

Joint Custody and its Implications for Parental Bargaining:  
The Case of Austria\*

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## Abstract

Many developed countries have introduced various forms of shared parenting after divorce to supplement or to replace sole custody arrangements. While there is robust and convincing evidence in the psychological literature that children in joint physical or legal custody were better adjusted than children in sole custody settings (e.g. Bauserman, 2002), no comprehensive economic investigation of the implications of sole versus joint custody for parental bargaining is available.

In order to compare these two fundamental custody arrangements we model the bargaining process of parents over custody at the time of divorce. First we assume an institutional setting where only sole custody is available. In a second step we reform this institutional setting and introduce the possibility of joint custody. The bargaining process is characterised by alternating offers. Parents are impatient but want to find a custody agreement that allows both to be better off than with having the judge assign custody. The parents come to a conclusion immediately, but they do not necessarily find an agreement. In some cases one parent opts out and goes to court right away. Whether the parents can find an agreement for the custody arrangement depends on their preferences.

We show that a reform of the institutional setting that introduces the possibility of additional joint custody arrangements is effectual: In many cases parents choose joint custody. Moreover we demonstrate that due the reform it is easier for the parents to find an agreement. Wherever it is necessary to refer to a concrete legal framework in modeling the bargaining process, we apply Austrian law, since we employ Austrian data on divorce settlements in the empirical part of our paper. Nevertheless the model can be easily adapted to other institutional settings. For our empirical analysis of sole versus joint custody we utilise the introduction of joint custody after divorce in Austria. Since 2001 parents can either take sole custody or joint custody. Within a joint custody arrangement both parents have the same legal decision-making role, but nevertheless they have to agree on a main residence of the child. If the parents cannot agree, then the judge assigns sole custody to one parent.

Our estimation of a multinomial probit model of the custody arrangement for about 3.500 divorces between 1997 and 2004 confirm the implications of our model. Moreover, we show that the introduction of joint custody in Austria reduced the number of divorces on the ground of fault in favour of divorces by consent. All in all we conclude that an institutional setting which allows joint custody reduces the cost of divorce of all parties involved.

# 1 Introduction

Many countries have introduced the possibility for parents to keep joint custody of a child after divorce, whereas before one parent was assigned sole custody. The reasoning behind these reforms is, that a joint custody is assessed to be more beneficial for a child than a sole custody, where the child may essentially lose the non-custodian parent. One explanation for the greater benefit of a joint custody is, that the non-custodian can monitor child expenses more easily due to more contact with the child (Brinig and Buckley, 1998; Weiss and Willis, 1985) and therefore the non-custodian will not withdraw from the child upon divorce (neither financially nor personally).

In the United States and in Great Britain the introduction of joint custody after divorce started as early as 1973 and 20 years later only 5 States in the U.S. had not introduced joint custody (Brinig and Buckley, 1998). In France the introduction took place in 1987, but other European countries only introduced joint custody in the second half of the 90's, e.g. Belgium (1995), Germany (1997) or Switzerland (1998). There are even countries, where it was introduced in the 21st century, like Austria where joint custody after divorce is possible since 2001 (Gründler, 2002).

Even though all of these countries have introduced joint custody after divorce, it does not have the same significance across the countries. In some countries joint custody is possible, but sole custody is still the rule, e.g. in Switzerland. Whereas in other countries joint custody is the default option (and in some cases can hardly be changed to a sole custody), e.g. Germany (Gründler, 2002).

The effects of introducing joint custody on financial support, the amount of visits and the chosen custody arrangement have been studied.<sup>1</sup> Nevertheless the question remains, how the mode of bargaining about custody between the parents has changed due to the introduction of joint custody. We want to pursue this question by modeling the bargaining process.

The bargaining process depends on the legal situation, therefore we stick to one country as our point of reference. We chose Austria for this purpose, a country which has only recently undergone the legal reform that allows joint custody after divorce, because there are exceptional data available — directly from court rulings in divorce cases. Even though we construct our

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<sup>1</sup>For example Del Boca and Ribero (2003), Cancian and Meyer (1998). For further information refer to the literature review.

model so that it fits the Austrian legal system, we can show, that only slight adjustments are necessary for the model to fit for other countries as well.

In the next sections we will give a literature review, shortly describe the Austrian legal system and then describe our bargaining model with alternating offers. From the model and the changes that the model predicts we derive hypotheses concerning the mode of bargaining and the choice of custody. In the final section we test these hypotheses by estimating the choice of the divorce type and the choice of the custody arrangement using data from Austrian divorce rulings and from the Austrian central bureau of statistics.

## **2 Literature Review**

Del Boca and Ribero (2003)

Francesconi and Muthoo (2003), Rasul (2006), Welling and Bearance (2002)

Brinig and Buckley (1998), Allen and Brinig (2005)

Cancian and Meyer (1998)

Cooter et al. (1982), Mnookin and Kornhauser (1979)

## **3 The Legal Framework in Austria**

Upon divorce parents have to reassess custody. The exact way and the possible custody arrangements depend on the type and on the timing of divorce: In Austria there are two main types of divorce (unilateral divorce and divorce by consent) and a reform of the custody law in 2001 introduced joint custody after divorce.

