were very uncommon in Austria. Unmarried expectant parents, were usually – irrespective of the length of their relationship or their match-quality – expected to marry before childbirth. That means, spouses with pre-marital children used to be a very selective group, supposedly with non-traditional family values and an inherent low marital stability. Over time, however, the incidence of cohabitation (with or without subsequent marriage) has increased, and it became a more and more accepted social institution, even in the presence of children. Accordingly, the self-selection process in pre-marital births may have changed, the group with pre-marital children has become less selective, and the correlation with non-traditional family values should have attenuated over time. The stabilizing effect of pre-marital children in the 2000s can be explained by the (increasing) dominance of a true causal effect of (pre-marital)

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children on marital stability[19] and/or other dimensions of self-selection. An example for the latter is a correlation of the presence of pre-marital children with a high match-quality. In the case of further marriages, pre-marital children have always been associated with a considerably lower risk of divorce. However, comparable to first marriages, we observe that the stabilizing effect grows in size over time. The initial difference between first and further marriages seems plausible, since the selections process is by definition different in both cases.

Our results are in line with other studies finding a different effect of male and female children on the likelihood of divorce. The destabilizing effect in the 1980s and in the 1990s was higher for girls compared to boys, and the stabilizing effect in the 2000s more pronounced for boys. The sex difference remains when we restrict our analysis to spouses with only one pre-marital child, where we control for the sex of the first-born child.[20] Estimation results (not presented in the paper) show that the risk of divorce is slightly higher if the first-born child is female. The effect is, however, not always statistically significant.

The higher baseline hazard of further marriages has decreased over time. While further marriages faced a 103.5 percent higher divorce risk – compared to first marriages – in the 1970s, the effect decreased to 79.8 percent in the 2000s.[21] The most likely explanation for this is again, a changing process of self-selection into re-marriage. As the share of the number of divorced individuals on the (re)marriage market increased, the extent of their negative selection decreased.

At this point it is worth emphasizing that increasing participation of divorced in the (re)marriage market has no impact on the estimated decade effects of first or further marriages. However, this development can explain part of the increase in conventionally used divorce rates, since it measures the absolute number of cases per (adult) population. A higher number of divorces in one year results in additional re-marriages in subsequent years, which are again at risk of divorce. This effect is amplified by the higher divorce hazard of further marriages. Our simulations in Figure 5 abstract from the latter effect by presuming a divorce hazard of further marriages equal to that of first marriages. The resulting hypothetical divorce rates are significantly lower than the actual ones starting in the late 1980s.

3.5 Attitudes towards divorce

Our analysis so far has shown that the steady increase in divorce risk cannot be attributed to changing assortative mating patterns over time. It must be due to changes in behavior,

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[19]Children are an example of an increase in marital-specific capital, which reduces the probability of divorce, since such capital would be worth less in any other marriage or when being divorced (Becker, Landes and Michael, 1977).

[20]Dahl and Moretti (2008) point out that the analysis of this question can only be applied to first-born children, since the sex of the first child may influence subsequent fertility behavior, which may have an independent effect on the likelihood of divorce.

[21]Detailed results are available upon request.

most likely triggered by social changes. Divorce is nowadays a more acceptable way to solve a marriage crisis as some decades ago.

One way to provide evidence for this supposition is given by survey data. Unfortunately, we are not aware of any survey providing consistent information on the Austrian's attitude toward divorce over the whole time period under consideration. Still, the *European and World Values Survey* (E/WVS) provides at least information on the attitude towards divorce of Austrian respondents for the year 1990 and 1999. In particular, respondents are asked to evaluate on a ten-point scale whether they think 'divorce can always be justified, never be justified, or something in between'. Figure 8 shows that from 1990 to 1999 divorce became more acceptable among all sub-groups of the Austrian population. For married respondents we observe an increase in the average score by 18.9 percent from 4.6 to 5.5. At both points in time divorced respondents consider divorce to be more justifiable than their married counterparts (1990: 7.2, 1999: 7.8), but the increase over time is relatively smaller: plus 9.3 percent. The strongest increase (plus 24.4 percent) can be observed among respondents with other family status (i.e. single, widowed, and separated persons).

This strong increase in the acceptance of divorce over time is robust when we control for a number of socio-economic characteristics within a regression framework based on individual data. The acceptance of divorce increases *ceteris paribus* by about 0.70 points from 1990 to 1999, see Column (II) in Table 7. If we additionally include an indicator for individual religiosity in Column (III) this effect increases to about 0.75 points. For Germany, which is culturally quite similar to Austria, the E/WVS provides data on the same question starting already in 1981. An equivalent regression analysis for West Germany shows that acceptance of divorce increases *ceteris paribus* by about 0.74 points from 1981 to 1990. This is a good indication that in Austria at least since the 1980s an increase in the acceptance of divorce took place.

4   Conclusions

Several developments, such as increased economic independence of women, waves of immigration and ongoing secularization hit marriage markets in the western world over the last decades and have altered assortative mating patterns considerably. Over the same time period a sharp increase in divorce rates could be observed. Based on the universe of all Austrian marriages since 1971 we have documented that changes in assortative mating along the dimensions of age, ethnicity and religion are, however, not responsible for the increased marital instability. Quite the contrary, without the rise in the age at marriage, the incidence of divorce would have been even higher. Immigration, secularization, and the resulting supply of spouses with diverse ethnicity and religious denominations had no overall effect on divorce rates, since countervailing effects offset each other. As a residual explanation for the increase in marital stability, we suggest changing social norms. Indeed, available survey data shows that the acceptance of divorce has increased among all sub-groups of the population.

