

# Divorce decisions, divorce laws and social norms

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## Abstract

This article focuses on the three way relationship between change in divorce law, evolution of divorce rate and evolution of the cultural acceptance of divorce. We consider a heterogeneous population in which individuals differ in terms of the subjective loss they suffer when divorced, this loss being associated with stigmatizing social norms. The proportion of each type of individual evolves endogenously through a cultural transmission process. Divorce law is chosen by majority voting between two alternatives: *mutual consent* and *unilateral* divorce. In this framework, evolutions of divorce rate and divorce law may be jointly affected by the cultural dynamics within the society. In particular, we are able to reproduce the fact that divorce rate often raises before a legislation change. Indeed, the shift from *consensual* to *unilateral* divorce has an accelerating effect on the increase in divorce rate but is not the driving force behind this evolution.

**Keywords:** Marriage and divorce; Divorce legislation; Cultural evolution, Social norms

**JEL Classification:** J12, K10, Z10

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# 1 Introduction

During the last decades, in OECD countries have occurred simultaneously a strong increase in the divorce rate and important changes in divorce legislation. While some countries have authorized divorce which was until this time banned, others have introduced "no-fault" divorce which can have taken different forms such as mutual consent divorce or unilateral divorce. A number of studies have examined changes in divorce rates that might be associated with a change in law for divorce grounds. There is no consensus regarding the effects of these institutional changes on the rate of divorce. While some argue that these changes by making easier to divorce contribute to a rise in divorce (Stevenson and Wolfers, 2006; Gonzalez and Viitanen, 2009), others point out that these changes have only a transitional effect on the divorce rate evolution and that this rise goes before the introduction of new divorce laws (see Sardon, 1996; Allen, 1998 or Coelho and Garoupa, 2006 on respectively, the French, the Canadian and the Portuguese cases). Some authors suggest that the recent increase in divorce rate may be related to the decrease in the specific investment in marriage (Stevenson, 2007). The lower specialization of spouses within household may be explained by the decrease in the price of household appliances that reduces domestic time and thus decreases the benefit from staying married (Greenwood and Guner, 2009). On the other hand, other studies point out the role played by changes in the attitudes towards divorce within the society (Fella et al., 2004; Kalmijn, 2009).

In line with this last set of studies, we suggest that both 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, the presented model focuses on the three-way interaction between changes in divorce laws, in divorce rate and social norms. By social norms we mean the feeling that suffers some individuals from being divorced. This feeling maybe linked to the degree of tolerance towards divorce within society. This paper presents the advantage to provide a flexible framework which could take into account the evolution of behaviors regarding divorce from an institutional point of view as well as the household viewpoint.

We develop a model of divorce, socialization and divorce laws which are endogenously determined. In the population there are two kinds of preferences distributed regardless of gender. Some agents hold the social norm and suffer from a disutility from being divorced while others disregard the stigma against divorce. According to their preferences agents will vote for a divorce legislation among two alternatives: *mutual consent divorce* and *unilateral divorce*. The model shows that those who suffers from the stigma always prefer the former legislation while the others choose the latter one. Once they have voted, each adult male is matched with an adult female to form a household and have two children. Parents' preferences are then transmitted through a cultural evolution process, in which both parental preferences and parental divorce decisions matter. The match quality for each spouse is revealed *ex post* and those with poor matches may divorce. In the model, remarriage is ruled out following divorce.

A huge literature has been developed around the idea of transmission of preferences

using the model introduced by Bisin and Verdier in 1998. This transmission of preferences has been used to explain gender wage gap (Escriche, 2007) or transmission of attitudes towards working mothers (Fernandez et al., 2004). In the current paper we introduce the idea that the cultural trait transmitted by parents concerns the perception of the social norms. Moreover, we consider that offsprings' attitudes toward divorce are shaped by the joint influence of parents own attitudes and parents divorce decisions. This joint effect is highlighted by several sociological studies (see, for instance, Axinn and Thornton, 1996 or Kapinus, 2004). At an aggregate level, this cultural transmission process generates the dynamical evolution of divorce rate.

In the model, the evolution of divorce rate is impulsed by changes in the composition of the population. An increase in the proportion of individuals who disregard the stigma from social norms will rise divorce rate. Moreover, when those individuals are in majority within the society, divorce law changes reinforcing the pre-existing trend. So, 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. This result complies with some of the empirical literature presented at the beginning of this introduction. Notice that, the dynamics of preferences is endogenous and may be affected by economic factors. In particular, the tightening of the utility gap between being married or divorced implies an increase in the long-run proportion of agents who do not mind about the norm. This tightening may come from an improvement in the price of household appliances that reduces the specialization gains within household and thus the gains from being married. On the other hand, changes in social stigma against divorce may also affect the dynamics of preferences.

In this paper, we also test the relationship between changes in divorce law and divorce rate. To do so, we estimate the probability of divorce reform on the divorce rate and the share of birth out of wedlock. As divorce rate is endogenously determined by shifts in divorce legislation we instrumented this variable. The two instruments used, the share of women within population and the marriage rate lagged 3 periods, appear as strong instruments and have a positive effect on divorce rate. Results seem to show that dynamics of divorce rates affects reform in divorce laws as in the estimation the divorce rate influences positively the probability of divorce reform. We also try to introduce social norms through the share of birth out of wedlock but results are mixed concerning its effects on divorce reform. On the other hand, its effect on divorce rate matches what we expect. The higher is the share of birth out of wedlock and so the acceptance of divorce, the higher is the divorce rate.

The paper is organized as follows. First, we present the model, then we study the dynamics and develop a static comparative analysis. In the last section, we develop an empirical analysis in which we test the link between changes in divorce laws and divorce rate.

## 2 The model

The model focuses on the three-way interaction between changes in divorce laws, in divorce rate and in the degree of tolerance towards divorce, in other words social attitudes regarding divorce.

### 2.1 Framework

In each period there are two stationary, equally sized populations of adult, males and females. Within these populations, two cultural traits co-exist  $\{a, b\}$ . This heterogeneity captures differences in sensitivity to social penalties that individuals experiment when they divorce. The idea is that the effect of norms against divorce is not the same for all individuals within a society. While social attitudes towards divorce will be sanctioned regardless of who violate them, people who care more strongly in the norms will feel themselves more stigmatized if they violate them. For instance, among divorced persons the religious one may face more disapproval from their social contacts than the secular one (Kalmijn, 2009). Formally, we assume that when they divorce type  $b$  individuals suffer from the social norms regarding divorce while type  $a$  disregard the stigma against divorce.