### **3.1 Divorce Law**

When a couple divorces, they need to make arrangements concerning the distribution of jointly owned property and the amount of alimony, that is to be paid. If the couple has children, then they also have to find arrangements concerning custody, the amount of child support and the amount of visits (the last arrangement can also be postponed). The arrangements concerning

the children have to be approved by the custody court.<sup>2</sup>

A divorce by consent is based on an irretrievable breakdown of the marriage and it takes place in non-contentious proceedings. In this case the couple has to file a joint application for divorce and they have to come to a written agreement for the above mentioned arrangements. Then the marriage is dissolved by court order.

Unilateral divorces are divorces on the grounds of fault or of irretrievable breakdown, which are heard in contentious proceedings. To initiate a unilateral divorce one spouse has to file a petition for divorce in form of a lawsuit. In this case the couple does not need to find an agreement for the above mentioned arrangements, but they can make proposals concerning these arrangements. If parents do not come to an agreement (especially concerning custody), then the competent court determines the arrangement(s). In case of a unilateral divorce the marriage is dissolved by judgement.

If parents anticipate that they cannot find an agreement for the custody arrangement, they have to divorce unilaterally, because in a unilateral divorce, they need not come to an agreement. However a unilateral divorce is more difficult to obtain than a divorce by consent, because there have to be grounds of divorce (either fault of one spouse or an irretrievable breakdown with at least three years of separation of the spouses). In a divorce by consent on the other hand the irretrievable breakdown needs to have lasted only six months and a separation is not necessary, but both spouses need to consent to the divorce. As a unilateral divorce takes place in contentious proceedings, it is also more expensive than a divorce by consent.

### 3.2 Custody Law

The main principle of the Austrian custody law is to safeguard the ‘best interest of the child’. During a marriage both parents hold parental responsibilities for a child. The situation after a divorce changed due to the reform of the custody law, which came into effect on 1st July 2001.<sup>3</sup>

Before the reform of the custody law divorcing parents had to assign sole custody to one parent. Since the reform it is possible that both divorcing parents keep their parental responsibilities in a so-called joint custody. A joint custody is now more or less the default option — under the condition, that the parents agree on the primary residence of the child. This means that there is

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<sup>2</sup>The description of the divorce law is based on (Roth, 2003a).

<sup>3</sup>The description of the custody law is based on (Roth, 2003b).

always one domicile or resident parent, with whom the child is living more than half of its time. This parent has to be entrusted with full parental responsibilities, whereas the custody rights of the other parent may be limited. Physical custody without legal custody is not possible though.

If the parents fail to reach an agreement over the primary residence of the child, then a joint custody is not possible. This also includes cases where one parent wishes to continue joint custody, but not the other parent. Therefore if there is any disagreement between the parents concerning the primary residence or the type of custody, then sole custody is the only possible option.

If the parents do not reach an agreement on custody ‘within reasonable time’ (Roth, 2003b), then one parent is assigned sole custody by the court. In this case the judge has to keep in mind ‘the best interest of the child’. In many cases it has been found to be in the ‘best interest of the child’, that young children (under the age of 14) and girls should be residing with the mother, whereas older children and sons should be living with the father. Furthermore siblings should not be separated and children should not suffer (unnecessary) changes of the social circumstances (e.g. by changing schools) (Deixler-Hübner, 2003).

## 4 A bargaining model of the custody decision after divorce

At divorce the parents have to find a custody arrangement for their child. Preferably they should agree on it, but if they cannot find any agreement, then they can go to court. In this case the judge assigns sole custody to one parent (the parents cannot keep joint custody without an agreement on it, alternatively a joint custody is not possible at all before the reform). Furthermore the parents cannot divorce by consent in this case. Instead they have to divorce unilaterally, which is more costly.

To find an agreement the parents can bargain over the custody arrangement. Before the reform of the custody law, they can reach two possible agreements: either the mother or the father gets sole custody of the child. After the reform there are four possible agreements instead: the child can be living with either parent and they can keep joint custody or take up a sole custody. The bargaining has to take place before the trial begins, because the type of divorce depends on whether the parents can find an agreement or not.<sup>4</sup>

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<sup>4</sup>A unilateral divorce can be changed into a divorce by consent, but not *vice versa*.

This negotiation over the custody arrangement can be modeled in the following way: The two players  $i \in N = \{m, f\}$  have preferences over time  $T$  and over the set of agreements  $X$ . The set of agreements contains two agreements  $x$  before the reform  $X_b = \{mS, fS\}$  and four agreements  $x$  after the reform  $X_a = \{mS, fS, mJ, fJ\}$ . Each agreement leads to a certain amount of utility for each player, which is discounted according to the time  $t \in T = \{0, 1, 2, \dots, t_C\}$  that it took to come to the agreement. We assume that the parents have constant discount rates  $\delta_i \in [0, 1]$ , so that the utility of parent  $i$  of an agreement  $x$  that was found at time  $t$  is the following:  $u_i(x, t) = \delta_i^t u_i(x)$ .<sup>5</sup>

The parents follow certain rules when they are bargaining: Parent  $m$  makes the first proposal  $x$  out of the set of agreements  $X$  (which depends on the reform). Parent  $f$  can accept (A) the proposal, which ends the game and leads to the outcome  $(x, 0)$ . Parent  $f$  can also reject (R) the proposal in which case the parents enter the next period, in which parent  $f$  makes a proposal and parent  $m$  decides about it. In other words the parents alternate in making offers, which the other parent can accept (which ends the game) or reject (which leads to a new period and a new offer). There are two more important features: The negotiation does not go on indefinitely and each parent who decides about an offer has a third option (besides accepting or rejecting), which is to opt out and go to court directly.