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5 Appendix

Figure 1: Divorce rates for selected countries, 1970-2005[a]
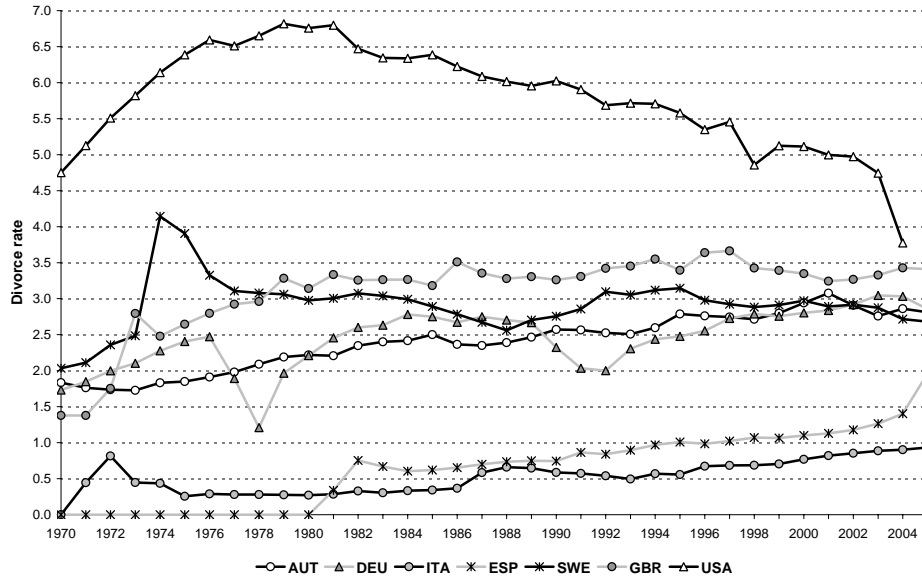
[a] Number of divorces per 1,000 of the population 15 years of age or older. The figures for the European countries are own calculations based on data from *Eurostat*. The figures for the United States are own calculation based on data from several editions of the *National Vital Statistics Reports* published by the *National Center for Health Statistics* and the *Reading Survey of Epidemiology and End Results (SEER) U.S. County Population Data* provided by the *National Bureau of Economic Research*.

Figure 2: Kaplan-Meier estimator for the duration of first marriages by decades
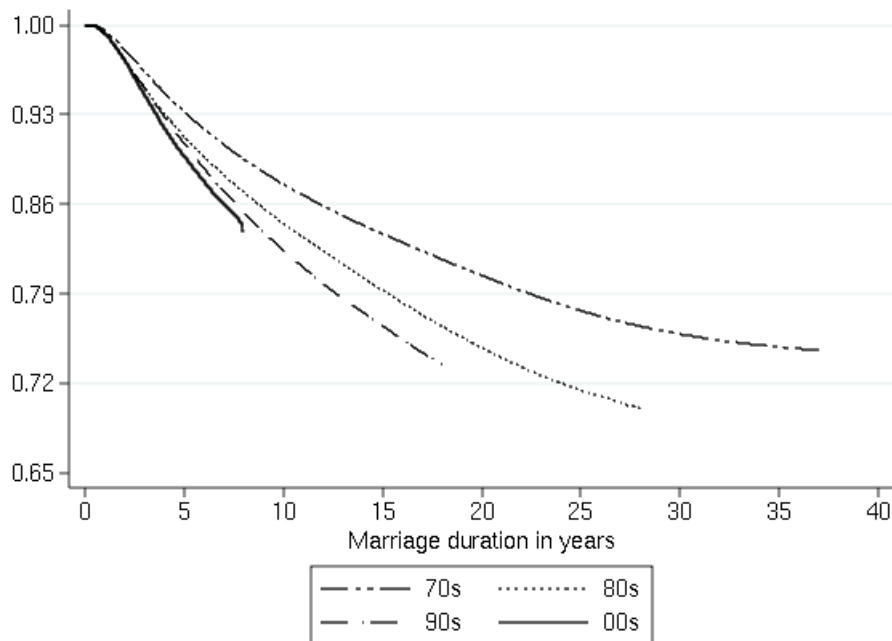
Figure 3: Kaplan-Meier estimator for the duration of further marriages by decades
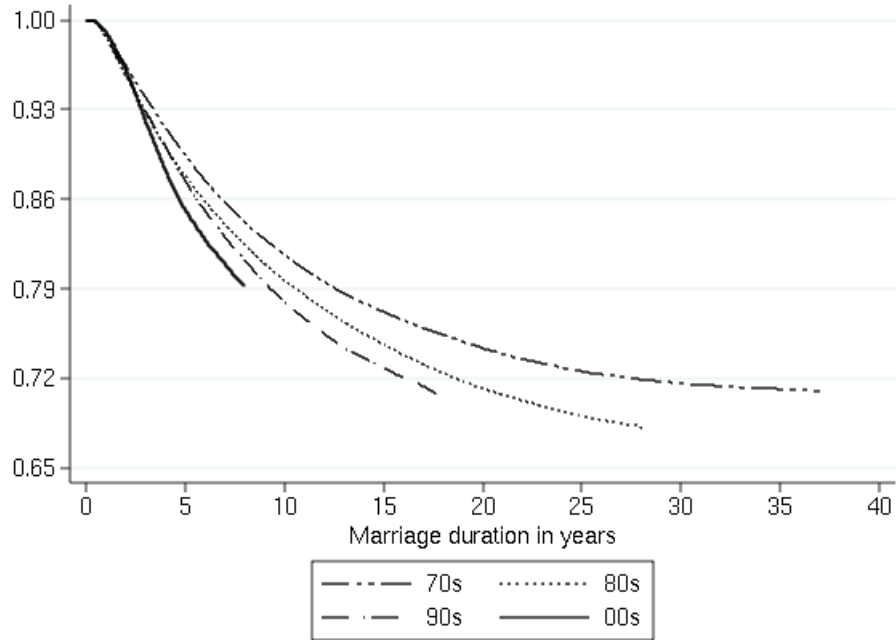
Figure 4: Age at the first marriage, 1971-2007[a]
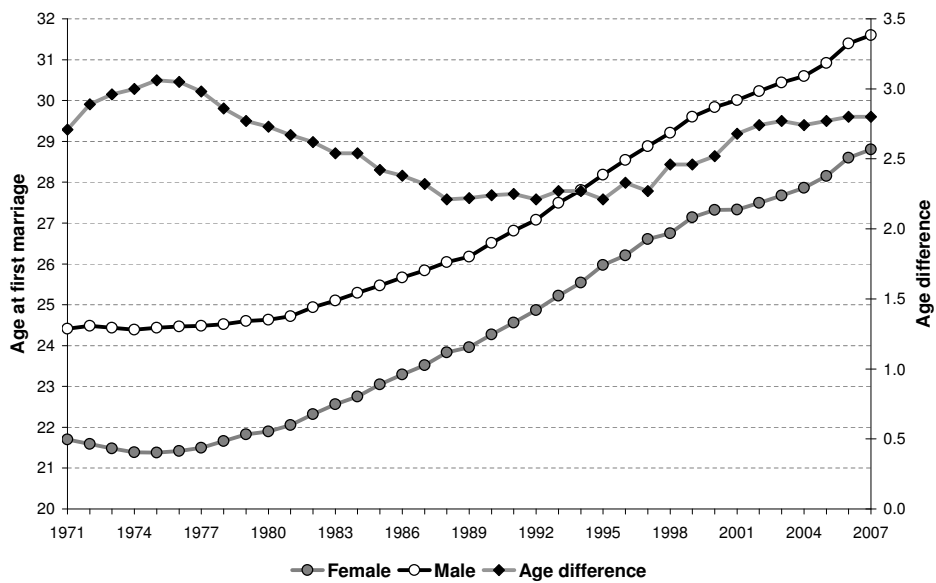
[a] Own calculations based on data from *Statistics Austria.*