Agents live three periods (one period of childhood and two periods of adulthood). During the first period, children acquire their preferences. At the beginning of the second period, young adults vote for a 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 second period of life, the spouses are faced with the alternative choices of whether to continue together or separate. The match quality for each spouse is revealed ex post and those with poor matches may divorce. In the model, remarriage is ruled out following divorce. Finally, young adults may socialize their children and the type of children depends on the marital state of parents at the end of childhood.

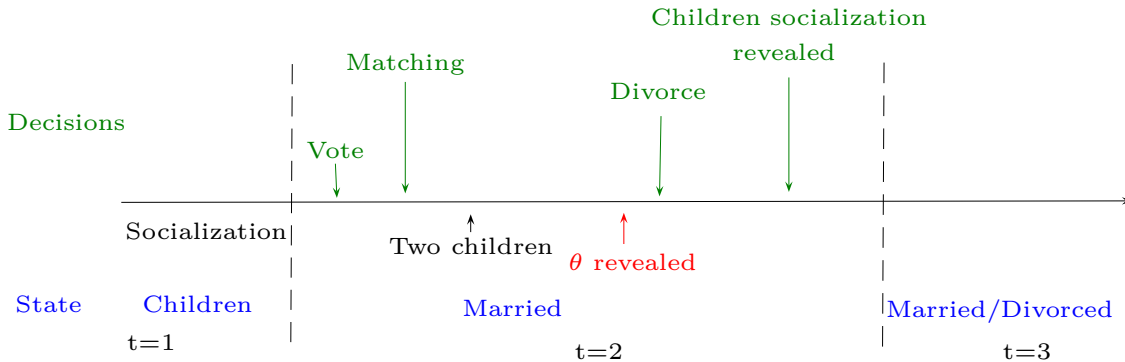


Figure 1: Timing of decisions

## 2.2 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  $\theta$ . We assume that  $\theta$  is an independent draw from a given symmetric distribution with support  $\mathbb{R}$  and zero mean. Any two married individuals who live in the same household share the same value of  $u^m$  and  $\theta$ , so there exist no gender differences in preferences. This utility is given by:

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

with  $u^m$  a given parameter that measures the intrinsic utility from being in couple rather than single. By (1) the utility derived from marriage is the same for the two types of agent.

Conversely, the utility when divorced depends on preferences. The individual belief, for example religion, affects how people feel about divorce. In particular, we assume that  $b$  type individuals suffer an additional disutility  $s > 0$  when they are divorced. This parameter captures the fact that they consider themselves as stigmatized when they are divorced. In other words, they suffer from social penalties towards divorce. We denote by  $u^d(i)$  the utility of a divorced individual with preferences  $i$ :

$$u^d(a) = u^d \quad (2)$$

and

$$u^d(b) = u^d - s \quad (3)$$

where  $u^d$  measures the utility of a divorced individual.

The crucial, but quite standard, assumption is that individuals do not know the value of  $\theta$  when they are matched (Chiappori and Weiss, 2007; Chiappori et al., 2008). The quality of the match is discovered only during the first period of match and according to this realization they decide to remain married or to divorce. Negative surprises about the match quality trigger divorce. In particular, an individual  $i$  prefers to divorce when  $u^m(i, \theta) < u^d$ . It directly comes from (1)-(3) that an individual  $a$  prefers to divorce when:

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

and an individual  $b$  wishes to divorce when:

$$\theta < u^d - u^m - s \equiv \theta^b \quad (5)$$

Then the threshold  $\theta^i$  captures the critical value of the match quality under which an individual  $i$  prefers to divorce. We can see that  $b$  type individuals are more prone to stay

married for lower value of match quality due to the stigma of divorce that they suffer in case of divorce.

We consider that all individuals have always incentives to enter in the marriage market at the beginning of their second period of life. In other words, the expected utility of marriage over the life cycle is higher than the utility of being single for the two adulthood periods. Notice that utility of being single on the first period of adult life is not necessary the same as the one extracted from being divorced in the second period of adult life. This comes from the fact that individuals get a positive utility from having children that subsists even if they are divorced.

### 2.3 Matching

We assume that each agent finds a match with probability one. All matches end up in marriage because the expected gains from marriage are positive for each type of individual. The matching between men and women is not fully random. We consider that individuals with same preferences are more likely to be matched together. The matching process is then biased towards homogamy. We can analyze this matching process as Bisin and Verdier (2000) did, by saying that there are two restricted marriage pools (one for each type of individual) where people having the same cultural trait can possibly be married together. First, with a probability  $\pi \in (0, 1)$  an individual of type  $i$  enters in the first restricted pool and is matched with an individual  $i$ , so he/she will be in a homogamous marriage. Second, with a probability  $1 - \pi$  agent enters in the second marriage pool in which the matches are random. This process is illustrated in Figure 2:

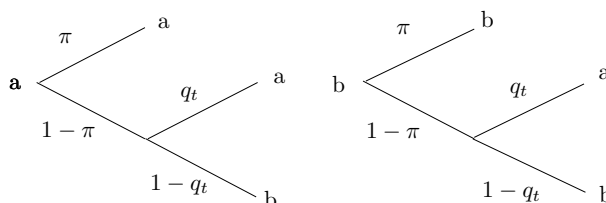


Figure 2: Matching process

It is well documented that marriages are assortative in several dimensions (Mare, 1991) and the matching of individuals is strongly influenced by the social sphere in which they are living. Individuals are more likely to meet someone belonging to their band of friends or to the community in which they are living. For example, religious persons may be more likely to meet someone going to the same church. Moreover, as individuals tend to be regrouped with persons similar to them and tend to be married with someone belonging to their community, thus they are more likely to be married with someone like them. The first part of this matching process conforms with these evidence. However, it remains a random part in matching process due to the meeting by chance of new persons that is

taken into account through the second part of the presented matching process.<sup>1</sup>

