

Changes in divorce patterns: The culture and the law*

Victor Hiller[†] and Magali Recoules[‡]

March 15, 2012

Abstract

This article focuses on the mutual interplay between changes in divorce rates, divorce laws and cultural acceptance of divorce. The latter differs among individuals and evolve endogenously *via* cultural transmission mechanisms in which children preferences depend not only on values of parents but also on their actions regarding divorce. In turn, divorce law is chosen by majority voting. The dynamics of the economy may exhibit multiple long-run equilibria. Economic shocks can destabilize the low-divorce equilibrium: through cultural evolutions, divorce rates increase and divorce law may be modified. In compliance with stylized fact, the results show that legal changes occurred after that divorce rates had started to rise.

Keywords: Marriage and divorce; Divorce law; Cultural evolution

JEL Classification: J12, K10, Z10

*We would like to thank Bertrand Wigniolle, Cecilia Garcia-Peñalosa, Catherine Sofer, Pierre-André Chiappori, Daniela Del Boca, Hippolyte d'Albis, Natacha Raffin and Thomas Baudin. We would also like to express our gratitude to participants of OLG days 2010 at Vielsalm, journées LAGV 2010 at Marseille, the International conference in memoriam of Maria Concetta Chiuri, INED Workshop in Family Economics 2010 and seminar participants at Paris 1 University. Finally, we are grateful to Libertad González and Tarja K. Viitanen who provide us data concerning divorce law and divorce rates in Europe. All remaining errors are obviously ours.

[†]Corresponding author: University Paris II Panthón Assas - LEM, 5-7 Avenue Vavin, 75006 Paris, France. E-mail: victor.hiller@u-paris2.fr

[‡]Paris School of Economics - University of Paris 1 Panthón-Sorbonne, CES 106-112 boulevard de l'hôpital, 75647 Paris cedex 13, France, magali.recoules@univ-paris1.fr

1 Introduction

Since the mid of the XXth century, family arrangements have radically changed throughout the whole industrialized world. During this period, most of the OECD countries have experienced a transition from a situation in which legal barriers against divorce were strong and divorce rates low, to a situation characterized by more liberal divorce laws and a greater share of marriage ending in divorce. An increasing body of literature analyzes the impact of these radical legal changes, so called "Divorce Revolution", on the evolution of divorce rates; some studies concluding to a long-run positive impact (Brinig and Buckley 1998, Binner and Dnes 2001, González and Viitanen 2009 or González-Val and Marcén 2012) while others show that this positive impact is only temporary (Gruber 2004 or Wolfers 2006). Beyond these controversial positions, an empirical regularity seems to emerge: in almost every cases, divorce rates started to rise before the legal changes occurred. Accordingly, evolutions of divorce law may be regarded as a consequence of the rise in divorce rates rather than a cause. Sardon (1996), Allen (1998) or Coelho and Garoupa (2006) stress out this point respectively for the French, the Canadian and the Portuguese cases. The present article aims at shedding a new light on these facts. Our main argument is related with another well established fact, which characterizes the "Divorce Revolution" period: the progressive rise of the tolerance for divorce as reported by Glenn (1991), Inglehart and Baker (2000) or Thornton and Young-DeMarco (2001). In relation with this last set of studies, we suggest that divorce rate and divorce law may be jointly affected by a third variable: the cultural acceptance of divorce within the society. Moreover, we consider that this cultural factor is itself endogenous since its evolution depends on the legislative and social environment. In other words, our model emphasizes a three-way interaction between changes in divorce laws, divorce rates and social attitudes towards divorce. This framework allows us to analyze the relative role of economic, cultural and legal changes in the transition pattern from the low to the high divorce rate situation.

Our article is related to the divorce law/divorce rates literature. Our main contribution to this literature is the endogeneization of the legal framework. The fact that cultural evolutions may explain changes in divorce law is evoked in several studies (see, for instance, Brinig and Buckley 1998). However,

to our knowledge, the present article constitutes a first attempt to explicitly model this relationship. Moreover, we are able to replicate the well-established stylized fact according to which legal changes occur only after divorce rates had started to rise.

Our paper also relates to the cultural transmission literature in line with anthropological models pioneered by Cavalli-Sforza and Feldman (1981) and Boyd and Richerson (1985), recently updated by Bisin and Verdier (2001). These authors underline that children's preferences are partly determined by preferences of their parents. Beyond this cultural effect, we assume that offspring's attitudes towards divorce are also shaped by parental divorce decisions through a kind of imitation process. More precisely, we assume that the technology of socialization is more effective if parental decisions correspond to the cultural trait they aim at transmitting. This joint impact of parents' own attitudes and parents' marital status is highlighted by a large body of sociological studies (see, for instance, Axinn and Thornton, 1996; Kapinus, 2004). In line with this literature, we obtain the result that an increase in divorce rates is likely to spread better acceptance of divorce. In turn, these cultural changes trigger new increases in the propensity to divorce. This two phenomena correspond to what we observe, since the mid of the XXth century, in most of the industrialized countries.

Let us now come to the core of the paper. We develop a model of divorce decision in which divorce law is chosen through majority voting and attitudes towards divorce evolve thanks to a cultural transmission framework. Within the population, there are two kinds of preferences distributed regardless of gender. Individuals of type b have a guilt feeling, which incurs a utility loss, when divorced. Individuals belonging to the other group, namely individuals of type a , do not bear this subjective disutility. During early adulthood, individuals decide on a divorce legislation among two alternatives: *mutual consent* and *unilateral* divorce. The legislation which obtains the majority of votes is implemented. Once they have voted, each young adult is randomly matched with another young adult of the opposite sex and form a married couple which has two children. The match quality for each couple is revealed *ex-post* and those with too poor matches divorce. Parents' preferences are then transmitted through a cultural socialization process, in which both parental preferences and parental divorce decisions matter.

At a given date, the distribution of preferences allows us to characterize the static equilibrium of

the economy, *i.e.* the divorce legislation and the level of divorce rates. Individuals of type *a* have a higher propensity to divorce (they prefer divorce for lower levels of the match quality) than type-*b* ones. Moreover, the shift from *mutual consent* to *unilateral* divorce law corresponds to a transfer of decision power from the spouse having the lower propensity to divorce to the spouse having the higher one. Consequently, *a*-individuals always vote for the unilateral divorce law while type-*b* agents choose the mutual consent legislation. It follows that, when type-*a* (resp. type-*b*) individuals constitute a majority, the *unilateral* (resp. *consensual*) divorce law is implemented. In the end, the divorce rate depends on both the distribution of preferences and the implemented divorce legislation. This static equilibrium changes throughout times as the distribution of preferences evolves.

The three-way causality between cultural acceptance towards divorce, divorce law and divorce rates may lead to the emergence of multiple equilibria. In particular a *consensual* equilibrium, characterized by a majority of *b*-individuals, a *consensual* legal regime and low divorce rates may co-exist with a *unilateral* equilibrium in which *a*-individuals are a majority, the divorce law is *unilateral* and divorce rates are higher. Then, from a dynamic point of view, we are able to replicate the pattern of the "Divorce Revolution" as the transition from the *consensual* to the *unilateral* situation; the transition period being characterized by a rise in divorce rates which comes with a spread of more liberal views about divorce and endogenous legal transformations. In this framework, the shift from *mutual consent* to *unilateral* divorce has an accelerating impact on the increase in divorce rates but is not the driving force behind the latter evolution. Hence, in compliance with stylized facts, legal changes occurred after that divorce rates had started to rise.

In our framework, divorce decisions and preferences transmission are jointly influenced by both economic and social factors. Thus, while giving a key role to cultural changes, our approach is far to invalidate the role of economic determinants. In particular, the destabilization of the *consensual* equilibrium and the convergence towards the *unilateral* one may be impelled by economic shocks. For instance, and in accordance with the study of Greenwood and Gunner (2009), an increase in labor productivity or a fall in the price of household appliance may generate the transition towards the high divorce rate situation. Indeed, these evolutions, by reducing the specialization gains from being married, tightens the utility gap between married and divorced people. Thus, divorce rates expand, which triggers a wider acceptance of

divorce and so on.