Figure 5: Simulated divorce rates[a]

Actual rate · Hypothetical rate (constant age) · Hypothetical rate (equal hazard among first and further marriages)
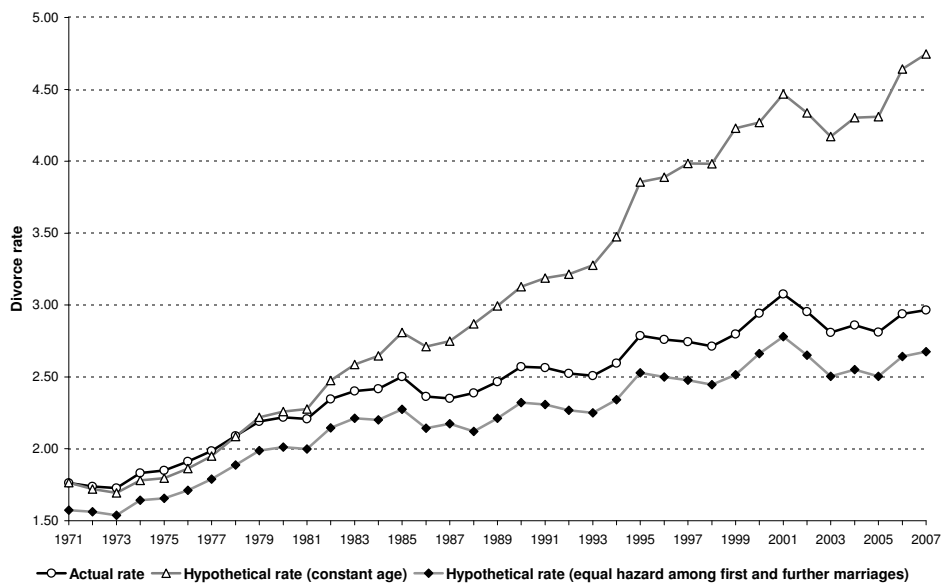
[a] Own calculations based on data from *Statistics Austria*.

Figure 6: Composition of spouses' ethnicity, 1971-2007[a]

Both are Austrian · One spouse is foreign · Both are foreign
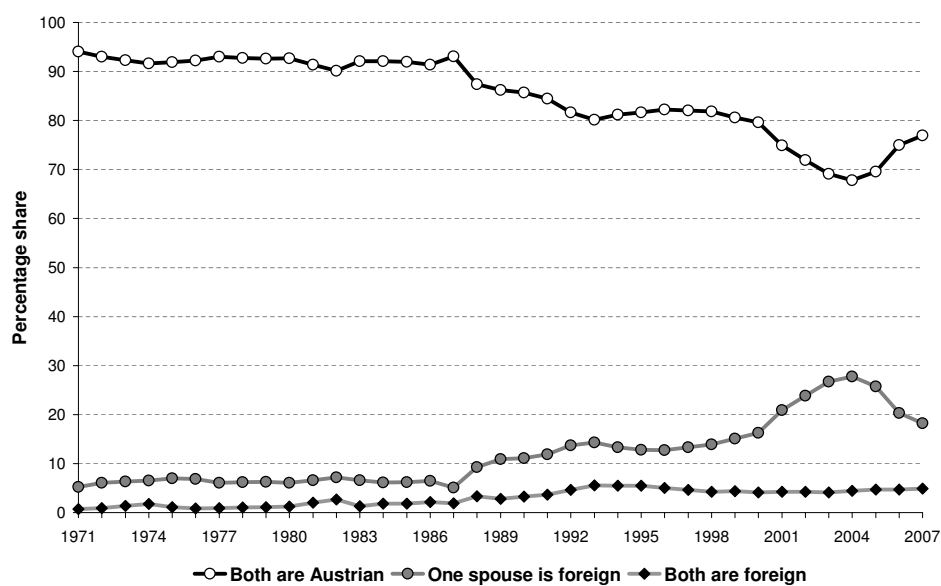
[a] Own calculations based on data from *Statistics Austria*.