We denote  $\pi_t^{ij}$  the probability for an individual  $i$  to be matched with an individual  $j$ . It follows from the matching process described above, that:

$$\pi_t^{aa} = \pi + (1 - \pi)q_t \quad (6)$$

$$\pi_t^{ab} = (1 - \pi)(1 - q_t) \quad (7)$$

$$\pi_t^{ba} = (1 - \pi)q_t \quad (8)$$

$$\pi_t^{bb} = \pi + (1 - \pi)(1 - q_t) \quad (9)$$

There are four possible couples configurations:  $\{a, b\}$ ,  $\{b, a\}$ ,  $\{a, a\}$  and  $\{b, b\}$ . For ease of presentation, let us refer to  $h$  type family to define heterogamous couples ( $\{a, b\}$  or  $\{b, a\}$  matches),  $a$  type family for homogamous couples of type  $a$  ( $\{a, a\}$  matches), and  $b$  type family for homogamous couples of type  $b$  ( $\{b, b\}$  matches).

## 2.4 Legislation and divorce probabilities

Before that 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  $u$ ). In the vast literature studying effects of divorce laws on divorce decisions (Gonzales and Viitanen, 2009; Fella et al., 2004) we find that under mutual consent, a divorce occurs if the spouse who wants to divorce, compensates the one who wants to stay married. And under unilateral divorce, a divorce will take place unless the one who wants to stay married compensates the one who wishes to leave.

In the current paper we consider that, under consensual divorce  $c$ , the divorce occurs if the two spouses prefer to divorce, while under unilateral divorce  $u$ , the couple divorces if one of the two spouses want to divorce. Let us define the threshold  $\theta^l(i, j)$  as the critical 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 description of the two legislations, we obtain:

$$\theta^c(i, j) = \min\{\theta^i, \theta^j\} \quad (10)$$

and

$$\theta^u(i, j) = \max\{\theta^i, \theta^j\} \quad (11)$$

1. In this model, there is no effort concerning the matching process. We could have introduced an endogenous choice of matching effort as Bisin and Verdier (2000) did. They based this assumption on the idea that parents in their desire to transmit religious and social values wish to be in a homogamous marriage. For example, families belonging to the "Bottin mondain" reject any "light customs" such as divorce or cohabitation. Following this idea they will reject to be married with someone who does not belong to the same social network in a sense with someone who does not hold the same preferences towards divorce and marriage (Arrondel and Grange, 1993).

Note that, we could consider that, under consensual divorce, the threshold  $\theta^c(i, j)$  corresponds to the mean between  $\theta^i$  and  $\theta^j$ , without qualitative consequences on our results.<sup>2</sup>

Divorce laws affect the spousal decision of divorce. From (4) and (5), we deduce:

$$\theta^c(a, b) = \theta^c(b, b) = \theta^u(b, b) = \theta^b \quad (12)$$

and

$$\theta^u(a, b) = \theta^u(a, a) = \theta^c(a, a) = \theta^a \quad (13)$$

The threshold  $\theta^b$  (respectively  $\theta^a$ ) is the critical value of the match quality within a couple in which an individual of type  $b$  (resp.  $a$ ) has the final decision about divorce. It is the case within homogamous  $b$  couples (resp. homogamous  $a$  couples). Moreover, there are a range of value of  $\theta$  (the  $[\theta_b, \theta_a]$  interval) 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). Finally, since the utility associated to divorce is lower for  $b$  type individuals than for  $a$  type ones, we obtain:  $\theta_a > \theta_b$ .

Let us denote  $p(f, l)$  the expected divorce probability for a family  $f \in \{h, a, b\}$  when the legislation is  $l$ . It directly comes from expressions (12) and (13) that:

$$p(h, u) = p(a, u) = p(a, c) = \text{Prob}(\theta < \theta^a) \equiv \bar{p} \quad (14)$$

$$p(h, c) = p(b, c) = p(b, u) = \text{Prob}(\theta < \theta^b) \equiv \underline{p} \quad (15)$$

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

This result is directly derived from the critical thresholds on the quality of the match. 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  $\theta$  belongs to the interval  $[\theta^b, \theta^a]$ , the  $a$  type mate prefers to separate while the  $b$  type spouse prefers to pursue the match. In that configuration, when the *unilateral divorce* applies, the  $a$  type spouse has the voice 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  $b$  type spouse and the divorce probability becomes  $\underline{p} = \text{Prob}(\theta < \theta^b)$ .

2. The theoretical literature on divorce decisions usually considers that a couple  $\{i, j\}$  divorces if a randomly picked match quality  $\theta$  is under a given critical value. This critical value 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).



## 2.5 Expected utilities and political equilibrium

In the vote concerning divorce legislation, each individual opts for the alternative maximizing his/her expected utility for the period  $t + 1$ .<sup>3</sup> This expected utility obviously depends on the expected probability of divorce which is a function of divorce law and of the couple composition.

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

$$U^a(a, l) = \bar{p}u^d + (1 - \bar{p})[u^m + E(\theta|\theta > \theta^a)] \quad (16)$$

$$U^b(b, l) = \underline{p}(u^d - s) + (1 - \underline{p})[u^m + E(\theta|\theta > \theta^b)] \quad (17)$$

$$U^i(h, c) = \underline{p}u^d(i) + (1 - \underline{p})[u^m + E(\theta|\theta > \theta^b)] \equiv \underline{U}^i \quad (18)$$

$$U^i(h, u) = \bar{p}u^d(i) + (1 - \bar{p})[u^m + E(\theta|\theta > \theta^a)] \equiv \bar{U}^i \quad (19)$$

with  $E(\theta|\theta > \theta^i)$  the expected value of  $\theta$  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,  $b$  type individuals are more prone to remain married for low quality of the match since they fear to support the social stigma if they divorce. Then, the expected quality of the match when a  $b$  type individual is the decision maker  $E(\theta|\theta > \theta^b)$  is lower than the expected quality of the match when a  $a$  type individual is the decision maker  $E(\theta|\theta > \theta^a)$ .