The paper is organized as follows. First, we provide empirical background (Section 2). Then, we present the model (Section 3) and study the dynamics (Section 4). Finally, we conclude (Section 5).

2 Empirical background

2.1 On the role of culture in the transmission of divorce patterns

This section presents some stylized facts concerning the relationship between divorce rate and preferences towards divorce in 16 European countries.¹ Figure 1(a) illustrates a positive correlation across European countries between the tolerance towards divorce in 1999 and divorce rates 30 years before.² This correlation provides us an insight on the influence of divorce decisions of the previous generation on current attitudes towards divorce.

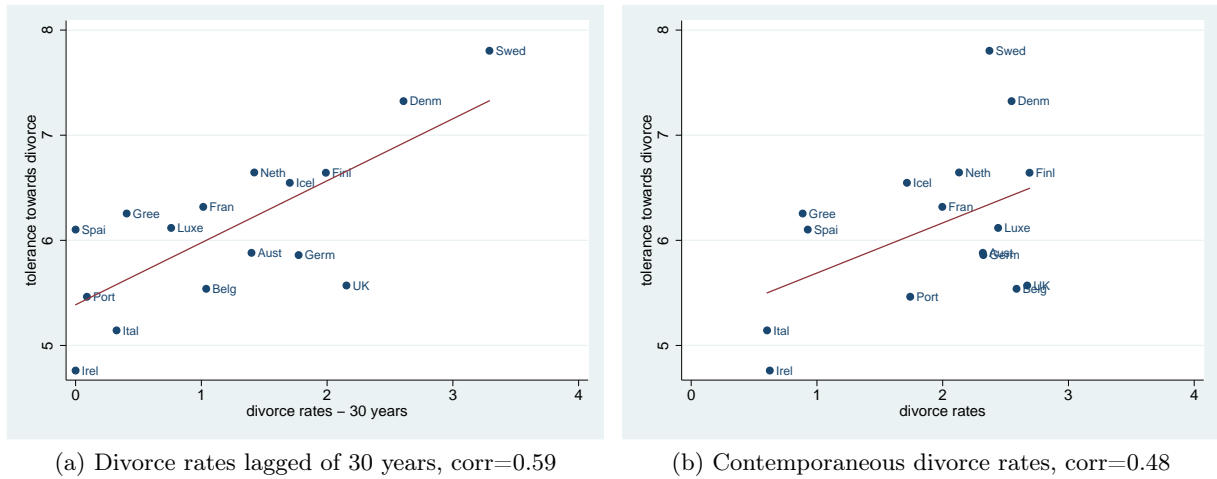


Figure 1. *Attitudes toward divorce and divorce rates*
Sources: European Value Study and Gonzalez and Vitanen (2009)

Figure 1(b) shows that this correlation is also positive between our measure of tolerance towards

1. These countries are Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden and the United Kingdom. They have been chosen because of data availability in the European Value Study (1999).

2. Our measure of tolerance towards divorce is derived from the 3rd wave of the European Value Study (EVS). We use the following question: "Do you think divorce can always be justified, never be justified, or something in between?", for which respondents are asked to answer by giving a score between 1 (never justified) and 10 (always justified). Then, we compute for each country the mean of this score.

divorce and divorce rates at the same date. Under the assumption that cultural attitudes are slow to change, it may be interpreted as an insight of a positive impact of liberal views about divorce on the divorce incidence. Moreover, the only two countries that not had unilateral divorce regimes in 1999 (namely Ireland and Italy) are located at the bottom-left in the two Figures. Then, as predicted by the theory, they seem to be trapped in a situation where divorce rates are low and attitudes towards divorce relatively intolerant.

Obviously, the correlations depicted in Figures 1 cannot be interpreted as causal relationships but, a recent paper by Furtado et al. (2010) confirms the role played by culture in the transmission of divorce patterns. The authors study divorce decisions of immigrants from Europe who arrived in the US at young age. They find that their divorce probabilities are positively affected by their home country divorce rates. This methodology allows to control for the economic and institutional context and then to interpret the result as a clear evidence in favor of the role of culture.

The existing literature in sociology or/and psychology also concludes that growing-up in a divorced family can instill offspring with less unfavorable attitudes towards divorce (Greenberg and Nay 1982, Amato 1988, Trent and South 1989, Axinn and Thornton 1996, Kapinus 2004). This result may be, at least partly, explained by the intergenerational transmission of attitudes towards divorce as documented by Axinn and Thornton (1996) or Kapinus (2004). Nevertheless, these papers also show that children of divorced parents significantly adopt more favorable views toward divorce even after controlling for the intergenerational transmission of attitudes.

According to this set of evidence, we model the joint effect of parental attitudes and parental divorce decisions on their children's views about divorce.

2.2 On the timing of divorce law changes

This section presents some stylized facts regarding the timing of change in divorce law and rise in divorce rates in European countries. We use data from González and Vitanen (2009) and focus on countries that

have liberalized their divorce legislation over the years 1950-2003.³ We observe from Figures 2(a) and

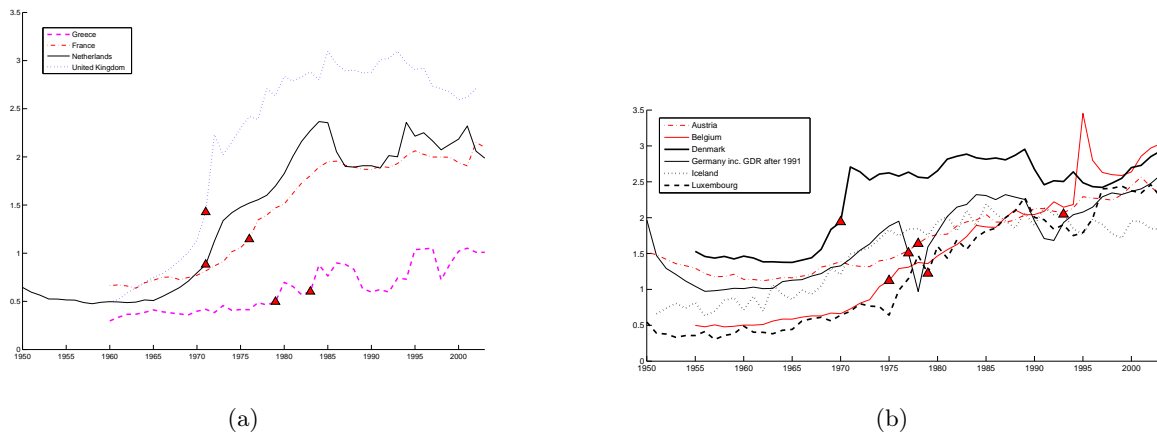


Figure 2. *divorce rates and divorce laws*

Sources: Gonzalez and Vitanen (2009). Divorce rates in 10 European countries, 1950-2003. (a) Countries that introduced no-fault divorce during the period. (b) Countries that introduced unilateral divorce during the period.

2(b) that, on overall, divorce rates follow an increasing trend in each country. Moreover, in most of the cases, divorce rates start to rise several years before the adoption of a new divorce legislation. It provides support to our own theory according to which changes in divorce rates and divorce law may be jointly affected by a third variable: the cultural acceptance of divorce.

3 The model

3.1 Framework and timing

At each date, there are two stationary, equally sized populations of adults, males and females. Within these populations, two cultural traits co-exist $\{a, b\}$. This heterogeneity captures differences in perception about divorce. Formally, we assume that when they divorce, type- b individuals suffer from a subjective utility cost while type- a individuals do not.

Agents live two periods: During the first period (childhood) they acquire preferences. The second period (adulthood) is decomposed in two sub-periods. At the beginning of the first sub-period, young

3. In order to comply with our theoretical analysis, we consider countries that have replaced a legislation allowing divorce on the basis of "fault" with *no-fault divorce* and/or *unilateral divorce* during this period of time. We exclude countries for which this replacement occurred before 1950 or after 2003 (Finland, Norway, Sweden, Switzerland) as well as countries having legalized divorce between 1950 and 2003 (Ireland, Italy, Portugal, Spain). For an overview of considered divorce reforms, see Appendix A.

adults vote on legislation about divorce. Then each young adult male is matched with a young adult female to form a household. We assume that each household has two children, a boy and a girl, such that the whole population is stationary. At the end of the first sub-period, the spouses are faced with the choice of whether to continue together or separate. During the second sub-period, individuals live either in couple or single (if divorced), they also achieve the socialization of their children.⁴ However, children would be also influenced by the observation of parental divorce decisions. We do not consider the possibility of remarriage.