Figure 7: Composition of spouses' religious denomination, 1971-2007[a]
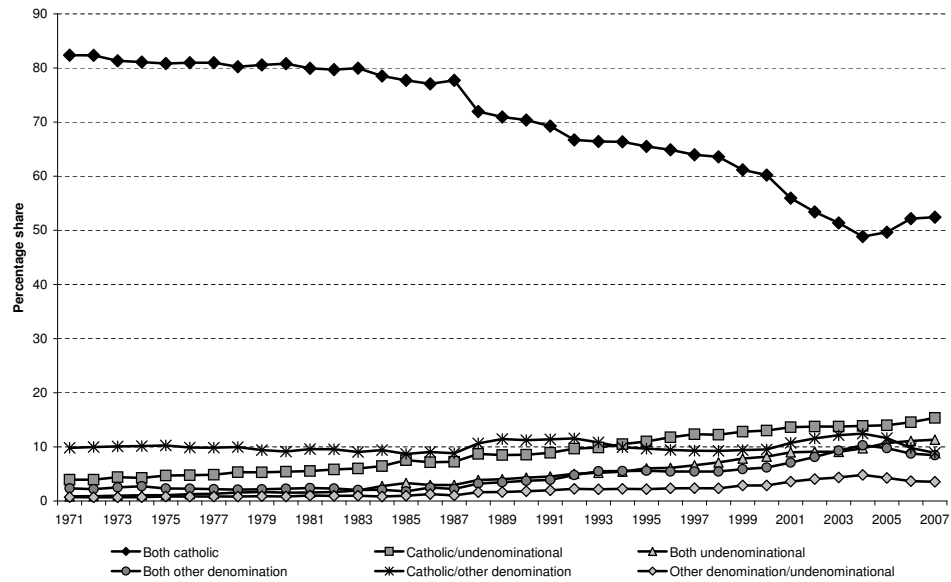
[a] Own calculations based on data from *Statistics Austria*.

Figure 8: Attitude towards divorce in Austria 1990 and 1999[a]
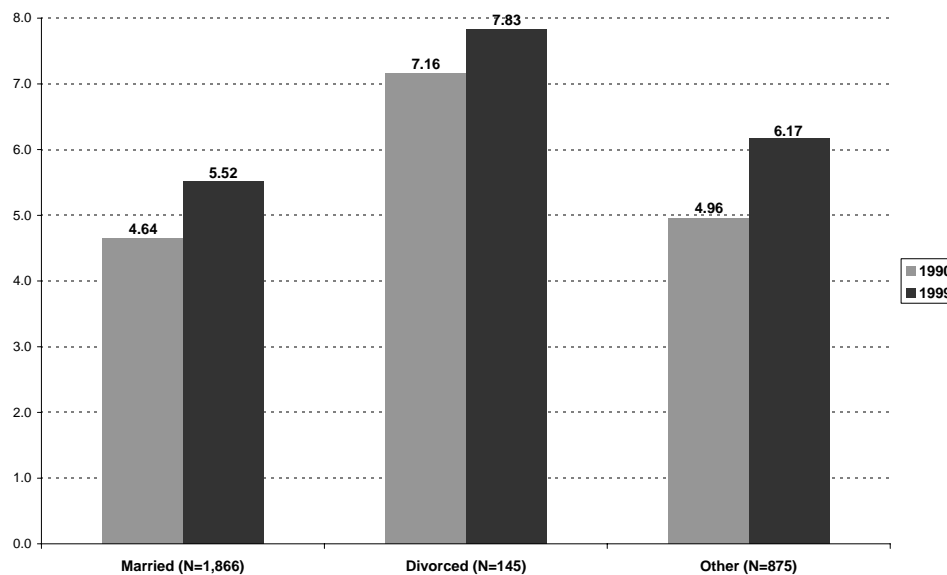
[a] The figures are based on the following question from the *European and World Values Survey*: Do you think 'divorce can never be justified (1), always be justified (10), or something in between' evaluated on a ten-point scale.

Table 1: Determinants of divorce risk: 1971-2007[a]