The negotiation is ended in period  $t_C$  with an assignment by the court. This date is set exogenously before the negotiation begins, e.g. by an altruistic grandparent or the new partner of one spouse. In this case the judge assigns sole custody to parent  $m$  with probability  $p$  and to parent  $f$  with probability  $(1 - p)$ . This lottery yields utility  $\delta_i^{t_C} U_i^C = \delta_i^{t_C} [pU_i^{mS} + (1 - p)U_i^{fS} - \varepsilon_i]$  for parent  $i$ , where  $\varepsilon_i$  are the additional monetary and emotional costs of a unilateral divorce — in short the costs of disagreement.<sup>6</sup>

Every parent who decides about a proposal has the outside option to go to court immediately. I.e. s/he can end the game by accepting (A) or by opting out (C). In the latter case the same lottery (minus the costs of disagreement) applies as in the case of an exogenous end to the negotiation:  $[pU_i^{mS} + (1 - p)U_i^{fS} - \varepsilon_i]$ , but the utility is discounted to a smaller degree, as the game ends sooner, which incurs less costs of waiting.

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<sup>5</sup>The setup of the model is based on chapter 7 of Osborne and Rubinstein (1994) and chapter 3 of Osborne and Rubinstein (1990).

<sup>6</sup>Emotional costs could result from the parents internalising the utility of the child, which would be lower due to the ongoing disagreements of the parents.

Every game has a set of histories  $H$ , where a history  $h \in H$  is composed of a series of proposals and the reactions to them, e.g.  $h = (x^1, R, x^2, R, x^3, A)$  where A terminates the history. The utility of a parent of a certain outcome  $(x, t)$  does not depend on the history of how this outcome was reached. Instead the utility only depends on the agreement  $x$  and the time  $t$  when it was agreed upon. This whole setup is depicted in Figure 1.

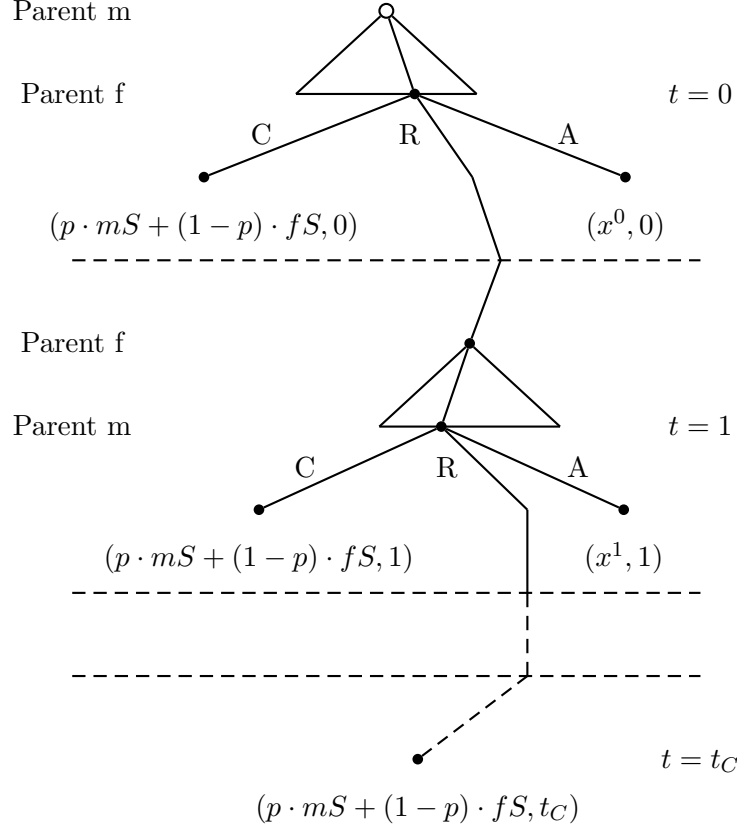


Figure 1: The setup for the bargaining model.

To be able to order the utilities of the parents we have to make assumptions about their preferences: The sooner a certain outcome is reached, the better -  $(x, t) \succeq_i (x, t + 1)$ . But if an agreement  $x$  is preferred to another agreement  $y$ , then waiting for one period to achieve the preferred agreement as opposed to getting the less preferred agreement now, does not matter -  $(x, t + 1) \succeq_i (y, t)$  iff  $(x, t) \succeq_i (y, t)$ . Besides preferences are stationary:  $(x, t) \succeq_i (y, t + 1)$  iff  $(x, 0) \succeq_i (y, 1)$  and  $(x, t) \succeq_i (y, t)$  iff  $(x, 0) \succeq_i (y, 0)$ . Finally, as already mentioned, the parents have constant discount rates, so that  $(x, t) \succeq_i (y, s)$  iff  $\delta_i^t u_i(x) \geq \delta_i^s u_i(y)$ .