The timing of events for an individual born in t is summarized in Figure 3.

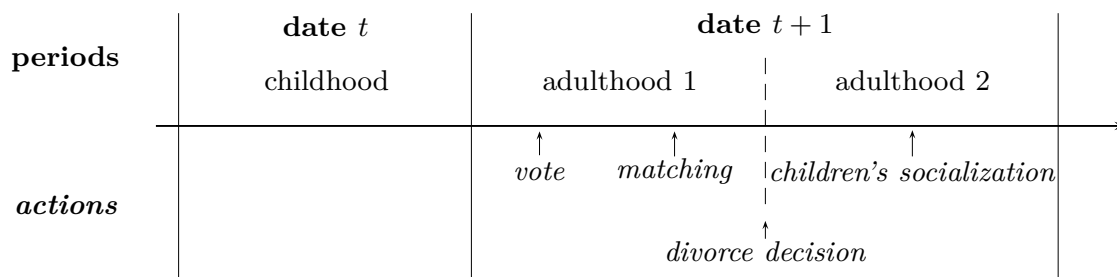


Figure 3: Timing of decisions

3.2 Preferences

Let us consider that preferences are distributed regardless of gender. We denote by q_t the proportion of type- a individuals within the population. This proportion is the same within the male and the female population.

The utility derived by one individual depends on three components: his/her preferences, his/her marital status (married or divorced) and the match quality when married. Let us define $u^m(i, \theta)$ the utility of a *married* individual of type i within a match characterized by a quality θ . We assume that θ

4. We are interested with divorces that take place when children's socialization is not fully accomplished. We consider that divorced parents are able to educate their children along their own preferences (especially if both parents share similar preferences).

is an independent draw from a given distribution with support $\Theta \subset \mathbb{R}$. This utility is given by:

$$u^m(b, \theta) = u^m(a, \theta) = u^m + \theta \quad (1)$$

where $u^m > 0$ is a parameter that measures the intrinsic utility from being in couple rather than single. Note that, the two spouses in a given household share the same value of u^m and θ . Moreover, the utility derived from marriage is the same for both types of agents.

Conversely, the utility when divorced depends on preferences. In particular, we assume that type- b individuals suffer an additional disutility $s > 0$, when they are divorced. This parameter captures the fact that people who exhibit preferences b develop a feeling of guiltiness when divorced. We denote by $u^d(i)$ the utility of a divorced individual with preferences i :

$$u^d(a) = u^d \quad \text{and} \quad u^d(b) = u^d - s \quad (2)$$

where $u^d > 0$ measures the intrinsic utility (independent of preferences) of a divorced individual.⁵

The crucial, but rather standard, assumption is that individuals do not know the value of θ when they are matched (Chiappori and Weiss, 2007; Chiappori et al., 2008). It is revealed during the first sub-period of match and according to this realization, individuals decide to remain married or to divorce: Negative surprises about the match quality trigger divorce. In particular, an individual i prefers to divorce when $u^m(i, \theta) < u^d(i)$. It directly comes from (1) and (2) that an individual a chooses to divorce when:

$$\theta < u^d - u^m \equiv \theta^a \quad (3)$$

and an individual b wishes to divorce when:

$$\theta < u^d - u^m - s \equiv \theta^b \quad (4)$$

5. Differences between u^m and u^d might, for instance, come from economy of scales of maintaining a household as discussed in Section 4.4 and formalized in Appendix D.

The threshold θ^i captures the critical value of the match quality under which an individual i prefers to divorce. We can see that type- b individuals are more prone to stay married for lower value of match quality due to the self-stigmatization that they suffer in case of divorce, implying $\theta^a > \theta^b$.

3.3 Matching

For ease of simplicity, we consider that all individuals have always incentives to enter in the marriage market at the beginning of their adulthood period. In other words, we assume that the expected utility of marriage over the life cycle is higher than the utility of being single. Notice that utility of being single during the first sub-period of adult life is not necessary the same than the one extracted from being divorced in the second sub-period of adult life. This may come from the fact that individuals get a positive utility from having children that subsists even if they are divorced.

Consequently, we assume that each agent finds a match with probability one. All matches end up in marriage since the expected gains from marriage are positive for all individuals. For ease of presentation, we consider that the matching between men and women is fully random.⁶ Hence, the proportion of $\{a, a\}$ match is q_t^2 , the proportion of $\{b, b\}$ match is $(1 - q_t)^2$ and the proportion of heterogamous ($\{a, b\}$ or $\{b, a\}$) matches equals $2q_t(1 - q_t)$. Let us define f as the type of the family: this variable takes the value $f = h$ for heterogamous couples ($\{a, b\}$ or $\{b, a\}$ matches), $f = a$ for homogamous couples of type a ($\{a, a\}$ matches) and $f = b$ for homogamous couples of type b ($\{b, b\}$ matches).

3.4 Legislation and divorce probabilities

Before the matching process takes place, young adults have to choose between two archetypal divorce laws l : the *mutual consent divorce* (indexed by c) and the *unilateral divorce* (indexed by u). Under consensual divorce c , a couple separates if both spouses agree to divorce; conversely, under unilateral legislation u , the couple divorces if at least one spouse prefers to. Let us define the threshold $\theta^l(i, j)$ as the critical

6. This assumption is a simplification of real world since individuals of the same type are more likely to be matched together. However, our results would hold unchanged if we had considered a matching process biased towards homogamy. As it will be clear later, a sufficient condition to obtain our results is the existence of a positive proportion of heterogamous couples.

value on the quality of the match under which a couple $\{i, j\}$ divorces when the legislation implemented is $l \in (c, u)$. Following the above description of the two legislations, we obtain:

$$\theta^c(i, j) \equiv \min\{\theta^i, \theta^j\} \quad \text{and} \quad \theta^u(i, j) \equiv \max\{\theta^i, \theta^j\} \quad (5)$$

Note that, the threshold $\theta^c(i, j)$ could equal the mean between θ^i and θ^j rather than the minimum, without qualitative consequences on our results.⁷

From (3) and (4), we deduce:

$$\theta^c(a, b) = \theta^c(b, b) = \theta^u(b, b) = \theta^b \quad (6)$$

$$\theta^u(a, b) = \theta^u(a, a) = \theta^c(a, a) = \theta^a \quad (7)$$

Hence, θ^b (resp. θ^a) may be defined as the critical value of the match quality for a couple which separates only if individual of type b (resp. a) prefers to: It is the case within homogamous b couples (resp. homogamous a couples). Moreover, there is a range of values of θ (belonging to the interval $[\theta^b, \theta^a]$) for which only individuals of type a are prone to divorce. Consequently, within heterogamous couples, individuals of type b (resp. type a) have the final say if the divorce decision is consensual (resp. unilateral).

Let us denote $p(f, l)$ the expected divorce probability for a family $f \in (h, a, b)$ when the legislation is $l \in (c, u)$. It directly comes from expressions (6) and (7) that:

$$p(h, u) = p(a, u) = p(a, c) = \text{Prob}(\theta < \theta^a) \equiv \bar{p} \quad (8)$$

$$p(h, c) = p(b, c) = p(b, u) = \text{Prob}(\theta < \theta^b) \equiv \underline{p} \quad (9)$$

with $\bar{p} > \underline{p}$ since $\theta^a > \theta^b$.

7. In the theoretical literature on divorce decisions, the critical value of the match quality under which a couple $\{i, j\}$ prefers to separate is alternatively modeled as $\max\{\theta^i, \theta^j\}$ (see, for instance, Weiss and Willis, 1985 or Chiappori and Weiss, 2007) or $(\theta^i + \theta^j)/2$ (see, for instance, Chiappori et al., 2008). Here, we argue that the relevant formulation crucially depends on the prevailing divorce law. Our interpretation applies if the Coase theorem does not hold, *i.e.* if the utility is not transferable or if bargaining is costly (see Stevenson and Wolfers, 2006 for a discussion).