	(Ia)	(Ib)	(Ic)	(IIa)	(IIb)	(IIc)
Decade fixed-effects for marriage						
80s	1.319*** (0.006)	1.450*** (0.007)	1.465*** (0.007)	1.166*** (0.010)	1.181*** (0.010)	1.167*** (0.010)
90s	1.470*** (0.008)	1.933*** (0.012)	2.066*** (0.013)	1.268*** (0.011)	1.423*** (0.012)	1.362*** (0.012)
00s	1.486*** (0.014)	2.268*** (0.024)	2.313*** (0.024)	1.414*** (0.017)	1.836*** (0.023)	1.681*** (0.022)
Age and age difference						
Age of wife		0.900*** (0.001)	0.894*** (0.001)		0.935*** (0.000)	0.934*** (0.000)
Age of husband - age of wife		0.938*** (0.001)	0.938*** (0.001)		0.953*** (0.000)	0.956*** (0.000)
Age of husband - age of wife squared		1.003*** (0.000)	1.002*** (0.000)		1.001*** (0.000)	1.001*** (0.000)
Ethnicity						
Husband is Austrian/Wife is Foreigner			1.256*** (0.012)			1.223*** (0.014)
Husband is Foreigner/Wife is Austrian			1.426*** (0.014)			1.415*** (0.016)
Both are foreigners			0.391*** (0.007)			0.439*** (0.013)
Religious denomination						
Catholic, undenominational			1.442*** (0.012)			1.114*** (0.010)
Both undenominational			1.265*** (0.017)			1.063*** (0.014)
Both other denomination			0.822*** (0.011)			1.018 (0.017)
Catholic, other denomination			1.261*** (0.008)			1.073*** (0.010)
Other denomination, undenominational			1.452*** (0.025)			1.233*** (0.021)
Regional effects						
Inhabitants of husband's community[b]			1.132*** (0.004)			1.039*** (0.005)
Inhabitants of wife's community[b]			1.020*** (0.001)			1.011*** (0.001)
Distance between communities (in hours)			0.987*** (0.003)			1.024*** (0.006)
Month fixed-effects						
February			0.971** (0.014)			1.032 (0.020)
March			1.072*** (0.015)			1.041** (0.019)
April			0.930*** (0.012)			0.994 (0.018)
May			0.905*** (0.011)			0.997 (0.017)
June			0.923*** (0.011)			0.985 (0.017)
July			0.967*** (0.012)			1.043** (0.018)
August			0.993 (0.012)			1.056*** (0.018)
September			0.963*** (0.012)			1.049*** (0.018)
October			0.991 (0.012)			1.052*** (0.019)
November			1.084*** (0.014)			1.138*** (0.021)
December			1.236*** (0.016)			1.137*** (0.021)
District fixed-effects	yes	yes	yes	yes	yes	yes
Observations	1,148,371	1,148,371	1,148,371	437,109	437,109	437,109

[a] Estimated using a Cox (proportional hazard) model; hazard ratios with z-statistics in parentheses. Columns (Ia) to (Ic) are based on first marriages and Columns (IIa) to (IIc) on further marriages. *, ** and *** indicate statistical significance at the 10-percent level, 5-percent level, and 1-percent level, respectively. [b] Inhabitants are measured in 10,000.

Table 2: Determinants of divorce risk: 1984-2007[a]

	(Ia)	(Ib)	(Ic)	(IIa)	(IIb)	(IIc)	(IId)
Decade effects							
90s	1.075*** (0.007)	1.258*** (0.008)	1.292*** (0.008)	1.126*** (0.011)	1.232*** (0.012)	1.196*** (0.011)	1.210*** (0.012)
00s	1.116*** (0.011)	1.518*** (0.015)	1.476*** (0.016)	1.272*** (0.016)	1.596*** (0.021)	1.471*** (0.020)	1.512*** (0.021)
Age and age difference							
Age of wife		0.908*** (0.001)	0.899*** (0.001)		0.937*** (0.001)	0.937*** (0.001)	0.928*** (0.001)
Age of husband - age of wife		0.944*** (0.001)	0.944*** (0.001)		0.955*** (0.000)	0.957*** (0.001)	0.955*** (0.001)
Age of husband - age of wife squared		1.002*** (0.000)	1.002*** (0.000)		1.001*** (0.000)	1.001*** (0.000)	1.001*** (0.000)
Country of birth and ethnicity							
Both native, no citizenship			0.512*** (0.052)			0.554** (0.160)	0.549** (0.159)
Both none-native, citizenship			0.879* (0.062)			0.822*** (0.056)	0.788*** (0.053)
Both non-native, no citizenship			0.397*** (0.009)			0.455*** (0.015)	0.456*** (0.015)
Native Austrian/native, no citizenship			1.208*** (0.038)			1.275*** (0.058)	1.285*** (0.058)
Native Austrian/non-native, citizenship			1.154*** (0.020)			1.034* (0.020)	1.024 (0.020)
Native Austrian/non-native, no citizenship			1.482*** (0.015)			1.310*** (0.016)	1.318*** (0.016)
Native, no citizenship/non-native, citizenship			0.782*** (0.074)			1.270** (0.137)	1.248** (0.135)
Native, no citizenship/non-native, no citizenship			0.480*** (0.024)			0.436*** (0.058)	0.439*** (0.058)
Non-native, citizenship/non-native, no citizenship			1.123*** (0.025)			1.339*** (0.026)	1.325*** (0.026)
Religious denomination							
Catholic, undenominational			1.447*** (0.015)			1.144*** (0.013)	1.139*** (0.013)
Both undenominational			1.263*** (0.019)			1.068*** (0.016)	1.057*** (0.016)
Both other denomination			0.853*** (0.014)			1.082*** (0.022)	1.061*** (0.022)
Catholic, other denomination			1.323*** (0.012)			1.121*** (0.014)	1.113*** (0.014)
Other denomination, undenominational			1.492*** (0.030)			1.278*** (0.025)	1.271*** (0.025)
Regional effects							
Inhabitants of husband's community[b]			1.145*** (0.006)			1.052*** (0.008)	1.051*** (0.008)
Inhabitants of wife's community[b]			1.019*** (0.001)			1.011*** (0.001)	1.010*** (0.001)
Distance between communities (in hours)			0.985*** (0.005)			1.037*** (0.008)	1.052*** (0.008)
Children							
Number of joint male children			1.009 (0.008)			0.845*** (0.012)	0.869*** (0.013)
Number of joint female children			1.034*** (0.009)			0.861*** (0.013)	0.886*** (0.013)
Former marriages							
First marriage husband/further marriage wife							0.741*** (0.009)
Further marriage husband/First marriage wife							0.650*** (0.008)
Month fixed-effects	no	no	yes	no	no	yes	yes
District fixed-effects	yes	yes	yes	yes	yes	yes	yes
Observations	690,982	690,982	690,982	300,843	300,843	300,843	300,843

[a] Estimated using a Cox (proportional hazard) models; hazard ratios with z-statistics in parentheses. Columns (Ia) to (Ic) are based on first marriages and Columns (IIa) to (IId) on further marriages. *, ** and *** indicate statistical significance at the 10-percent level, 5-percent level, and 1-percent level, respectively. [b] Inhabitants are measured in 10,000.