Finally, the match composition for an individual  $i$  depends on the matching probabilities  $\pi_t^{ij}$ , 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 of an individual  $i$ , as a function of  $l$  and  $q_t$ . This expected utility is denoted  $W^i(l, q_t)$ :

$$W^a(l, q_t) = \pi_t^{aa}U^a(a, l) + (1 - \pi_t^{aa})U^a(h, l) \quad (20)$$

$$W^b(l, q_t) = \pi_t^{bb}U^b(b, l) + (1 - \pi_t^{bb})U^b(h, l) \quad (21)$$

Since individuals vote before to be matched they will 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.** We have to determine the sign of  $W^i(u, q_t) - W^i(c, q_t)$  for  $i \in \{a, b\}$ . Combining (19)-(21), we obtain:

$$W^i(u, q_t) - W^i(c, q_t) = (1 - \pi_t^{ii})(\bar{U}^i - \underline{U}^i) \stackrel{\text{sign}}{=} \bar{U}^i - \underline{U}^i$$

3. Note that, the expected utility of period  $t$  is independent of the divorce law. Indeed, all individuals are married during the first adulthood period and their expected utility equals  $u^m + E(\theta) = u^m$  whatever the divorce law. Conversely, since divorce laws affect the probability to remain married during the second adulthood period, vote decisions are based on expected utilities in  $t + 1$ .

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)-(4), 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  $W^b(u, q_t) \leq W^b(c, q_t)$ . ■

Lemma 1 states that  $a$  type individuals always prefer the *unilateral divorce law* while  $b$  type always prefer the *mutual consent divorce law*. The intuition behind this result is quite 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, Lemma 1 results from the situation of heterogamous couples with an intermediate match's quality ( $\theta \in [\theta^b, \theta^a]$ ). In such couples, the preferred solution of  $a$  individuals (*i.e.* to separate) is implemented under the *unilateral divorce* law; while the preferred solution of  $b$  individuals (*i.e.* to pursue the match) is chosen under the *mutual consent divorce* regime. Consequently,  $a$  (respectively  $b$ ) individuals maximize their expected utility if *unilateral divorce* (respectively *mutual consent divorce*) is chosen.

We consider a majority voting rule, then we deduce the following result by assuming, without loss of generality, that if the two legislations receive the same number of vote the *unilateral divorce* is chosen:

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

When  $q_t < 1/2$ ,  $b$  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  $a$  individuals are in majority  $q_t \geq 1/2$  the *unilateral divorce* law obtains a majority of votes and is implemented.

## 2.6 Socialization

Our mechanisms of preferences transmission are borrowed from the well established model proposed by Bisin and Verdier (2000 and 2001). Children are assumed to be born without

well-defined preferences. In a first step, they are socialized by their parents who try to transmit their own traits. The probability of direct transmission is exogenously determined. Moreover, and differently from the existing literature, children are also influenced by the divorce decision of their parents. Formally, if parental decisions in terms of divorce correspond to the "family model", children adopt parental preferences with probability one; if they do not correspond, children have a positive probability to adopt alternative preferences (see Figure 3). 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 positive probability  $\tau$ . This assumption captures the fact that, growing up in a divorced family can instill offspring with less unfavorable attitudes towards divorce. This mechanism is backed up by several sociological studies (see Wolfinger (1999, 2003); McLanahan and Bumpass, 1988). Moreover, as a support of our idea that both parental attitudes and parental marital status matter for understanding children feeling about divorce, Axinn and Thornton (1996) or Kapinus (2004) conclude that children of divorced parents significantly adopt more favorable views toward divorce even after controlling for intergenerational transmission of attitudes.

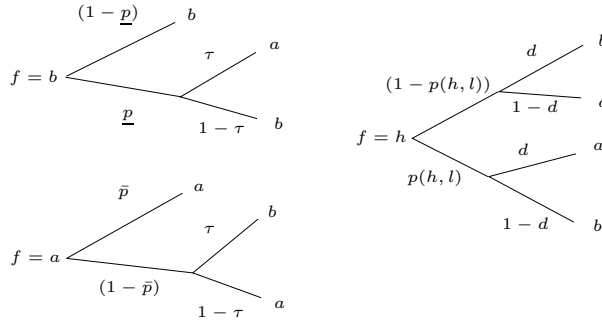


Figure 3: Socialization process

The parameter  $\tau \in (0, 1)$  measures the relative impact of parental decisions *vs.* parental preferences on children socialization within homogamous families. In heterogamous families, there are no "family model", such that offspring are only influenced by the marital status of their parents. Thus, we consider that a child adopts preferences corresponding to parental divorce decisions with a probability  $d \in (1/2, 1)$ .

We can define transition probability  $P^{f,i}$  which determines the probability that a child born in a type  $f$  family adopts preferences  $i$  conditioned by the marital state of parents at the end of childhood:

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

### 3 Preferences, divorce rates and the legislation in the long-run

Let us now analyze the preference dynamics of the model. To do so, we define as  $Q_t^{ij}(l)$  the probability that a child with a parent  $i$  will develop the trait  $j$  when the divorce law  $l$  prevails:

$$Q_t^{aa}(l) = \pi_t^{aa} \{(1 - \bar{p})(1 - \tau) + \bar{p}\} + (1 - \pi_t^{aa}) \{(1 - p(h, l))(1 - d) + dp(h, l)\} \quad (22)$$

$$Q_t^{ba}(l) = \pi_t^{bb} \{\underline{p}\tau\} + (1 - \pi_t^{bb}) \{(1 - p(h, l))(1 - d) + dp(h, l)\} \quad (23)$$

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

$$q_{t+1} = q_t Q_t^{aa}(l) + (1 - q_t) Q_t^{ba}(l) \quad (24)$$

Substituting expressions (22) and (23) in (24) and using the results of Lemma 1, we obtain an equation describing the complete dynamics of  $q_t$ :

$$q_{t+1} = \begin{cases} f^c(q_t) & \text{if } q_t < 1/2 \\ f^u(q_t) & \text{if } q_t \geq 1/2 \end{cases} \quad (25)$$

with

$$f^c(q_t) \equiv q_t \pi_t^{aa} [1 - \tau + \tau \bar{p}] + (1 - q_t) \pi_t^{bb} \tau \underline{p} + 2(1 - \pi) q_t (1 - q_t) [1 - d + (2d - 1) \underline{p}] \quad (26)$$

$$f^u(q_t) \equiv q_t \pi_t^{aa} [1 - \tau + \tau \bar{p}] + (1 - q_t) \pi_t^{bb} \tau \underline{p} + 2(1 - \pi) q_t (1 - q_t) [1 - d + (2d - 1) \bar{p}] \quad (27)$$

This dynamics exhibit the following properties:

**Proposition 1** *The dynamical system (25) admits either:*

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

Proposition 1 underlines the possible emergence of multiple equilibria. Mechanisms behind this result are quite intuitive, if initially the proportion of type  $a$  individuals is low, the median voter is a  $b$  one 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  $\hat{q}^u$ .