For homogamous couples, the divorce law does not affect divorce probability. Indeed, the two mates, sharing same preferences and facing the same match's quality, agree on the decision to separate or not. Moreover, since incentives to remain married are higher for b individuals, the expected probability of divorce is larger for $\{a, a\}$ couples than for $\{b, b\}$ ones (these probabilities are respectively \bar{p} and \underline{p}). The divorce decision for heterogamous couples may depend on the divorce law. In particular, when the quality of the match θ belongs to the interval $[\theta^b, \theta^a]$, the type- a mate prefers to separate while the type- b one prefers to pursue the match. In that configuration, when the *unilateral divorce* applies, the type- a spouse has the final say and the couple divorces, hence the probability of divorce is $\bar{p} = \text{Prob}(\theta < \theta^a)$. Conversely, under the *mutual consent divorce* regime, the couple cannot split without the consent of the type- b spouse and the divorce probability becomes $\underline{p} = \text{Prob}(\theta < \theta^b)$.

3.5 Expected utilities and political equilibrium

Each individual votes for the legislation that maximizes his/her expected utility for the second sub-period of adulthood.⁸ This expected utility obviously depends on the expected probability of separation which is a function of both divorce law and couple composition.

We can derive the second adulthood sub-period expected utility of an individual i , for a given composition of his/her family f and a divorce law l . This expected utility is denoted $U^i(f, l)$:

$$U^i(h, c) = \underline{p}u^d(i) + (1 - \underline{p})[u^m + E(\theta|\theta > \theta^b)] \equiv \underline{U}^i \quad (10)$$

$$U^i(h, u) = \bar{p}u^d(i) + (1 - \bar{p})[u^m + E(\theta|\theta > \theta^a)] \equiv \bar{U}^i \quad (11)$$

$$U^a(a, c) = U^a(a, u) = \bar{U}^a \quad (12)$$

$$U^b(b, c) = U^b(b, u) = \underline{U}^b \quad (13)$$

8. Note that, the expected utility of the first sub-period is independent of the divorce law. Indeed, all individuals are married until the end of the first adulthood sub-period and their expected utility equals $u^m + E(\theta)$ whatever the divorce law. Conversely, since divorce laws affect the probability to remain married during the second adulthood sub-period, vote decisions are based on expected utilities for this second sub-period.

with $E(\theta|\theta > \theta^i)$ the expected value of θ conditional to $\theta > \theta^i$. Note that, preferences of the individual taking the final divorce decision not only determine the divorce probability but also the expected utility of marriage. Indeed, type- b individuals are more prone to remain married for low quality of the match since they fear to support the additional utility loss if they divorce. Then, the expected quality of the match when a type- b individual is the decision maker $E(\theta|\theta > \theta^b)$ is lower than the expected quality of the match when a type- a individual is the decision maker $E(\theta|\theta > \theta^a)$.

Finally, the match composition for an individual i depends on the matching probabilities which, in turn, are function of q_t (the distribution of preferences within the population). Hence, we obtain an expression of the second adulthood period expected utility for an individual i , as a function of l and q_t . This expected utility is denoted $W^i(l, q_t)$:

$$W^a(l, q_t) = q_t U^a(a, l) + (1 - q_t) U^a(h, l) \quad (14)$$

$$W^b(l, q_t) = (1 - q_t) U^b(b, l) + q_t U^b(h, l) \quad (15)$$

Since individuals vote before being matched, they choose the legislation maximizing their expected utilities. Comparing those expected utilities, we can claim the following:

Lemma 1 $W^a(u, q_t) \geq W^a(c, q_t)$ and $W^b(u, q_t) \leq W^b(c, q_t)$ for all $q_t \in [0, 1]$.

Proof. See Appendix B ■

Lemma 1 states that type- a individuals always prefer the *unilateral divorce* law while type- b always prefer the *mutual consent divorce* law. The intuition behind this result is rather simple. First of all, let us underline that, *ex-post*, homogamous couples are indifferent between the two legislations since the two mates agree on the decision to separate or not. Concerning heterogamous couples, when the match quality is low ($\theta < \theta^b$) the two spouses agree to split the match and the divorce law does not matter. In a similar way, if the match quality is high ($\theta > \theta^a$) the two spouses mutually consent to remain married whatever the legislation. Hence, result of Lemma 1 fully comes from the expected behavior of individuals who enter in heterogamous couples characterized by an intermediate match's quality ($\theta \in [\theta^b, \theta^a]$). In

such kind of family, the "preferred" solution of type-*a* individuals (*i.e.* to separate) is implemented under the *unilateral divorce* law; while the "preferred" solution of type-*b* individuals (*i.e.* to pursue the match) is chosen under the *mutual consent divorce* regime. Consequently, type-*a* (resp. *b*) individuals maximize their expected utility if *unilateral divorce* (resp. *mutual consent divorce*) is chosen.

We consider a majority voting rule. Moreover, let us assume, without loss of generality, that if the two legislations receive the same number of votes the *unilateral divorce* is chosen. The following result is directly derived:

Corollary 1 *If $q_t < 1/2$ the mutual consent divorce is chosen, otherwise the unilateral divorce is chosen.*

When $q_t < 1/2$, type-*b* individuals are in majority, since they prefer the *mutual consent divorce* law, this later obtain the higher number of votes and is implemented. Conversely, when type-*a* individuals are in majority ($q_t \geq 1/2$) the *unilateral divorce* law obtains a majority of votes and is implemented.

3.6 Socialization

The intergenerational correlation of divorce propensity is a well established fact (Wolfinger 1999 and 2003, Dronkers and Hiirokijinen 2008). Several explanations may account for it.⁹ Among them, we focus on the role played by the cultural formation of preferences with regards to divorce, considering that children's preferences might be influenced by parental divorce decisions. This impact is *a priori* not so obvious. On the one hand, children who experience the separation of their parents may be more prone to consider the divorce as an acceptable decision. On the other hand, children having felt parental divorce as a traumatic experience may develop hostile views about it. However, the existing literature much more supports the first argument concluding that growing-up in a divorced family can instill offspring with less unfavorable attitudes towards divorce (see Section 2 for a deeper discussion). Then, we propose a stylized socialization model taking into account the joint impact of parental values and parental divorce decisions on children's views about divorce.

9. See Dronkers and Hiirokijinen (2008) for an extensive discussion.

3.6.1 General principles

Children's preferences are assumed to be shaped by the joint influence of two models: first, a "cultural model" (cultural traits of parents) through a vertical socialization step (see Bisin and Verdier, 2001); second, a "family model" (marital status of parents: *married* or *divorced*) through a kind of imitation process. Moreover, we consider that cultural transmission mechanism displays the two following main features:

Assumption 1 *Heterogamous families are not able to directly socialize their children.*

Assumption 2 *Within homogamous families, the efficiency of the vertical socialization step depends on the adequacy between parents' "cultural model" and "family model".*

By Assumption 1, we consider that direct socialization is possible only if the two parents share the same preferences. Indeed, a child born in a heterogamous family does not have a well-defined "cultural model" to follow (Bisin and Verdier (2000) or Bisin et al. (2004) made similar assumptions). In that case, children's preferences are only affected by the observation of the parental "family model". In our exposition, we distinguish the case of homogamous families (section 3.6.2) from the case of heterogamous ones (section 3.6.3). Assumption 2 means that parents are more likely to transmit their "cultural model" if their divorce decisions do not contradict it.

Finally, let us underline that, in this section, we consider that parents do not care about cultural traits their children will adopt. This assumption has two main consequences: first, parents have no incentives to consciously achieve effort in an attempt to socialize children (the cultural transmission is a pure externality); second, they do not care about the consequences of their divorce decisions on the probability to transmit their preferences. This framework allows us to keep the things simple and to focus on the dynamical implications of the model.¹⁰

10. We develop an extension of the baseline model in which parents have the will to transmit their own cultural traits to their children. This does not change the final results.