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Table 3: The effect of joint migration background on divorce[a]

Description of couple	Share in sample	Both have or have not a migration background	Divorce hazard
Two first generation immigrants, no citizenship	3.41%	Yes	0.397***
Second generation immigrant, no citizenship and a first generation immigrant, no citizenship	0.38%	Yes	0.480 ***
Two second generation immigrants, no citizenship	0.10%	Yes	0.512***
A second generation immigrant, no citizenship and a first generation immigrant, citizenship	0.11%	Yes	0.782 ***
Two first generation immigrants, citizenship	0.36%	Yes	0.879*
Two native Austrians[b]	78.25%	Yes	base group
A native Austrian and a first generation immigrant, citizenship	3.35%	No	1.154 ***
A first generation immigrant, citizenship and a first generation immigrant, no citizenship	2.75%	Yes	1.123 ***
A native Austrian and a second generation immigrant, no citizenship	0.73%	No	1.208 ***
A native Austrian and a first generation immigrant, no citizenship	10.56%	No	1.482 ***

[a] Based on estimations results from Table 2. [b] This group is probably confounded by second and further generation immigrants with citizenship.

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Table 4: Determinants of divorce risk of couples with children: 1984-2007[a]

	(Ib)		(Ib+education)		(Ic)		(Ic+education)	
Decade effects								
Nineties	1.191***	(0.010)	1.189***	(0.010)	1.253***	(0.011)	1.267***	(0.011)
Two thousands	1.181***	(0.022)	1.187***	(0.022)	1.234***	(0.024)	1.265***	(0.024)
Education								
Higher education of husband			0.892***	(0.010)			0.831***	(0.009)
Higher education of wife			1.229***	(0.017)			1.246***	(0.017)
Apprenticeship - wife			0.804***	(0.009)			0.707***	(0.008)
High school - wife			0.668***	(0.011)			0.568***	(0.009)
University - wife			0.514***	(0.010)			0.431***	(0.009)
Age and age difference								
Age of Wife	0.898***	(0.001)	0.910***	(0.001)	0.889***	(0.001)	0.903***	(0.001)
Age of husband - age of wife	0.964***	(0.003)	0.964***	(0.003)	0.966***	(0.003)	0.967***	(0.003)
Age of husband - age of wife squared	1.002***	(0.000)	1.001***	(0.000)	1.001***	(0.000)	1.001***	(0.000)
Citizenship and country of birth								
Both native no citizenship					0.471***	(0.069)	0.423***	(0.062)
Both non-native, citizenship					0.994	(0.100)	0.977	(0.099)
Both non-native, no citizenship					0.428***	(0.013)	0.375***	(0.012)
Native Austrian/native, no citizenship					1.201***	(0.056)	1.152***	(0.054)
Native Austrian/non-native, citizenship					1.188***	(0.028)	1.215***	(0.029)
Native Austrian/non-native, no citizenship					1.286***	(0.021)	1.239***	(0.020)
Native, no citizenship/non-native, citizenship					0.874	(0.120)	0.811	(0.111)
Native, no citizenship/non-native, no citizenship					0.474***	(0.033)	0.422***	(0.029)
Non-native, citizenship/non-native, no citizenship					0.805***	(0.033)	0.740***	(0.030)
Religious denomination								
Catholic, undenominational					1.397***	(0.021)	1.388***	(0.021)
Both undenominational					1.136***	(0.027)	1.139***	(0.027)
Both other denomination					0.796***	(0.020)	0.773***	(0.020)
Catholic, other denomination					1.302***	(0.017)	1.302***	(0.017)
Other denomination, undenominational					1.375***	(0.046)	1.359***	(0.046)
Regional effects								
Inhabitants of husband's community					1.174***	(0.008)	1.187***	(0.009)
Inhabitants of wife's community					1.021***	(0.001)	1.023***	(0.001)
Distance between communities (in hours)					0.983***	(0.006)	1.008	(0.006)
Children								
Number of joint male children					0.962***	(0.012)	0.918***	(0.012)
Number of joint female children					0.984	(0.013)	0.938***	(0.012)
Month fixed effects	no		no		yes		yes	
District fixed effects	yes		yes		yes		yes	
Observations	381.807		381.807		381.807		381.807	

[a] Estimation method: Cox-model; z-statistics in parentheses. *, ** and *** indicate statistical significance at the 10-percent level, 5-percent level, and 1-percent level respectively.