The following section illustrates the case *ii* of Proposition 1, in which  $\hat{q}^u$  is the unique globally stable steady state, considering that  $q_0 < 1/2$ .

Initially,  $b$  type individuals are in majority and the divorce law is consensual such that the agreement of both spouses is necessary to divorce. Nevertheless, in that configuration

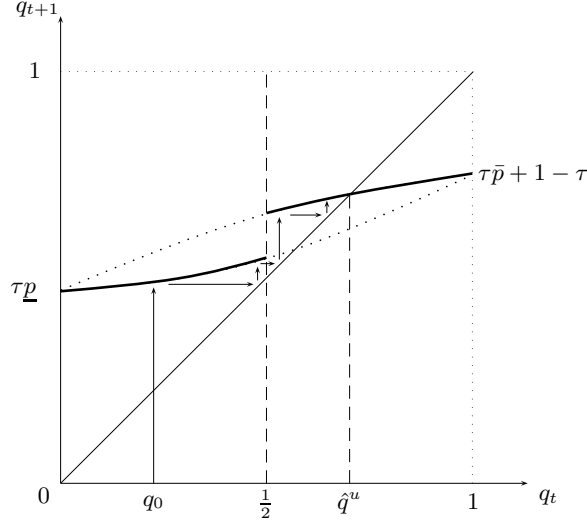


Figure 4: Convergence to the steady state

divorce rates tend to be relatively large, such that the proportion  $q_t$  of type  $a$  workers 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 long 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  $\beta_t^l$  the divorce rate under the legislation  $l$ , using the expressions of matching probabilities (6)-(9) and divorce probabilities for each family type (14) and (15), we obtain:

$$\beta_t^u = \bar{p} - (1 - q_t)(\bar{p} - \underline{p})[\pi + (1 - \pi)(1 - q_t)] \quad (28)$$

$$\beta_t^c = \underline{p} + q_t(\bar{p} - \underline{p})[\pi + (1 - \pi)q_t] \quad (29)$$

It is easy to verify that, first both  $\beta_t^u$  and  $\beta_t^c$  are increasing functions in  $q_t$ ; and second  $\beta_t^u > \beta_t^c$  for all  $q_t \in (0, 1)$ . Here, changes in divorce rates are impelled by changes in the cultural composition of the population. The initial increases in  $q_t$  implies the rise in divorce rates before the change in divorce law. Thus the cultural dynamics generates a secular increase in divorce rates even if the legislation remains consensual. In a second step, when  $a$  type 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 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.

Notice that, the dynamics of preferences is endogenous and may be affected by economic and cultural factors. In particular, the tightening of the utility gap between being

married or divorced implies an increase in the long-run proportion of agents who do not mind about the norm,  $a$  type. Let us now develop a static comparative analysis of the steady state  $\hat{q}$ .

### 3.1 Static comparative analysis

Most industrialized countries have known, 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 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 this section, we analyze the factors able 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.

#### 3.1.1 The effect of the utility gap between being married and divorced

The following Proposition establishes that, for a sufficiently high increases 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.*

A rise in  $u^d - u^m$  induces an improvement in the relative situation of divorced people. Consequently, it increases the thresholds level of match quality  $\theta^a$  and  $\theta^b$  and then divorce probabilities whatever the divorce law or the composition of the couple (see expressions (12)-(15)). 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 may 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. It leads to a decrease in the price of household electrical appliances and thus a reduction in specialization within household. All these effects may explain the drop in utility of being married by decreasing for example the gains in marriage due to specialization within household.

Until now, we have assumed that there is no remarriage market. But if it is the case, this will contribute to increase the utility of divorced persons. As the presence of remarriage market gives the possibility for spouses after divorce to form a new union in which the quality of match can be higher than in the first marriage. This may also reduce the negative consequences of divorce such as impoverishment of one of the spouses or a loss in well-being after divorce (De Graaf and Kalmijn, 2003). Notice that the higher is the number of divorced persons the higher is the opportunity to meet someone and to form a new union. So the recent increase in divorced persons supports the remarriage market. This in turn will play positively on the utility of being divorced.

### 3.1.2 The effect of the social stigma against divorce

As stated in the following Proposition, a decrease in the acceptance of divorce among individuals of type  $b$  (measured by the parameter  $s$ ) has the same consequences as an improvement in the relative situation of divorced.

**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.*

This result is in accordance with findings of Fella et al. (2004) which show that changes in social norms may explain the increase in divorce rates. The impact of a change in social norms on divorce rate is also highlighted in a recent paper by Chong and La Ferrara (2009). On Brazilian data, the authors show that the share of divorced women increases significantly after the Brazilian television network, Rede Globo, signal becomes available. They interpret this impact as the effect of a change in cultural norms about divorce allowed by the exposure to modern lifestyle as portrayed on TV. In our framework, such a change may be approximated by a decrease in the parameter  $s$  implying a rise in equilibrium divorce rates as argued in Proposition 3.

### 3.1.3 The effect of the homogamy parameter

Finally, we analyze the influence of a change in the parameter  $\pi$  on the long-run equilibrium reached by the economy.

**Proposition 4** *An increase in  $\pi$  shifts  $\hat{q}^c$  towards the right and  $\hat{q}^u$  towards the left.*

According to this proposition, an increase in  $\pi$  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  $\pi$  reduces the proportion of this kind of match.