3.6.2 Homogamous families

Within homogamous family, children preferences are shaped by the "cultural model" proposed by their parents. For instance, a child who grows up in a type- a family is likely to adopt a liberal view about divorce. For now on, let us consider that the probability of direct socialization, *i.e.* the probability that a child directly adopts the preferences corresponding to her/his "cultural model", is exogenous.¹¹ Moreover, and differently from the existing literature, we consider that children are also influenced by the divorce decision of their parents (see Assumption 2). Formally, if parental divorce decisions correspond to the "cultural model", children adopt parental preferences with probability one¹²; if they do not correspond, children have a positive probability τ to adopt alternative preferences. For instance, if two parents of type b decide to stay married, their children always adopt preferences b . Conversely, if they divorce, children become a with a probability τ . The parameter $\tau \in (0, 1)$ measures the relative impact of parental decisions *vs.* parental preferences on children socialization within homogamous families.

Figure 4 depicts the transmission process for a child born in a homogamous family. It illustrates the fact that, the propensity to transmit the parental "family model" depends on divorce probabilities (\bar{p} for a -families and \underline{p} for b -families).

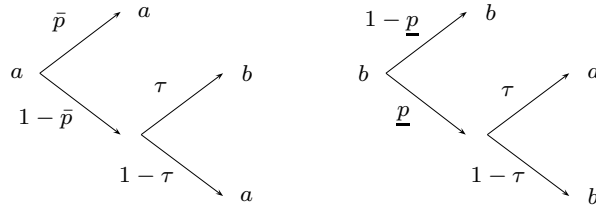


Figure 4: Socialization process within homogamous families

11. The relaxing of this assumption does not change the results.

12. Results hold unchanged if this probability is lower than one. The key, but pretty reasonable, condition is that direct transmission probability is higher when parental decisions are compatible with the cultural model they aim at transmitting.

3.6.3 Heterogamous families

Within heterogamous families, there is no "cultural model" since the two spouses do not share the same preferences. Then, offspring are only influenced by the marital status of their parents (see Assumption 1). We consider that a child adopts preferences corresponding to parental divorce decisions with a probability $d \in (1/2, 1)$. Moreover we assume that the following restriction holds:

$$d > \max\{1/2, \tau\} \tag{16}$$

The fact that $d > 1/2$ is rather straightforward, it means that children have a higher probability to adopt preferences corresponding to the divorce decisions of their parents. The assumption according to which $d > \tau$ is sufficient but not necessary to obtain our results. Moreover, it seems reasonable to consider that the influence of parental decisions on children's preferences is stronger if a "family model" does not contradict these decisions.

The socialization process within heterogamous families is summarized in Figure 5.

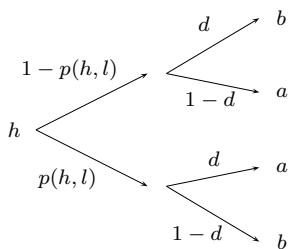


Figure 5: Socialization process within heterogamous families

3.6.4 Transitions probabilities

From the socialization process exposed in sections 3.6.2 and 3.6.3, we can deduce the transition probability $P^{f,i}(l)$ which represents the probability that a child born in a type f family adopts preferences i when

the divorce law is l :

$$\begin{aligned}
P^{a,a}(l) &= (1 - \bar{p})(1 - \tau) + \bar{p} & P^{a,b}(l) &= (1 - \bar{p})\tau \\
P^{b,a}(l) &= \underline{p}\tau & P^{b,b}(l) &= 1 - \underline{p} + \underline{p}(1 - \tau) \\
P^{h,a}(l) &= (2d - 1)p(h, l) + 1 - d & P^{h,b}(l) &= d - (2d - 1)p(h, l)
\end{aligned} \tag{17}$$

Again, divorce law matters only within heterogamous families. Let us recall that, if parents exhibit similar preferences, their divorce decision does not depend on the legislation.

4 Preferences, divorce rates and the legislation in the long-run

4.1 Dynamics of Preferences

Let us now analyze the preferences dynamics in the economy. To do so, we define as $Q_t^{ij}(l)$, the probability that a parent i had children who develops the trait j when the divorce law l prevails. From the transitions probabilities (17) we obtain the following expressions for $Q_t^{aa}(l)$ and $Q_t^{ba}(l)$:

$$\begin{aligned}
Q_t^{aa}(l) &= q_t [(1 - \bar{p})(1 - \tau) + \bar{p}] + (1 - q_t) [(1 - p(h, l))(1 - d) + dp(h, l)] \\
Q_t^{ba}(l) &= (1 - q_t)\underline{p}\tau + q_t [(1 - p(h, l))(1 - d) + dp(h, l)]
\end{aligned} \tag{18}$$

The law of motion of q_t for a given l writes as:

$$q_{t+1} = q_t Q_t^{aa}(l) + (1 - q_t) Q_t^{ba}(l) \tag{19}$$

Substituting expressions (18) into (19) and using the results of Lemma 1, we obtain an equation describing the complete dynamics of q_t :

$$q_{t+1} = \begin{cases} f^c(q_t) & \text{if } q_t < 1/2 \\ f^u(q_t) & \text{if } q_t \geq 1/2 \end{cases} \tag{20}$$

with

$$\begin{aligned} f^c(q_t) &\equiv q_t^2[1 - \tau + \tau\bar{p}] + (1 - q_t)^2\tau\underline{p} + 2q_t(1 - q_t)[1 - d + (2d - 1)\underline{p}] \\ f^u(q_t) &\equiv q_t^2[1 - \tau + \tau\bar{p}] + (1 - q_t)^2\tau\underline{p} + 2q_t(1 - q_t)[1 - d + (2d - 1)\bar{p}] \end{aligned} \quad (21)$$

This dynamics exhibit the following properties:

Proposition 1 *The dynamical system (20) admits either:*

- i one globally stable steady state $q_s = \hat{q}^c < 1/2$ characterized by a consensual divorce law;*
- ii one globally stable steady state $q_s = \hat{q}^u \geq 1/2$ characterized by a unilateral divorce law;*
- iii two locally stable steady states $q_s = \hat{q}^c < 1/2$ and $q_s = \hat{q}^u \geq 1/2$ respectively characterized by a consensual and a unilateral divorce law.*

Proof. See Appendix C ■

The equilibrium \hat{q}^c may be referred as a *consensual* equilibrium, it is characterized by low separation rates, strong legal barriers against divorce and a wide spread intolerance towards divorce. By opposition, \hat{q}^u may be referred as an *unilateral* equilibrium.

In the following sections we analyze in deeper details the case of multiple equilibria (Section 4.2) and the transition pattern from the *consensual* to the *unilateral* equilibrium (Section 4.3). Finally, we propose a comparative static exercise, identifying the parametric conditions under which each part of Proposition 1 is more likely to arise (Section 4.4).

4.2 Multiple equilibria case

Proposition 1 underlines the possible emergence of multiple equilibria, this case is illustrated in Figure 6a. Mechanisms behind this result are quite intuitive: if initially the proportion of type *a* individuals is low, the median voter is of type *b* and the consensual divorce law is adopted. Accordingly, the number of divorce remains limited and *a* preferences fail to expand: q_t converges towards \hat{q}^c . Conversely, if initially $q_t > 1/2$, unilateral divorce law is chosen. It follows a large divorce rate which triggers the spread of type *a* preferences: q_t converges towards \hat{q}^u .