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Table 5: Determinants of divorce risk by decades: 1971-2007[a]

	(Ia) 1970		(Ib) 1980		(Ic) 1990		(Id) 2000		(IIa) 1970		(IIb) 1980		(IIc) 1990		(IId) 2000	
Age and age difference																
Age of wife	0.877***	(0.001)	0.894***	(0.001)	0.905***	(0.001)	0.897***	(0.002)	0.929***	(0.001)	0.932***	(0.001)	0.938***	(0.001)	0.952***	(0.001)
Age of husband - age of wife	0.920***	(0.001)	0.939***	(0.001)	0.947***	(0.001)	0.941***	(0.002)	0.949***	(0.001)	0.954***	(0.001)	0.961***	(0.001)	0.965***	(0.001)
Age of husband - age of wife squared	1.003***	(0.000)	1.003***	(0.000)	1.002***	(0.000)	1.003***	(0.000)	1.001***	(0.000)	1.001***	(0.000)	1.001***	(0.000)	1.001***	(0.000)
Ethnicity																
Husband is Austrian/Wife is Foreigner	1.174***	(0.023)	1.320***	(0.024)	1.255***	(0.021)	1.498***	(0.042)	1.163***	(0.031)	1.314***	(0.028)	1.140***	(0.021)	1.546***	(0.045)
Husband is Foreigner/Wife is Austrian	1.136***	(0.029)	1.426***	(0.026)	1.470***	(0.025)	1.998***	(0.055)	1.090**	(0.038)	1.300***	(0.028)	1.396***	(0.028)	2.275***	(0.069)
Both are foreigners	0.324***	(0.016)	0.349***	(0.012)	0.427***	(0.011)	0.593***	(0.031)	0.377***	(0.030)	0.416***	(0.021)	0.489***	(0.022)	0.560***	(0.044)
Religious denomination																
Catholic, undenominational	1.392***	(0.027)	1.417***	(0.020)	1.514***	(0.021)	1.472***	(0.041)	1.078***	(0.022)	1.108***	(0.017)	1.155***	(0.018)	1.193***	(0.036)
Both undenominational	1.390***	(0.055)	1.211***	(0.029)	1.326***	(0.027)	1.302***	(0.046)	1.070*	(0.042)	1.047*	(0.026)	1.109***	(0.023)	1.062*	(0.037)
Both other denomination	0.895***	(0.024)	0.909***	(0.022)	0.795***	(0.018)	0.764***	(0.027)	0.961	(0.040)	1.019	(0.036)	0.933**	(0.028)	1.181***	(0.044)
Catholic, other denomination	1.205***	(0.014)	1.219***	(0.013)	1.322***	(0.018)	1.575***	(0.043)	1.057***	(0.019)	1.076***	(0.018)	1.046**	(0.019)	1.280***	(0.041)
Other denomination, undenominational	1.343***	(0.062)	1.379***	(0.045)	1.484***	(0.042)	1.691***	(0.073)	1.204***	(0.054)	1.178***	(0.040)	1.224***	(0.033)	1.390***	(0.055)
Regional effects																
Inhabitants of husband's community[b]	1.171***	(0.009)	1.222***	(0.008)	1.169***	(0.009)	1.118***	(0.019)	1.072***	(0.015)	1.058***	(0.013)	1.071***	(0.013)	1.107***	(0.023)
Inhabitants of wife's community[b]	1.021***	(0.001)	1.023***	(0.001)	1.016***	(0.001)	1.016***	(0.002)	1.011***	(0.002)	1.013***	(0.001)	1.010***	(0.002)	1.009***	(0.002)
Distance between communities (in hours)	0.997	(0.006)	0.988**	(0.005)	0.977***	(0.007)	0.983	(0.014)	0.981	(0.012)	1.020*	(0.010)	1.040***	(0.011)	1.068***	(0.018)
Month fixed-effects	yes		yes		yes		yes		yes		yes		yes		yes	
District fixed-effects	yes		yes		yes		yes		yes		yes		yes		yes	
Observations	305,307		367,336		293,421		182,307		92,413		114,951		125,796		103,949	

[a] Estimated using a Cox (proportional hazard) models; hazard ratios with z-statistics in parentheses. Columns (Ia) to (Id) are based on first marriages and Columns (IIa) to (IId) on further marriages. [b] Inhabitants are measured in 10,000.
*, ** and *** indicate statistical significance at the 10-percent level, 5-percent level, and 1-percent level, respectively.

Table 6: Determinants of divorce risk by decades: 1984-2007[a]