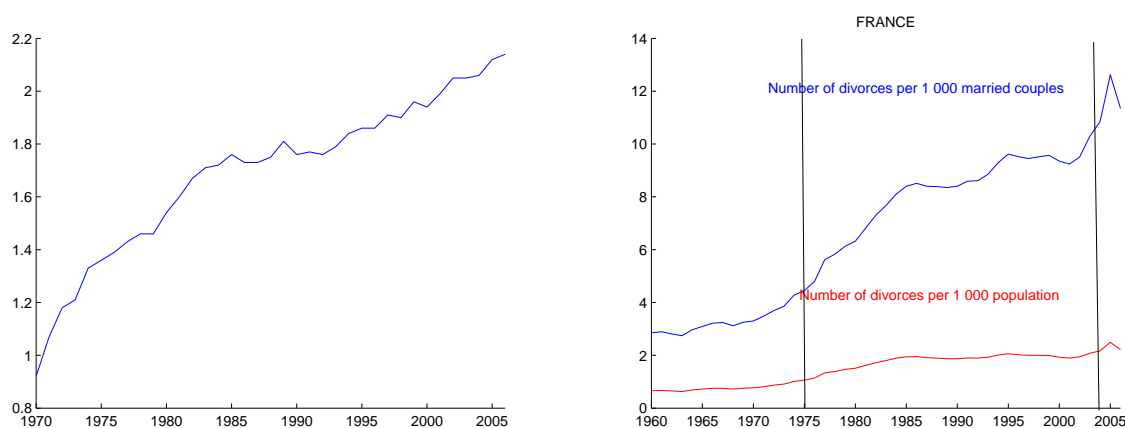
## 4 Empirical Analysis

In the model, the dynamics of preferences impulses both evolution of divorce rate and shift in divorce laws. So 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. This result complies with empirical research such as Sardon (1996), Allen (1998) or Coelho and Garoupa (2006). More precisely, these authors suggest that reforms in divorce laws were likely to constitute the response of the legislature to growing divorce rates rather than the cause. In this section, we propose to test this hypothesis.

To do so, we use data at an aggregate level which are coming from Eurostat and OECD database. The analysis has been done for 18 European countries in which changes in divorce laws have occurred between 1970 and 2006: Austria, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

First, we can observe the evolution of the average number of divorces per 1000 population in the 18 European countries between 1970 and 2006 represented in Figure 5a. We observe an increasing trend in the evolution of divorce rate. Jointly to this increase many changes in divorce laws have been occurred in these European countries. These changes may concerned legalization of divorce, introduction of no-fault divorce or unilateral divorce, and other reforms concerning divorce laws more or less important such as the introduction of mediation between spouses or the reduction in breakdown time of matrimonial life requested for divorce.

For instance, French divorce legislation has been characterized by two main reforms during the studied period. During the seventies, the reform implemented by the Law of July 11th 1975, has introduced "no-fault" divorce. More recently, in 2004 a new reform has been occurred in order to make easier the divorce process (Law of May 26th 2004). According to Figure 5b, it seems that the increase in divorce rates foregoes these both changes in divorce legislation.<sup>4</sup> So French evidence seem to be consistent with what we want to test in this section.



(a) Average number of divorces in studied countries

(b) Number of divorces in France

Figure 5. Evolution of number of divorces

Having observed statistically a relationship between evolution of divorce rate and changes in divorce law for the French case, we test this relationship on the 18 European countries through an econometric analysis. So the dependent variable is the change in divorce law which corresponds to a dummy that is equal to one if there is a reform and 0 if not. The year of changes has been selected and not the year of appliance as we analyze the choice of the legislator to reform divorce legislation.

The results of the analysis are presented in Table 1, Estimation (1) corresponding

4. French data are coming from the French national institute of statistics (INSEE).



to a probit model with endogenous regressors using a maximum likelihood estimator.<sup>5</sup> Estimation (2) corresponds to the regression of the divorce rate on the other variables and represents the first stage of the Estimation (1). And Estimation (3) corresponds to a two-step probit model with endogenous regressors using a Newey's estimator. A list of control variables are included: the divorce rate, the share of birth out of wedlock, the share of women within total population and the marriage rate lagged 3 periods. All the variables are statically significant and almost all enter in with the expected sign.

Table 1: Cross-country Regression Analysis

VARIABLES	(1) IVprobit ML	(2) Divorce rate	(3) IVprobit Two-step
Share of birth out of wedlock	-0.0181** (0.00793)	0.0336*** (0.00190)	-0.0202* (0.0105)
Marriage rate lagged 3 periods		0.0631*** (0.0237)	
Share of women		0.0792*** (0.00955)	
Divorce rate	0.617** (0.249)		0.688** (0.348)
Constant	-2.102*** (0.222)	-7.631*** (1.013)	-2.376*** (0.449)
Observations	612	612	612

Standard errors in parentheses  
\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

For the divorce rates we use the number of divorces per 1 000 inhabitants, as it is difficult to obtain for a large range of countries the number of divorces per 1 000 married couples, due to the lack of data concerning married people. We can see for the French example illustrated by Figure 5b that both curves have the same trend of evolution but differ in their magnitude of evolution. On the other hand, as many studies show that changes in divorce laws have a positive long-run or only transitional effect on divorce rate, we suspect that divorce rate will be an endogenous variable. This hypothesis is confirmed by the Wald test of exogeneity on Estimation (1) whose the statistics is 6.10 and the p-value 0.0135. As the test statistic is significant, we can reject the null that is, there is no endogeneity. This confirms that the divorce rate is endogenous and should be instrumented.

To do so, we use two instruments; the share of women within total population and the marriage rate lagged 3 periods. The share of women within society may be related to the

5. Notice that if we use a cluster option by year the estimations are better.

sex ratio. The traditional literature studying divorce decisions shows that the sex ratio influences divorce decisions by affecting, for instance, bargaining power of spouses within household and also the composition of the marriage and remarriage market (Trent and South, 1989). Conforming to this literature, the share of women within total population has a positive effect on divorce. The second instrument corresponds to the number of marriages per 1000 people lagged 3 periods. We use the marriage rate lagged 3 periods in order to deal with the potential endogenous relationship between changes in divorce laws and marriage rate. The marriage rate lagged 3 periods has a significant positive effect on divorce rate.