With this setup and these assumptions only the utility orderings for the two parents still have to be specified. These utility orderings depend on the set of agreements, which in turn depends on the reform. Therefore we now turn to specifying the utility orderings before the reform and



then solving this model. After that we will turn to the negotiation after the reform.

#### 4.1 Solving the model before the reform

The utility ordering of each parent has to include the two possible agreements  $X_b = \{mS, fS\}$  and the outside option (which is the exogenous end of the game respectively) of going to court. We assume, that having the child her/himself leads to a higher utility for each parent  $i$  than giving the child to the other parent.<sup>7</sup> The lottery of going to court yields an expected utility between the two agreements, as it is not clear who will get the child. In addition going to court leads to a lower utility level than the lottery in itself, as there are additional costs of disagreement  $\varepsilon_i$ . Therefore there are two possible utility orderings for each parent within one period:

$$U_i^i > U_i^C > U_i^j \quad \text{and} \quad U_i^i > U_i^j > U_i^C.$$

Whether the utility of the outside option is larger or smaller than the utility of the other parent having the child depends on the relation of  $p$  and  $\varepsilon_i$ . If the probability to get the child is large enough and/or the costs of disagreement are small enough, then it is better for the parent to go to court instead of agreeing to give the child to the other parent.

This leads to four possible cases, because there are two possible utility orderings for both parents. These cases and their solutions are summarised in Table 1. The cases have three different outcomes: First the parents do not agree, instead they go to court immediately. Secondly the parents find an agreement in the first period  $t = 0$ . And lastly the parents find an agreement, but it depends on their discount rates which parent can get her/his preferred agreement through.

In the first case, where both parents have the utility ordering  $U_i^i > U_i^C > U_i^j$ , the parents cannot find an agreement. The parents know, that eventually (at the exogenous end of the game) the judge will assign custody to one of them. The parents want to improve the situation (i.e. increase their utilities) by finding an agreement that is better for both of them, or at least by going to court immediately (which saves the costs of waiting). As both parents prefer to

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<sup>7</sup>This analysis assumes — as most of the economic analyses of the family do (e.g. Becker, 1993; Ermisch, 2003) — that parents are altruistic towards their children in the sense that their utility depends on the welfare of their children. As consequence of that it seems to be a natural starting point that parents are interested in spending time with their children and that they want to remain custodian after divorce. Nevertheless we think it is reasonable that the degree of altruism may vary with the frequency and intensity of contacts, as Becker (1993) argues.

**Table 1: Summary of the results before the reform**

		$f$	
		$fS \succ C \succ mS$	$fS \succ mS \succ C$
$m$	$mS \succ C \succ fS$	$C$	$mS$
	$mS \succ fS \succ C$	$fS$	$mS / fS$

go to court, than to give away the child, there is no agreement which increases the utility of both parents at the same time. Therefore each parent will propose, that the child should be living with her/himself, but the other parent will never accept this, because it would yield less utility than going to court. This means that the game could go on until the exogenous end, with each parent proposing her/himself and rejecting the proposals of the other parent, without ever coming to an agreement. The parents know this, therefore parent  $m$  will start the game by proposing  $mS$  and parent  $f$  will go to court immediately to save the costs of waiting.

In the second case parent  $m$  has utility ordering  $U_m^m > U_m^C > U_m^f$  and parent  $f$  has utility ordering  $U_f^f > U_f^m > U_f^C$ . The parents again try to find an agreement which increases the utility of both of them compared to the eventual assignment of the child by the judge. In this case agreement  $mS$  improves the utility for both parents, but agreement  $fS$  does not. Therefore the only possibility for both parents to be better off than with going to court, is to agree upon  $mS$ . The parents know this: parent  $m$  proposes  $mS$  in the first period  $t = 0$  and parent  $f$  accepts the proposal.

In the third case the utility orderings are reversed with respect to  $U_i^j$  and  $U_i^C$  for both parents. This means that there is again only one possible agreement which is better than going to court, but this time it is  $fS$  and not  $mS$ , as parent  $f$  is the one with the lower costs of disagreement (and/or the higher probability to get the child in court). Therefore parent  $m$  will propose  $fS$  in period 0 and parent  $f$  will accept the proposal.

In the last case both parents have high costs of disagreement (and/or a relatively low — and therefore equal — probability to get the child from the judge). This means that both parents prefer any agreement to going to court. Therefore there are in this case two possible agreements which increase the utility of both parents. Here it is not clear from the beginning which agreement the parents will choose. This depends on the degree of patience of the parents ( $\delta_i$ ) and on

which parent can make the last proposal.