	(Ia) 1980	(Ib) 1990	(Ic) 2000	(IIa) 1980	(IIb) 1990	(IIc) 2000
Age and age difference						
Age of wife	0.893*** (0.001)	0.904*** (0.001)	0.897*** (0.002)	0.922*** (0.001)	0.928*** (0.001)	0.941*** (0.001)
Age of husband - age of wife	0.941*** (0.001)	0.946*** (0.001)	0.938*** (0.002)	0.952*** (0.001)	0.958*** (0.001)	0.956*** (0.001)
Age of husband - age of wife squared	1.003*** (0.000)	1.002*** (0.000)	1.003*** (0.000)	1.001*** (0.000)	1.001*** (0.000)	1.001*** (0.000)
Country of birth and ethnicity						
Both native, no citizenship	0.676 (0.339)	0.570*** (0.066)	0.463*** (0.110)	1.042 (0.602)	0.437* (0.196)	0.716 (0.359)
Both none-native, citizenship	1.026 (0.155)	0.827* (0.083)	1.015 (0.134)	0.712*** (0.089)	0.840* (0.082)	0.926 (0.132)
Both non-native, no citizenship	0.337*** (0.014)	0.399*** (0.012)	0.557*** (0.033)	0.412*** (0.026)	0.478*** (0.022)	0.566*** (0.047)
Native Austrian/native, no citizenship	1.291*** (0.076)	1.182*** (0.053)	1.337*** (0.090)	1.287*** (0.125)	1.255*** (0.083)	1.576*** (0.129)
Native Austrian/non-native, citizenship	1.175*** (0.032)	1.178*** (0.029)	1.037 (0.056)	1.085*** (0.033)	1.009 (0.028)	0.953 (0.055)
Native Austrian/non-native, no citizenship	1.390*** (0.027)	1.440*** (0.020)	1.790*** (0.045)	1.296*** (0.031)	1.251*** (0.021)	1.680*** (0.046)
Native, no citizenship/non-native, citizenship	0.940 (0.284)	0.797* (0.102)	0.902 (0.145)	1.426 (0.382)	1.223 (0.214)	1.473** (0.237)
Native, no citizenship/non-native, no citizenship	0.397*** (0.075)	0.498*** (0.030)	0.613*** (0.072)	0.477* (0.195)	0.478*** (0.079)	0.486*** (0.126)
Non-native, citizenship/non-native, no citizenship	0.822*** (0.049)	1.065* (0.035)	1.560*** (0.063)	0.982 (0.044)	1.163*** (0.035)	1.980*** (0.071)
Religious denomination						
Catholic, undenominational	1.390*** (0.024)	1.500*** (0.021)	1.454*** (0.041)	1.136*** (0.023)	1.146*** (0.018)	1.181*** (0.036)
Both undenominational	1.180*** (0.033)	1.335*** (0.027)	1.296*** (0.046)	1.048 (0.032)	1.087*** (0.022)	1.023 (0.036)
Both other denomination	1.001 (0.033)	0.833*** (0.020)	0.822*** (0.030)	1.127*** (0.050)	0.956 (0.030)	1.136*** (0.045)
Catholic, other denomination	1.266*** (0.018)	1.313*** (0.018)	1.580*** (0.043)	1.131*** (0.024)	1.052*** (0.019)	1.292*** (0.041)
Other denomination, undenominational	1.383*** (0.057)	1.475*** (0.042)	1.683*** (0.073)	1.242*** (0.053)	1.223*** (0.033)	1.353*** (0.054)
Regional effects						
Inhabitants of husband's community[b]	1.217*** (0.011)	1.171*** (0.009)	1.120*** (0.019)	1.067*** (0.018)	1.064*** (0.013)	1.106*** (0.023)
Inhabitants of wife's community[b]	1.023*** (0.001)	1.016*** (0.001)	1.015*** (0.002)	1.013*** (0.002)	1.010*** (0.002)	1.008*** (0.002)
Distance between communities (in hours)	0.994 (0.007)	0.980*** (0.007)	0.980 (0.014)	1.027** (0.014)	1.053*** (0.011)	1.072*** (0.018)
Children						
Number of joint male children	1.035*** (0.014)	1.025** (0.012)	0.905*** (0.023)	0.899*** (0.023)	0.907*** (0.018)	0.722*** (0.030)
Number of joint female children	1.045*** (0.014)	1.065*** (0.012)	0.922*** (0.024)	0.972 (0.025)	0.901*** (0.018)	0.697*** (0.030)
Former marriages						
First marriage husband/further marriage wife				0.741*** (0.015)	0.744*** (0.011)	0.754*** (0.019)
Further marriage husband/First marriage wife				0.661*** (0.013)	0.637*** (0.010)	0.657*** (0.018)
Month fixed-effects	yes	yes	yes	yes	yes	yes
District fixed-effects	yes	yes	yes	yes	yes	yes
Observations	215,254	293,421	182,307	71,098	125,796	103,949

[a] Estimated using a Cox (proportional hazard) models; hazard ratios with z-statistics in parentheses. Columns (Ia) to (Ic) are based on first marriages and Columns (IIa) to (IIc) on further marriages. *, **, and *** indicate statistical significance at the 10-percent level, 5-percent level, and 1-percent level, respectively. [b] Inhabitants are measured in 10,000.

Table 7: Determinants of the attitude towards divorce[a]

	(I)	(II)	(III)
Year (base group: 1990)			
1999	0.930*** (0.115)	0.697*** (0.109)	0.745*** (0.108)
Family status (base group: married)			
Divorced		1.762*** (0.249)	1.634*** (0.247)
Separated		1.389** (0.672)	1.090 (0.667)
Widowed		0.138 (0.206)	0.111 (0.204)
Single		-0.330* (0.180)	-0.279 (0.179)
Employment status (base group: employed)			
Self-employed		-0.362 (0.225)	-0.330 (0.223)
Unemployed		0.907** (0.373)	0.747** (0.370)
Out of labor force		-0.092 (0.151)	-0.087 (0.150)
Female		0.182 (0.115)	0.235** (0.114)
Age		-0.025*** (0.005)	-0.026*** (0.005)
No. of children		-0.104** (0.047)	-0.081* (0.047)
School leaving age		0.103*** (0.015)	0.105*** (0.015)
Household income[b]		0.045* (0.023)	0.043* (0.023)
Size of the place of residence[c]		0.833*** (0.086)	0.712*** (0.087)
Member of a religious denomination			-1.129*** (0.158)
Constant	4.889*** (0.078)	3.079*** (0.390)	4.166*** (0.4159)
R-squared	0.025	0.172	0.189

[a] The dependent variable is based on the following question from the *European and World Values Survey*: Do you think 'divorce can never be justified (1), always be justified (10), or something in between' evaluated on a ten-point scale. The method of estimation is ordinary least squares. Standard errors are in parentheses. The number of observations is in each estimation equal to 2,529. *, ** and *** indicate statistical significance at the 10-percent level, 5-percent level, and 1-percent level, respectively. [b] Household income is measured on a ten-point scale. [c] The size of the place of residence is measured on a three-point scale.