These both variables seem to be good instruments as we can suspect that they can only affect changes in divorce laws through divorce rate. Tests also confirm this expectation. The test of overidentifying restrictions whose Amemiya-Lee-Newey minimum chi-sq statistic is 1.928 and the p-value 0.1649, signals that we can not reject the null hypothesis that the instruments are uncorrelated with the error term.<sup>6</sup> The above test suggests we can be satisfied with this specification.

We can now discuss and interpret effects of the other variables. The divorce rate has a positive effect on the probability of changes in divorce laws. This corroborates the hypothesis made in this section that the increase in divorce rate foregoes changes in divorce laws. This also confirms the idea according to which the legislator, observing that divorce becomes more and more common, chooses to introduce reform such as law will be in accordance with what happened within society.

The share of birth out of wedlock may be analyzed as a proxy of the acceptance of divorce within society, or the perception of marriage as an out-dated institution. Thus the higher the share of birth out of wedlock, the lower the stigmatization of divorce within society. The Estimation (2) shows that the share of birth out of wedlock has a positive effect on the divorce rate. This is consistent with our results presented in our theoretical model. The share of birth out of wedlock by increasing the divorce rate has a positive indirect effect on changes in divorce laws, as an increase in divorce rate rises the probability of divorce reform. However, the Estimation (1) shows that the share of birth out of wedlock has a negative direct effect on the probability of divorce reform that does not correspond to what we expect. An interpretation of this, maybe that marriage becoming an out-dated institution reduces the incentive to legislate on as the number of persons who wish to marry decreases.

To conclude, as in our theoretical model both divorce laws and divorce rates are influenced by preferences dynamics and we have no direct instruments for a large range of countries concerning preferences along time, we test in this section changes in divorce laws controlling by divorce rate and born children out of wedlock.<sup>7</sup> Results seem to show

6. This test is made on Estimation (3).

7. Data extracted from the World Value Survey may give an idea concerning preferences towards divorce but informations are only given for one year with a frequency around 10 years on average.

that dynamics in divorce rate affects changes in divorce laws. We also try to introduce in a way social norms through the share of birth out of wedlock but results are mixed concerning its effects on divorce reform. On the other hand, its effect on divorce rate matches what we expect.

## 5 Conclusion

We develop a model of divorce, socialization and divorce laws which are endogenously determined. In the population there exist two kinds of preferences distributed regardless of gender. The evolution of divorce rate is impulsed by changes in the composition of the population. More specifically, an increase in the proportion of individuals who disregard the stigma from social norms will rise divorce rate. Our results show that a change in divorce law temporary accelerates the evolution of divorce rate but is not the driving force behind this dynamics. The dynamics of preferences is endogenous and may be affected by economic factors. In particular, the tightening of the utility gap between being married or divorced implies an increase in the long-run proportion of agents who do not mind about the norm,  $a$  type. This tightening may come from an improvement in the price of household appliances that reduces the specialization gains within household and thus the gains from being married. On the other hand, changes in social stigma against divorce may also affect the dynamics of preferences. In the last section, we analyze changes in divorces laws controlling by divorce rate and birth out of wedlock.

The theoretical model could be extended in three ways. First, by introducing a remarriage market which presents new outside opportunities in case of divorce. Then, we can introduce an endogenous effort of matching which in a way inserts decision of marriage. Agents in their decisions of search effort will take into account the socialization process of children which depends on type of marriage; homogamous or heterogamous in which they will be. Finally, we could introduce choice concerning domestic production. This new family choice should affect divorce decision as empirical studies prescribe (Greenwood and Guner, 2009; Stevenson, 2007).

# Appendices

## A Divorce legislation

Table 2: Divorce laws by country, 1970-2006

Country	Divorce laws				
Austria	1978	1999			
Denmark	1989	1991	1999		
Finland	1987				
France	1975	2004			
Germany	1976				
Greece	1979	1983			
Hungary	1974	1986	1995		
Iceland	1993				
Ireland	1996				
Italy	1970	1975	1987		
Luxembourg	1975	1978			
Netherlands	1971				
Norway	1991				
Portugal	1975	1977	1995	1998	2001
Spain	1981	2005			
Sweden	1973	1987			
Switzerland	1998				
United Kingdom	1973	1984	1996		

Sources: National reports of the Commission on European family law (2002),  
Commaille et al. (1983) and national legislation.

Remarks: For the United Kingdom, only divorce laws for England and Wales have been taken into account.

## B Proof of Proposition 1

The proof is divided in four steps: *(i)* we prove the existence and the uniqueness of the equilibrium  $q_s = \hat{q}^c$  for  $q_t \in [0, 1/2]$ ; *(ii)* we prove the existence and the uniqueness of the equilibrium  $q_s = \hat{q}^u$  for  $q_t \in [1/2, 1]$ ; *(iii)* we prove the stability of steady states of  $\hat{q}^c$  and  $\hat{q}^u$ ; and *(iiii)* we deduce steady states of the complete dynamics of  $q_t$  given by the system (25).

*(i)* Existence and uniqueness of the steady state  $\hat{q}^c$  for  $q_t \in [0, 1/2]$ . It comes from

equation (26) that  $\hat{q}^c$  is solution of the equation:

$$\underbrace{q_t - (1 - q_t)\underline{p}\tau(\pi + (1 - \pi)(1 - q_t))}_{LHSc(q_t)} = \underbrace{q_t(\pi + (1 - \pi)q_t)((1 - \bar{p})(1 - \tau) + \bar{p}) + 2(1 - \pi)(1 - q_t)q_t((1 - \underline{p})(1 - d) + \underline{p}d)}_{RHSc(q_t)} \quad (\text{B.1})$$

$LHSc(q_t)$  and  $RHSc(q_t)$  are increasing in  $q_t$ . Moreover,  $LHSc(0) = -\underline{p}\tau$  and  $RHSc(0) = 0$ ,  $LHSc(\frac{1}{2}) = \frac{1}{2}(1 - \frac{1}{2}\underline{p}\tau(1 + \pi)) > 0$  and  $RHSc(\frac{1}{2}) = \frac{1}{4}(1 + \pi)((1 - \bar{p})(1 - \tau) + \bar{p}) + \frac{1}{2}(1 - \pi)((1 - \underline{p})(1 - d) + \underline{p}d)$ . Consequently,  $LHSc(q_t)$  and  $RHSc(q_t)$  cross only once for  $q_t \in [0, 1/2]$  if  $LHSc(\frac{1}{2}) > RHSc(\frac{1}{2})$  such that  $\tau > \frac{(1 - \pi)[2((1 - \underline{p})(1 - d) + \underline{p}d) - 1]}{(1 + \pi)(1 - \bar{p} - \underline{p})} \equiv \tilde{\tau}$ , the existence and uniqueness of  $\hat{q}^c$  directly follows for  $q_t \in [0, 1/2]$ .