If the parent(s) are patient ( $\delta_i = 1$ ), or the exogenous end of the game is so soon, that  $(iS, t_C - 1) \succeq_i (jS, 0)$  (this has to hold at least for the parent with the last proposal), then the parent who can make the last proposal will get her/his preferred agreement. The reasoning behind this is, that in the penultimate period, when the last proposal is made, the not-proposing parent will agree to her/his second-best agreement (which is the first-best agreement for the proposing parent), because it is still better than having to go to court in the next period. The parents know, that the parent with the penultimate proposal will finally give in, therefore they will agree to the first-best agreement of the parent with the last proposal in the beginning.

If parent  $j$  with the last proposal is (sufficiently) impatient, so that  $(jS, t_C - 1) \preceq_i (iS, 1)$ , and parent  $i$  with the penultimate proposal is (sufficiently) patient, so that  $(iS, t_C - 1) \succeq_i (jS, 0)$ , then the parent with the penultimate proposal will have her/his way. In this case parent  $j$  has an advantage due to the last proposal, but s/he cannot use it, because it is not credible for her/him to wait until the penultimate period (with the last proposal). The reason for this is, that accepting the proposal of the other parent in period 0 or period 1 leads to (at least) as much utility, than having the own first-best agreement in the penultimate period.<sup>8</sup> Therefore parent  $j$  cannot credibly reject, if parent  $i$  proposes  $iS$  at the beginning (or in period 1).

If both parents are (sufficiently) impatient, so that the second-best agreement now yields at least as much utility as the first-best agreement in the penultimate period, then there are two possible outcomes: If one parent is more patient than the other parent, then the more patient parent will have her/his way. If both parents are equally impatient, then the parent with the first move will get the child.

Impatience of a parent  $i$  means, that there is a critical time span  $z_i$  for which  $(iS, t+z_i) \preceq_i (jS, t)$ . Therefore parent  $i$  having her/his way after the critical time span leads to a lower (or equal) utility for parent  $i$  than letting the other parent have her/his way now. Hence it is not credible for parent  $i$  to reject  $jS$  now, if s/he could only get  $iS$  after the critical time span.

If parent  $j$  is more patient than parent  $i$ , so that  $z_j > z_i + 1$ , then parent  $j$  will achieve her/his first-best agreement — independent of who can make the last proposal. The reason is that parent  $i$  will not get the consent of parent  $j$  during  $z_i$ . Parent  $j$  may or may not consent to  $iS$

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<sup>8</sup>We have to include period 1 here. If parent  $i$  has the first proposal and parent  $j$  could become credible by waiting one period, then parent  $j$  would get her/his way.

after  $z_i$  — it does not matter for parent  $i$ , for whom it is in any case better to consent to  $jS$  now (and it would not be credible to do otherwise). Parent  $j$  on the other hand can credibly threaten to wait longer than  $z_i$ , but not long enough for the last proposal. This does not matter though: parent  $i$  will consent to  $jS$  as soon as parent  $j$  proposes it. Parent  $i$  may even propose  $jS$  her/himself, because  $(jS, 1) \succeq_i (iS, z_i + 1)$  and  $(jS, 0) \succeq_i (jS, 1)$ .

If both parents are equally impatient, so that  $z_i = z_j$ , then the parent who can propose first has an advantage. In this case both parents know, that they cannot get their first-best agreement within their critical time spans. Therefore each parent has an incentive to consent to the first-best agreement of the other parent, as soon as it is proposed, because they cannot increase their utility by waiting. Here parent  $m$  (who has the first proposal) proposes  $mS$  and parent  $f$  agrees to it.

In short, if both parents prefer any agreement to going to court, then the solution will be  $mS$  if parent  $m$  can enforce her claim. On the other hand the solution will be  $fS$  if parent  $f$  can get his way due to being more patient or having the last proposal.

## 4.2 Solving the model after the reform

The preference orderings after the reform need not only include sole custody and going to court, but joint custody as well. Again each parent prefers to have the child living with her/himself to giving it to the other parent. But if the other parent gets the child, then each parent  $i$  wants to be integrated into custody, so that  $jJ \succ_i jS$ . If parent  $i$  gets the child her/himself on the other hand, then parent  $i$  can either prefer sole or joint custody. Therefore there are two different possible utility orderings for the set of agreements  $X_a = \{mS, fS, mJ, fJ\}$ . Incorporating the outside option as well leads to a total of seven different utility orderings for each parent, as the utility of going to court relatively to the other utilities varies with the probability  $p$  to get the child from the judge and the costs of disagreement  $\varepsilon_i$ .