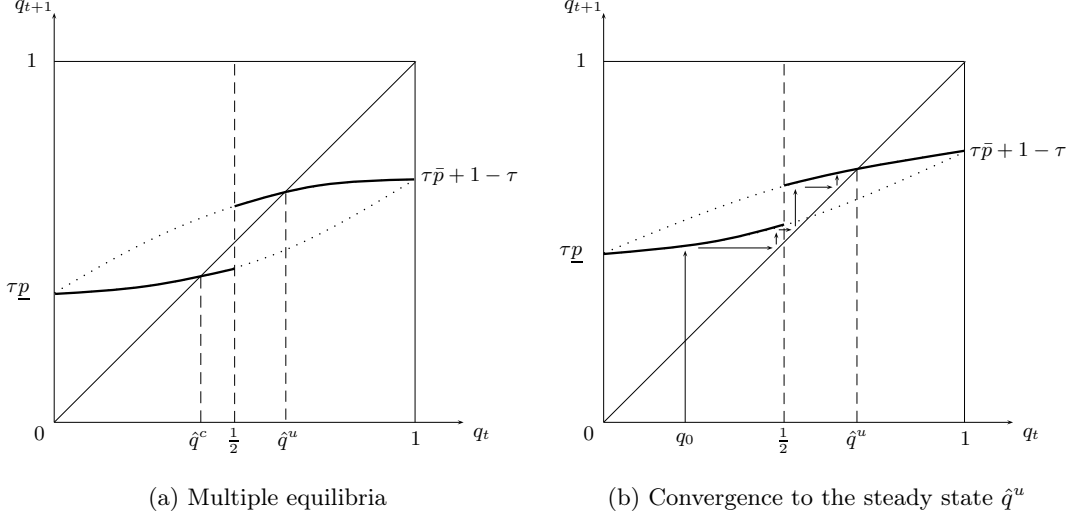


Figure 6. Long-run equilibria

4.3 Transition to the high divorce equilibrium

The following section illustrates the case *ii* of Proposition 1, in which \hat{q}^u is the unique globally stable steady state, considering that $q_0 < 1/2$ (see Figure 6b). Initially, type-*b* individuals are a majority and the divorce law is consensual such that the agreement of both spouses is necessary to divorce. Nevertheless, in that configuration divorce rates tend to be relatively large, such that the proportion q_t of type-*a* agents increases over time. This reduction in divorce stigmatization reinforces the rise of divorce rates which triggers the evolution of q_t and so on. As the proportion of type-*a* individuals becomes larger, the electoral weight of unilateral divorce law rises. Finally, q_t overtakes one half and the majority changes such that the divorce law becomes unilateral and the economy converges towards \hat{q}^u .

Let us now assess the consequences of this dynamics in terms of the evolution of divorce rates. Denote π_t^l the divorce rate under the legislation l , using the expressions of divorce probabilities for each family type (8) and (9), we obtain:

$$\pi_t^u = \bar{p} - (1 - q_t)^2(\bar{p} - \underline{p}) \quad \text{and} \quad \pi_t^c = \underline{p} + q_t^2(\bar{p} - \underline{p}) \quad (22)$$

It is easy to verify that, first both π_t^u and π_t^c are increasing in q_t ; and second $\pi_t^u > \pi_t^c$ for all $q_t \in (0, 1)$.

Here, changes in divorce rates are impulsed by changes in the cultural composition of the population. The initial increase in q_t implies the rise in divorce rates before the divorce law changes. Thus, the cultural dynamics generate a secular increase in divorce rates even if the legislation remains consensual. In a second step, when type- a individuals are in majority within the society, the shift from consensual divorce to unilateral divorce temporarily accelerates the phenomena. Finally, divorce rates gradually increase during the phase of convergence towards the new steady state. Hence, according to our analysis, a change in divorce law has an accelerating effect on the evolution of divorce rate but is not the driving force behind the latter evolution.

4.4 Comparative Static

Most industrialized countries have experienced, in the course of the twentieth century, the transition from a situation characterized by low divorce rates, relatively coercive divorce law and a strong stigma against divorced persons, to a situation in which divorce is easier, divorce rates higher and divorced agents less stigmatized (see Thornton and Young-DeMarco (2001) for evidence on the long-run trends towards an increase in the acceptance of divorce in the US). In the terms of our model, this transition may be regarded as the shift from the equilibrium \hat{q}^c to the equilibrium \hat{q}^u . In consequences in this section, we analyze the factors that right helps to explain this transition. For this purpose, we consider an economy initially at the equilibrium \hat{q}^c and we study the dynamical consequences of changes in the parameters.¹³

4.4.1 Changes in the utility gap between being married and divorced

The following Proposition establishes that, for a sufficiently high increase in $u^d - u^m$, the equilibrium \hat{q}^c is destabilized and the economy converges towards \hat{q}^u .

Proposition 2 *An increase in $u^d - u^m$ shifts both \hat{q}^c and \hat{q}^u towards the right, making the configuration where \hat{q}^u is the unique globally stable steady state more likely to emerge.*

13. Note that, if we consider an extension of the baseline model with homogamy. We observe that an increase in the homogamy makes the two equilibria \hat{q}^c and \hat{q}^u closer. Hence, it contributes to weaken the effect of a legislative change. Indeed, the impact of divorce law on divorce rate fully passes through the probability of divorce of heterogamous couples while a rise in homogamy reduces the proportion of this kind of match.

Proof. A rise in $u^d - u^m$ generates a rise in θ^a and θ^b and then an increase both in \bar{p} and \underline{p} . Consequently, $f^c(q_t)$ and $f^u(q_t)$ are shifted upward as well as the fixed points \hat{q}^c and \hat{q}^u . ■

A rise in $u^d - u^m$ induces an improvement in the relative situation of divorced individuals. Consequently, it increases the threshold levels of match quality θ^a and θ^b and then divorce probabilities, whatever the divorce law or the composition of the couple (see expressions (6)-(9)). At an aggregate level, it implies a rise in divorce rates that generates a spread of type- a preferences. As a consequence, the stationary level of q_t becomes higher. If this effect is large enough, \hat{q}^c overpasses one half, then \hat{q}^u becomes the unique steady state.

Several factors might be responsible for the progressive improvement in the relative situation of divorced people. Greenwood and Guner (2009) suggest that technological progress plays a key role by reducing the benefits associated with economies of scale within the household. In particular, the authors show that an increasing wage rate or a decrease in the price of household appliances both erode the utility gap between married and divorced households. We propose in Appendix C a simple way, derived from Greenwood and Guner (2009), to endogenize u^d and u^m . It allows us to show how an increase in wages or a reduction of the cost required to maintain a household, enhance incentives to divorce.

Another explanation for the reduction of the utility gap between married and divorced could be the development of redistribution policies targeted towards single parents, as the Aid to Families with Dependent Children (AFDC) in United States (this effect is evoked by Becker 1981, see also Rosenzweig 1999 or Nechyba 2001 for recent contributions). In the model, the application of such program constitutes a positive shock on $u^d - u^m$ which may contribute to shift from a situation in which the economy is caught in the *consensual* equilibrium, to the situation illustrated in Figure 6b.

4.4.2 Changes in the social perception of divorce

As stated in the following Proposition, a decrease in the subjective disutility suffered by divorced individuals of type b (measured by the parameter s) displays similar outcomes compared to any improvement in the relative situation of divorced agents.

Proposition 3 *A decrease in s shifts both \hat{q}^c and \hat{q}^u towards the right, making the configuration where*

\hat{q}^u is the unique globally stable steady state more likely.

Proof. A decrease in s generates a rise in θ^b and then an increase in \underline{p} . Consequently, $f^c(q_t)$ and $f^u(q_t)$ are shifted upward as well as the fixed points \hat{q}^c and \hat{q}^u . ■

The impact of a change in the social image of divorced peoples on divorce rate is highlighted in a recent paper by Chong and La Ferrara (2009). On Brazilian data, the authors show that the share of divorced women increased significantly after the Brazilian television network, Rede Globo, signal became available. They interpret this phenomenon as the effect of the exposure to modern lifestyle as portrayed on TV, separation and divorce being natural reflections of these attitudes.¹⁴ In our framework, the impact of this exposure may be modeled as a decrease in the parameter s . Indeed, the spread of the view that divorce is a rather common practice is likely to decrease the guilt feeling suffered by type b individuals when divorced.

5 Conclusion

The main goal of the present article is to provide a theoretical model that may help, through evolution of divorce perception, to understand the long-run evolution of divorce patterns and, in particular, the timing of the rise in divorce rate and change in divorce law. Our findings may be summarized as follows. The complementarity between the spread of tolerance towards divorce and the liberalization of divorce legislation may lead to multiple equilibria. Initially, a country is trapped in a *consensual* equilibrium, characterized by low divorce rates, a *consensual* divorce law, and a strong stigmatization of divorce. Some economic shock, improving the relative situation of divorced peoples, may destabilize this initial equilibrium and induce the convergence towards a *unilateral* equilibrium. At the beginning of the transition process, the increase in divorce rates is driven by the rise in the cultural acceptance of divorce, despite the fact that the law remains *consensual*. However, ultimately cultural evolutions enable the *unilateral* divorce law to obtain a majority, the legislation changes and the economy reaches the new equilibrium. Hence, in compliance with empirical observations, legal changes occur after that divorce rates had started to rise.