(ii) *Existence and uniqueness of the interior steady state  $\hat{q}^u$  for  $q_t \in [1/2, 1]$ .* It comes from equation (27) that  $\hat{q}^u$  is solution of the equation:

$$\underbrace{q_t - (1 - q_t)\underline{p}\tau(\pi + (1 - \pi)(1 - q_t)) - 2(1 - \pi)(1 - q_t)q_t((1 - \bar{p})(1 - d) + \bar{p}d)}_{LHSu(q_t)} = \underbrace{q_t(\pi + (1 - \pi)q_t)((1 - \bar{p})(1 - \tau) + \bar{p})}_{RHSc(q_t)} \quad (\text{B.2})$$

$LHSu(q_t)$  and  $RHSu(q_t)$  are increasing in  $q_t$ . Moreover,  $LHSu(1/2) = \frac{1}{2}(1 - \frac{1}{2}(1 + \pi)\underline{p}\tau - (1 - \pi)((1 - \bar{p})(1 - d) + \bar{p}d))$ ,  $RHSu(1/2) = \frac{1}{4}(1 + \pi)((1 - \bar{p})(1 - \tau) + \bar{p})$ ,  $LHSu(1) = 1$  and  $RHSu(1) = ((1 - \bar{p})(1 - \tau) + \bar{p}) < 1$ . Consequently,  $LHSu(q_t)$  and  $RHSu(q_t)$  cross only once for  $q_t \in [1/2, 1]$  if  $RHSu(1/2) > LHSu(1/2)$  such that  $\hat{\tau} \equiv \frac{(1 - \pi)[2((1 - \bar{p})(1 - d) + \bar{p}d) - 1]}{(1 + \pi)(1 - \bar{p} - \underline{p})} > \tau$ , the existence and uniqueness of  $\hat{q}^u$  directly follows for  $q_t \in [1/2, 1]$ .

(iii) *Stability of steady states in each case.* First, when  $\tau > \tilde{\tau}$ , for  $q_t \in [0, 1/2]$ ,  $\Delta q_t = q_{t+1} - q_t = RHSc(q_t) - LHSc(q_t)$ . If  $RHSc(q_t) > LHSc(q_t)$  (resp.  $RHSc(q_t) < LHSc(q_t)$ ),  $\Delta q_t > 0$  (resp.  $< 0$ ) and  $q_t$  increases (resp. decreases). This implies that for  $q_t \in [0, 1/2]$  the unique steady state  $\hat{q}^c$  of the dynamics  $q_{t+1} = f^c(q_t)$  is globally stable. Second, when  $\tau < \hat{\tau}$ , for  $q_t \in [1/2, 1]$ ,  $\Delta q_t = q_{t+1} - q_t = RHSu(q_t) - LHSu(q_t)$ . If  $RHSu(q_t) > LHSu(q_t)$  (resp.  $RHSu(q_t) < LHSu(q_t)$ ),  $\Delta q_t > 0$  (resp.  $< 0$ ) and  $q_t$  rises (resp. drops). This implies that for  $q_t \in [1/2, 1]$  the unique steady state  $\hat{q}^u$  of the dynamics  $q_{t+1} = f^u(q_t)$  is globally stable.

(iii) *Steady states of the complete dynamics of  $q_t$  given by the system (25).* From (i), (ii) and (iii), we can deduce that first for  $\tau > \hat{\tau}$ , the system (25) admits one globally stable steady state  $\hat{q}^c \in [0, 1/2]$ . Second, for  $\tilde{\tau} > \tau$ , the system (25) admits one globally stable steady state  $\hat{q}^u \in [1/2, 1]$ . Finally, for  $\hat{\tau} > \tau > \tilde{\tau}$  the system (25) has two locally stable steady states  $\hat{q}^c$  and  $\hat{q}^u$ .

## C Proof of Propositions 2 and 3

We know that  $u^d - u^m \equiv \theta^a$ ,  $u^d - u^m - s \equiv \theta^b$  and,  $\underline{p}$  and  $\bar{p}$  are defined such that  $\text{Prob}(\theta < \theta^a) \equiv \bar{p}$  and  $\text{Prob}(\theta < \theta^b) \equiv \underline{p}$ . An increase in  $u^d - u^m$  implies a both rise in  $\theta^a$  and  $\theta^b$  that in turn increases  $\underline{p}$  and  $\bar{p}$ , while a drop in  $s$  implies a rise in  $\theta^b$  that in turn increases  $\underline{p}$ . It comes from Equations (26) and (27) that  $\frac{\partial f^c(q_t)}{\partial \underline{p}} > 0$ ,  $\frac{\partial f^u(q_t)}{\partial \underline{p}} > 0$ ,  $\frac{\partial f^c(q_t)}{\partial \bar{p}} > 0$

and  $\frac{\partial f^u(q_t)}{\partial \bar{p}} > 0$ . Thus an increase in  $u^d - u^m$  and a drop in  $s$  pushes to the right  $f^c(q_t)$  and  $f^u(q_t)$ , rising by this way both  $\hat{q}^c$  and  $\hat{q}^u$ .

## D Proof of Proposition 4

According to Equations (26) and (27) we have,

$$\Delta f^l(q_t) = f^c(q_t) - f^u(q_t) = 2(1 - \pi)(2d - 1)(\underline{p} - \bar{p}) \quad (\text{D.1})$$

and

$$\lim_{\pi \rightarrow 1} f^c(q_t) = \lim_{\pi \rightarrow 1} f^u(q_t) \Rightarrow \hat{q}^c = \hat{q}^u = \hat{q} \quad (\text{D.2})$$

Equations (D.1) and (D.2) show that an increase in  $\pi$  moves the two dynamics closer, reducing by this way the effect of legislation on the dynamics of preferences.

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