There are four possible utility orderings with a preference for sole custody:

$$\mathbf{U}_i^{\mathbf{S}} > \mathbf{U}_i^{\mathbf{C}} > U_i^{iJ} > U_i^{jJ} > U_i^{jS},$$

$$\mathbf{U}_i^{\mathbf{S}} > U_i^{iJ} > \mathbf{U}_i^{\mathbf{C}} > U_i^{jJ} > U_i^{jS},$$

$$\mathbf{U}_i^{\mathbf{S}} > U_i^{iJ} > U_i^{jJ} > \mathbf{U}_i^{\mathbf{C}} > U_i^{jS},$$

$$\mathbf{U}_i^{\mathbf{S}} > U_i^{iJ} > U_i^{jJ} > U_i^{jS} > \mathbf{U}_i^{\mathbf{C}},$$

and three possible utility orderings with a preference for joint custody:<sup>9</sup>

$$\mathbf{U}_i^{\mathbf{iJ}} > U_i^{iS} > \mathbf{U}_i^{\mathbf{C}} > U_i^{jJ} > U_i^{jS},$$

$$\mathbf{U}_i^{\mathbf{iJ}} > U_i^{iS} > U_i^{jJ} > \mathbf{U}_i^{\mathbf{C}} > U_i^{jS},$$

$$\mathbf{U}_i^{\mathbf{iJ}} > U_i^{iS} > U_i^{jJ} > U_i^{jS} > \mathbf{U}_i^{\mathbf{C}}.$$

This means that there are now 49 different cases, for which the solutions are summarised in Table 2. Nevertheless there are again only three possible outcomes: (i) there is no agreement from which both parents profit, so that the parents go to court immediately; (ii) they find one agreement which improves the situation for both parents, either because there is only one agreement which improves the situation for both parents, or there is more than one of these agreements, but both parents prefer the same possible improvement; or (iii) there is more than one agreement which yields a higher utility than going to court for both parents, so that the agreement they find depends on the relative bargaining power of the parents.

If for example the parents have the following utility orderings:  $U_m^{mS} > U_m^{mJ} > U_m^{fJ} > U_m^{\mathbf{C}} > U_m^{fS}$  and  $U_f^{fS} > U_f^{\mathbf{C}} > U_f^{fJ} > U_f^{mJ} > U_f^{mS}$ , then the parents cannot find any agreement which leads to a higher utility than the outside option for both of them. The reason is, that for parent  $f$  only  $fS$  yields a higher utility, but this agreement is worse than going to court for parent  $m$ . On the other hand all the agreements which lead to a higher utility for parent  $m$  yield a lower utility than the outside option for parent  $f$ . Therefore the parents will go to court immediately, instead of waiting until the exogenous end of the game.

An example for an agreement independent of the relative bargaining power of the parents can be found with these utility orderings:  $U_m^{mS} > U_m^{mJ} > U_m^{fJ} > U_m^{fS} > U_m^{\mathbf{C}}$  and  $U_f^{fJ} > U_f^{fS} > U_f^{\mathbf{C}} > U_f^{mJ} > U_f^{mS}$ . In this case there are two agreements which lead to a higher utility than going to court for both parents, namely  $fJ$  and  $fS$ . Nevertheless the chosen agreement does not depend on patience or the last proposal, because both parents prefer  $fJ$  to  $fS$ . Therefore the parents will agree on  $fJ$  in the beginning.

If the specific agreement the parents choose depends on the relative bargaining power of the parents, then the same arguments about patience and the last proposal apply as in the solution before the reform. One case which leads to such an outcome is given by the following utility

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<sup>9</sup>Going to court cannot yield a higher utility than getting a sole custody by agreement due to the lottery  $p \cdot U_i^{mS} + (1-p) \cdot U_i^{fS}$  and the additional costs of disagreement  $\varepsilon_i$ .