14. The authors note that "*separation and divorce were absent from [novelas] until the mid of 1970s, between 1975 and 1984 on average 20% of the main characters were divorced or separated.*"

From a microeconomic point of view, we propose a socialization process which takes into account the joint influence of parental values and parental divorce decisions on children's attitudes towards divorce.

One interesting direction in which we could extend this work deals with the introduction of gender differences in earnings. It might allow us to analyze the determinants of differences between sexes in attitudes towards divorce and propensity to divorce.

Appendices

A Divorce legislation

Table 1: Divorce laws by country, 1950-2003

| Country | Date | Changes |
|-----------------------------|------|---|
| Austria | 1978 | Introduction of unilateral divorce |
| Belgium | 1975 | Introduction of unilateral divorce |
| Denmark | 1970 | Introduction of unilateral divorce |
| France | 1976 | Introduction of no-fault divorce and unilateral divorce |
| Germany inc. GDR after 1991 | 1977 | Introduction of unilateral divorce |
| Greece | 1979 | Introduction of no-fault divorce |
| | 1983 | Introduction of unilateral divorce |
| Iceland | 1993 | Introduction of unilateral divorce |
| Luxembourg | 1979 | Introduction of unilateral divorce |
| Netherlands | 1971 | Introduction of no-fault and unilateral divorce |
| United Kingdom | 1971 | Introduction of no-fault and unilateral divorce |

Sources: Gonzalez and Vitane (2009)

Remarks: The divorce law for Scotland post-dates that of England and Wales by 5 years. The analysis does not take this into account.

B Proof of Lemma 1

We have to determine the sign of $W^i(u, q_t) - W^i(c, q_t)$ for $i \in \{a, b\}$. Combining (10)-(15), we obtain:

$$W^i(u, q_t) - W^i(c, q_t) \stackrel{\text{sign}}{=} \bar{U}^i - \underline{U}^i$$

with

$$\begin{aligned}
\bar{U}^i - \underline{U}^i &= (\bar{p} - \underline{p})(u^d(i) - u^m) + (1 - \bar{p})E(\theta|\theta > \theta^a) - (1 - \underline{p})E(\theta|\theta > \theta^b) \\
&= (\bar{p} - \underline{p})(u^d(i) - u^m) + \int_{\theta^a}^{+\infty} \theta dF(\theta) - \int_{\theta^b}^{+\infty} \theta dF(\theta) \\
&= (\bar{p} - \underline{p})(u^d(i) - u^m) - \int_{\theta^b}^{\theta^a} \theta dF(\theta) \\
&= (\bar{p} - \underline{p}) \{u^d(i) - u^m - E(\theta|\theta \in [\theta^b, \theta^a])\}
\end{aligned}$$

Using expressions (2)-(3), we conclude that $\bar{U}^a - \underline{U}^a \geq 0$ since

$$E(\theta|\theta \in [\theta^b, \theta^a]) \leq \theta^a = u^d - u^m$$

and $\bar{U}^b - \underline{U}^b \leq 0$ since

$$E(\theta|\theta \in [\theta^b, \theta^a]) \geq \theta^b = u^d - s - u^m$$

Hence, $W^a(u, q_t) \geq W^a(c, q_t)$ and $W^b(u, q_t) \leq W^b(c, q_t)$.

C Proof of Proposition 1

The proof is divided into four steps: First, Lemma 2 exposes the properties of the dynamical equation $q_{t+1} = f^j(q_t)$; then Lemma 3, 4 and 5 respectively address points *i.*, *ii.* and *iii.* of the Proposition.

Lemma 2 *The dynamical equations $q_{t+1} = f^j(q_t)$ admit one unique globally stable steady state \hat{q}^j . Moreover, $0 > \hat{q}^c > \hat{q}^u > 1$.*

Proof. *Existence and unicity.* Let us define the two constant terms A^c and A^u such as:

$$A^c \equiv 1 - d + (2d - 1)\underline{p} \quad \text{and} \quad A^u \equiv 1 - d + (2d - 1)\bar{p}$$

We can then study the shape of $f^j(q_t)$ for $q_t = 0$ and $q_t = 1$:

$$\left. \frac{\partial f^j(q_t)}{\partial q_t} \right|_{q_t=0} = 2[(1 - \underline{p})(1 - d) + \underline{p}(d - \tau)]$$

$$\left. \frac{\partial f^j(q_t)}{\partial q_t} \right|_{q_t=1} = 2[\bar{p}(1-d) + (1-\bar{p})(d-\tau)]$$

which are both positive since $d > \tau$. Moreover

$$\frac{\partial^2 f^j(q_t)}{\partial q_t^2} = 2[1 - \tau + \tau(\bar{p} + \underline{p}) - 2A^j]$$

then, $f^j(q_t)$ is either globally concave or globally convex. Consequently, $f^j(q_t)$ is increasing on the interval $[0, 1]$. Moreover, it is straightforward that $0 > f^j(0) > f^j(1) > 1$. Then, the equation $f^j(q_t) = q_t$ admits a unique solution \hat{q}^j . Moreover, since $A^u > A^c$, $f^u(q_t) > f^c(q_t)$ for all $q_t \in (0, 1)$ and $\hat{q}^u > \hat{q}^c$.

Global stability. It is straightforward that $f^j(q_t) > (<)q_t$ when $q_t < (>)\hat{q}^j$. The property of stability directly follows. ■

Lemma 3 *If $\hat{q}^u < 1/2$, q_t converges towards \hat{q}^c .*

Proof. When $q_t > 1/2$, the divorce law is unilateral and $q_{t+1} = f^u(q_t)$. Since \hat{q}^u is globally stable and lower than $1/2$, q_t decreases over time and finally becomes lower than $1/2$. When $q_t < 1/2$, the divorce law is consensual and $q_{t+1} = f^c(q_t)$. Since \hat{q}^c is globally stable and $0 < \hat{q}^c < \hat{q}^u < 1/2$, q_t converges towards \hat{q}^c . ■

Lemma 4 *If $\hat{q}^c > 1/2$, q_t converges towards \hat{q}^u .*

Proof. When $q_t < 1/2$, the divorce law is consensual and $q_{t+1} = f^c(q_t)$. Since \hat{q}^c is globally stable and higher than $1/2$, q_t increases over time and finally becomes higher than $1/2$. When $q_t > 1/2$, the divorce law is unilateral and $q_{t+1} = f^u(q_t)$. Since \hat{q}^u is globally stable and $1/2 < \hat{q}^c < \hat{q}^u < 1$, q_t converges towards \hat{q}^u . ■

Lemma 5 *If $\hat{q}^c < 1/2 < \hat{q}^u$, (i) the equilibrium \hat{q}^c is achieved if $q_0 < 1/2$ or (ii) the equilibrium \hat{q}^u is achieved if $q_0 > 1/2$.*

Proof. (i) When $q_t < 1/2$, the divorce law is consensual and $q_{t+1} = f^c(q_t)$. Since \hat{q}^c is globally stable and belongs to the interval $(0, 1/2)$, the economy converges towards \hat{q}^c . (ii) When $q_t > 1/2$, the divorce

law is unilateral and $q_{t+1} = f^u(q_t)$. Since \hat{q}^u is globally stable and belongs to the interval $(1/2, 1)$, the economy converges towards \hat{q}^u . ■

D Endogeneization of u^m and u^d

Basically, a married household is composed by two individuals while a divorced household by only one. We consider that the presence of two individuals within married household allows for economies of scale. In particular, and following Greenwood and Gunner (2009) we assume that households face a fixed cost to maintaining their home, the latter being decreasing with the number of individuals who compose the household. Gain from marriage stems from these economies of scale. Formally, at each date, two types of good are produced: a domestic and a market good. The domestic good h is produced thanks to a constant return to scale technology such that one unit of time spent in housework allows for the production of one unit of domestic good. The market good c is also produced in line with a constant return to scale technology such that each unit of time spent on the market allows for the production of w units of market good, hence w represents the equilibrium real wage. Moreover, each individual is endowed with one unit of time such that divorced households have one unit of time to share between housework and work on the market while married households have two units. Preferences for individuals taking part of a household composed by $z \in \{1, 2\}$ individuals ($z = 1$ for divorced and $z = 2$ for married) are described by the following utility function:

$$V(z, c, h) = \alpha \ln[(c - \bar{c}_z)/z] + (1 - \alpha) \ln(h/z) \quad (\text{D.1})$$

The constant \bar{c}_z is a fixed cost associated with maintaining a household. In line with Greenwood and Gunner (2009), we consider that this cost is in terms of market good. Moreover, we assume that the cost for single individuals is higher than one half of the cost for married households:

$$\bar{c}_2 = \lambda \bar{c}_1 \quad \text{with} \quad \lambda \in (1, 2)$$

This assumption captures the existence of economy of scale to the formation of unions. Individuals maximize their utility function (D.1) under the budget constraint: $c = w(z - h)$. It yields the following optimal values of consumption of the two goods with respect to the household size:

$$c_z - \bar{c}_z = \alpha w(z - \bar{c}_z/w) \quad \text{and} \quad h_z = (1 - \alpha)(z - \bar{c}_z/w)$$

These optimal values are linked in the following way:

$$h_2 = \kappa(\bar{c}_1/w) \cdot h_1 \quad \text{and} \quad c_2 - \bar{c}_2 = \kappa(\bar{c}_1/w) \cdot (c_1 - \bar{c}_1)$$

with

$$\kappa(x) \equiv \frac{2[1 - (\lambda/2)x]}{1 - x}$$

We can now determine u^d as the utility of an individuals in a household $z = 1$ and u^m as the utility of an individuals in an household $z = 2$:

$$u^d \equiv V(1, c_1, h_2) = \alpha \ln(c_1 - \bar{c}_1) + (1 - \alpha) \ln(h_1)$$

$$u^m \equiv V(2, c_2, h_2) = \alpha \ln(c_2 - \bar{c}_2) + (1 - \alpha) \ln(h_2) - \ln(2) = u^d + \ln[\kappa(\bar{c}_1/w)] - \ln(2)$$

Finally, the relative gain from marriage may write as:

$$u^m - u^d = \ln[\kappa(\bar{c}_1/w)] - \ln(2)$$

Since $\lambda < 2$, $\kappa(\cdot)$ is an increasing function. Consequently, the relative gain from marriage is reduced by an increase in w or a fall in \bar{c}_1 .

References

- Allen, D.W. 1998. No-fault divorce in Canada: Its cause and effect. *Journal of Economic Behavior and Organization*, **37**, 129–149.
- Amato, P. 1988. Long-term implication of parental divorce for adult self-concept. *Journal of Family Issues*, **9**, 201–213.
- Axinn, W.G., & Thornton, A. 1996. The influence of parents' marital dissolutions on children's attitudes toward family formation. *Demography*, **33**(1), 66–81.
- Becker, G. 1981. *A Treatise of the Family*. Harvard University Press.
- Binner, J.M., & Dnes, A.W. 2001. Marriage, divorce and legal change: New evidence from England and Wales. *Economic Inquiry*, **39**(2), 298–306.
- Bisin, A., & Verdier, T. 2000. Beyond the melting pot: Cultural transmission, marriage, and the evolution of ethnic and religious traits. *Quarterly Journal of Economics*, **115**(3), 955–988.
- Bisin, A., & Verdier, T. 2001. The economics of cultural transmission and the dynamics of preferences. *Journal of Economic Theory*, **97**, 298–319.
- Bisin, A., Topa, G., & Verdier, T. 2004. Religious intermarriage and socialization in the United States. *Journal of Political Economy*, **112**(3), 615–664.
- Boyd, R., & Richerson, P. 1985. *Culture and the Evolutionary Process*. University of Chicago Press.
- Brinig, M.F., & Buckley, F.H. 1998. No-Fault Laws and At-Fault People. *International Review of Law and Economics*, **18**, 325–340.
- Cavalli-Sforza, L.L., & Feldman, M. 1981. *Cultural Transmission and Evolution: A Quantitative Approach*. Princeton University Press.
- Chiappori, P-A., & Weiss, Y. 2007. Divorce, Remarriage, and Child support. *Journal of Labor Economics*, **25**(1), 37–74.

- Chiappori, P.-A., Iygun, M., & Weiss, Y. 2008. *An Assignment Model with Divorce and Remarriage*. IZA Discussion Paper.
- Chong, A., & La Ferrara, E;. 2009. Television and Divorce: Evidence from Brazilian Novelas. *Journal of the European Economic Association*, **7**(2-3), 458–468.
- Coelho, C., & Garoupa, N. 2006. Do divorce law reforms matter for divorce rates? Evidence from Portugal. *Journal of Empirical Legal Studies*, **3**(3), 525–542.
- Dronkers, J., & Härkönen, J. 2008. The intergenerational transmission of divorce in cross-national perspective: Results from the fertility and families surveys. *Population Studies*, **62**, 273–288.
- Furtado, D., Marcen, M., & Sevilla-Sanz, A. 2010. *Does culture affect divorce decisions? Evidence from european immigrants in the US*. University of Oxford Working Paper.
- Glenn, N. D. 1991. The recent trend in marital success in the United States. *Journal of Marriage and the Family*, **53**, 261–270.
- González, L., & Viitanen, K. 2009. The effect of divorce laws on divorce rates in Europe. *European Economic Review*, **53**(2), 127–138.
- González-Val, R., & Marcén, M. 2012. Breaks in the breaks: An analysis of divorce rates in Europe. *International Review of Law and Economics*, doi:10.1016/j.irl.2012.01.005.
- Greenberg, E., & Nay, W. 1982. The intergenerational transmission of marital instability reconsidered. *Journal of Marriage and the Family*, **44**, 335–347.
- Greenwood, J., & Guner, N. 2009. *Marriage and Divorce since world war II: Analyzing the role of technological progress on the formation of households*. NBER Macroeconomics Annual 2008, vol. 23. University of Chicago Press. Pages 231–276.
- Gruber, J. 2004. Is making divorce easier bad for children? The long run implications of unilateral divorce. *Journal of Labor Economics*, **22**(4), 799–833.

- Inglehart, R., & Baker, W. 2000. Modernization, cultural change, and the persistence of traditional values. *American Sociological Review*, **65**, 19–51.
- Kapinus, C.A. 2004. The Effect of Parents' Attitudes Toward Divorce on Offspring's Attitudes: Gender and Parental Divorce as Mediating Factors. *Journal of Family Issues*, **25**(1), 112–135.
- Nechyba, T. J. 2001. Social Approval, Values, and AFDC: A Reexamination of the Illegitimacy Debate. *Journal of Political Economy*, **109**(3), 637–672.
- Rosenzweig, M. R. 1999. Welfare, Marital Prospects, and Nonmarital Childbearing. *Journal of Political Economy*, **107**(6), 3–32.
- Sardon, J-P. 1996. L'évolution du divorce en France. *Population*, **51**(3), 717–749.
- Thornton, A., & Young-DeMarco, L. 2001. Four decades of trends in attitudes toward family issues in the United States: The 1960s through the 1990s. *Journal of Marriage and Family*, **63**(4), 1009–1037.
- Trent, K., & South, J. S. 1989. Structural determinants of the divorce rate: A cross-societal analysis. *Journal of Marriage and the Family*, **51**, 391–404.
- Weiss, Y., & Willis, R. 1985. Children as Collective Goods and Divorce Settlements. *Journal of Labor Economics*, **3**, 268–292.
- Wolfers, J. 2006. Did unilateral divorce laws raise divorce rates? A reconciliation and new results. *American Economic Review*, **96**(5), 1802–1820.
- Wolfinger, N. H. 1999. Trends in the intergenerational transmission of divorce. *Demography*, **36**(3), 415–420.
- Wolfinger, N. H. 2003. Family structure homogamy: The effects of parental divorce on partner selection and marital stability. *Social Science Research*, **32**(1), 80–97.