**Table 2: Summary of the results after the reform**

		<i>f</i>						
		<i>fS</i> $\succ$ <i>C</i> $\succ$ <i>fJ</i> $\succ$ <i>mJ</i> $\succ$ <i>mS</i>	<i>fS</i> $\succ$ <i>fJ</i> $\succ$ <i>C</i> $\succ$ <i>mJ</i> $\succ$ <i>mS</i>	<i>fS</i> $\succ$ <i>fJ</i> $\succ$ <i>mJ</i> $\succ$ <i>C</i> $\succ$ <i>mS</i>	<i>fS</i> $\succ$ <i>fJ</i> $\succ$ <i>mJ</i> $\succ$ <i>mS</i> $\succ$ <i>C</i>	<i>fJ</i> $\succ$ <i>fS</i> $\succ$ <i>C</i> $\succ$ <i>mJ</i> $\succ$ <i>mS</i>	<i>fJ</i> $\succ$ <i>fS</i> $\succ$ <i>mJ</i> $\succ$ <i>C</i> $\succ$ <i>mS</i>	<i>fJ</i> $\succ$ <i>fS</i> $\succ$ <i>mJ</i> $\succ$ <i>mS</i> $\succ$ <i>C</i>
<i>m</i>	<i>mS</i> $\succ$ <i>C</i> $\succ$ <i>mJ</i> $\succ$ <i>fJ</i> $\succ$ <i>fS</i>	<i>C</i>	<i>C</i>	<i>C</i>	<i>mS</i>	<i>C</i>	<i>C</i>	<i>mS</i>
	<i>mS</i> $\succ$ <i>mJ</i> $\succ$ <i>C</i> $\succ$ <i>fJ</i> $\succ$ <i>fS</i>	<i>C</i>	<i>C</i>	<i>mJ</i>	<i>mS</i> / <i>mJ</i>	<i>C</i>	<i>mJ</i>	<i>mS</i> / <i>mJ</i>
	<i>mS</i> $\succ$ <i>mJ</i> $\succ$ <i>fJ</i> $\succ$ <i>C</i> $\succ$ <i>fS</i>	<i>C</i>	<i>fJ</i>	<i>mJ</i> / <i>fJ</i>	<i>mS</i> / <i>fJ</i>	<i>fJ</i>	<i>mJ</i> / <i>fJ</i>	<i>mS</i> / <i>fJ</i>
	<i>mS</i> $\succ$ <i>mJ</i> $\succ$ <i>fJ</i> $\succ$ <i>fS</i> $\succ$ <i>C</i>	<i>fS</i>	<i>fJ</i> / <i>fS</i>	<i>mJ</i> / <i>fS</i>	<i>mS</i> / <i>fS</i>	<i>fJ</i>	<i>mJ</i> / <i>fJ</i>	<i>mS</i> / <i>fJ</i>
	<i>mJ</i> $\succ$ <i>mS</i> $\succ$ <i>C</i> $\succ$ <i>fJ</i> $\succ$ <i>fS</i>	<i>C</i>	<i>C</i>	<i>mJ</i>	<i>mJ</i>	<i>C</i>	<i>mJ</i>	<i>mJ</i>
	<i>mJ</i> $\succ$ <i>mS</i> $\succ$ <i>fJ</i> $\succ$ <i>C</i> $\succ$ <i>fS</i>	<i>C</i>	<i>fJ</i>	<i>mJ</i> / <i>fJ</i>	<i>mJ</i> / <i>fJ</i>	<i>fJ</i>	<i>mJ</i> / <i>fJ</i>	<i>mJ</i> / <i>fJ</i>
	<i>mJ</i> $\succ$ <i>mS</i> $\succ$ <i>fJ</i> $\succ$ <i>fS</i> $\succ$ <i>C</i>	<i>fS</i>	<i>fJ</i> / <i>fS</i>	<i>mJ</i> / <i>fS</i>	<i>mJ</i> / <i>fS</i>	<i>fJ</i>	<i>mJ</i> / <i>fJ</i>	<i>mJ</i> / <i>fJ</i>

orderings:  $U_m^{mJ} > U_m^{mS} > U_m^{fJ} > U_m^C > U_m^{fS}$  and  $U_f^{fS} > U_f^{fJ} > U_f^{mJ} > U_f^{mS} > U_f^C$ . Here the parents will agree on *mJ* if parent *m* has her way and on *fJ* if parent *f* can put through his preferred agreement. In fact *fJ* is not the most preferred agreement of parent *f* in the whole utility ordering (it is only second-best here), but it is the first-best agreement to which parent *m* will consent, because *fS* yields a lower utility than going to court for her.

In general the parents always want to get consent to the agreement that yields the highest utility for themselves, conditional on the agreement also improving the utility of the other parent compared to the outside option. If the aspired agreements of the parents differ, then the solution depends on their relative bargaining power.

### 4.3 Changes due to the reform

Due to the reform of the custody law, keeping a joint custody after divorce is now the rule in Austria, instead of having to take up a sole custody. From Table 2 we can see, that divorcing parents make use of the new regimentation, as there are cases where the parents keep joint custody. Nevertheless the parents need not stick to a joint custody: Instead they may agree on having a sole custody, because there are not only cases of sole custody due to the parents not finding any agreement and therefore going to court, but also cases where the parents freely decide upon a sole custody.

If we consider a certain couple of divorcing parents and their custody decision, we can compare the solution of the parents under the new custody law with the solution that these parents would have found under the old custody law: If the parents could not find an agreement before the reform, they may nevertheless be able to find one after the reform. Due to the additional possible agreements after the reform, the one case without agreement before the reform can now be distinguished into 25 cases after the reform. These cases are marked in blue in Table 2. In 12 of these 25 cases the parents can find an agreement (or even two), even though this would not have been possible before the reform. The agreements to which the parents can consent are the ones containing joint custody.<sup>10</sup>

For the two cases with different utility orderings before the reform, with  $iS \succ_i C \succ_i jS$  and  $jS \succ_j iS \succ_j C$ , the parents could find exactly one agreement before the reform. These two cases can be distinguished into 10 cases each after the reform — marked in red in Table 2. After the reform the parents can again find an agreement, but now the solution is not constrained to exactly one agreement, instead there may also be two or even three agreements which would improve the utility of both parents compared to going to the court. Besides the parents may agree on joint custody as well as on sole custody after the reform.

The case where the parents found more than one possible agreement before the reform can now be distinguished into four cases after the reform (marked in black in Table 2). Here all four agreements are better than going to the court for both parents. Contingent on the preferences of the parents, they can reach every one of the agreements in  $X_a = \{mS, fS, mJ, fJ\}$ .

This leads to the conclusion, that the most important change due to the reform is, that part of the parents who would not be able to find an agreement before the reform can now find an

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<sup>10</sup>If an agreement on sole custody would be possible, then it would have been possible before the reform as well.

agreement on joint custody. Besides not all of the parents who find an agreement need to keep joint custody, even though this is now the rule by law.

#### 4.4 Different Legal Situations

There are various parts in the model where different legal backgrounds lead to a different modeling of the details. The most important differences concern the distinction of the two types of divorce in Austria, the lack of an equally shared joint custody and that joint custody is not really the default option.

If joint custody is a real default option, for example in Germany or France (Gründler, 2002), then divorcing parents keep joint custody, except for the case where they agree otherwise.<sup>11</sup> In terms of the model this means, that the judge does not assign a sole custody, but a joint custody. Therefore the utility of the lottery of going to court lies between the utilities of the joint custody options. This decreases the number of possible utility orderings with a preference for sole custody after the reform to three utility orderings; but instead four utility orderings with a preference for joint custody are possible. With this legal situation the model predicts, that a joint custody agreement is more likely and going to court is less likely than in Austria.

There are countries, where an equally shared joint custody is possible, e.g. England or Belgium (Gründler, 2002). In this case an additional agreement with equal joint custody is included.<sup>12</sup> In the utility ordering this agreement would lie between the other two joint custody agreements. This increases the number of possible utility orderings from seven to 12 per parent. In combination with joint custody as default option (e.g. in Germany), there are even 14 different utility orderings and thus a total of 144 cases (instead of 49).

If it is not necessary to choose different types of divorce according to whether the parents find an agreement or not, there are two changes: Firstly it is not necessary to bargaining before filing for divorce. Instead the parents can initiate the divorce and get a date for their appearance before court and then bargain until the date of the trial has come. Secondly the monetary costs

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<sup>11</sup>In Germany a divorce does not necessarily entail a decision about custody, so that parents keep joint custody; whereas in France the parents have to decide upon a main residence for the child, but a disagreement does not lead to a sole custody — merely to the judge assigning the main residence (Gründler, 2002).

<sup>12</sup>In an equally shared joint custody the child can either be living half of its time with one parent and then half of its time with the other parent, or the child can be living separately and each parent moves in for half of the time (Gründler, 2002).



do not differ between cases where the parents come to an agreement and cases where the judge assigns custody. Therefore the costs of disagreement  $\varepsilon_i$  do not include monetary costs only emotional costs.<sup>13</sup> Therefore the costs of disagreement are lower (provided that the emotional costs are similar). Therefore the relative utility of going to court will be higher than in Austria and divorces without agreement more likely.

## 5 Empirical Issues

### 5.1 Hypotheses

### 5.2 Data

### 5.3 Estimations

To test hypothesis 1 we cannot employ the court data, since unilateral divorce cases are under-sampled in this data set. Therefore, we assembled a panel data set at the Federal State level for the years 1997 to 2004. These data have been retrieved from the Austrian Statistical Office Database which covers every divorce in Austria. This panel data set comprises four years before the reform, 2001 the year of the reform and three years after the reform.<sup>14</sup> The dependent variable of our regression is the percentage of divorces by consent. Beside the variable of main interest *period after custody reform* – capturing the period after the reform (including the year 2001) – we control for federal state fixed effects and year dummies. Due to data restrictions we cannot include any further control variables.<sup>15</sup> We therefore would assume that relevant control variables are unchanging within a federal state over time. In order to capture heterogeneous divorce behaviour over time we add federal state specific time trends. As reported in Table 3 we estimated a Fixed-Effects and a Random-Effects estimation. The specification test devised by Hausman (1978) yields a test statistic of 72.19 and suggests the Fixed-Effects estimation. According to that we observe that the fraction of divorces by consent has increased since the

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<sup>13</sup>If the trial lasts longer due to the dispute, then there may be monetary costs as well, but the fixed costs are the same and therefore they do not appear in  $\varepsilon_i$ .

<sup>14</sup>Data for the year 2005 will not be published by the Austrian Statistical Office before July 2006.

<sup>15</sup>At the moment a request to the Austrian Statistical Office for the compilation of a data set on the percentage of divorces by consent at the regional level including further information on the divorcees is processing. The district courts are obliged to report the article of the divorce, the number and the age of joint children, the age and the occupation of the divorcees and the duration of the marriage to the Austrian Statistical Office.

**Table 3: The custody reform and the % of divorces by consent<sup>a</sup>**

METHOD OF ESTIMATION	FIXED-EFFECTS	RANDOM-EFFECTS
<i>period after custody reform</i>	5.144 (1.387)***	2.699 (1.043)***
<i>constant</i>	87.038 (0.450)***	86.794 (0.576)***
Number of Observations	72	72
Number of States	9	9
$R^2$ within	0.607	0.285
$R^2$ between	0.206	0.957
$R^2$ overall	0.027	0.554

<sup>a</sup> Both regressions include year dummies and federal state specific trends. Standard errors are in parentheses. \*, \*\* and \*\*\* indicate a statistical significance at the 10-percent level, 5-percent level and 1-percent level.

custody reform by 5.1 percentage points. This quantitatively important effect is statistically highly significant and supports hypotheses 1.<sup>16</sup>

## 6 Conclusions

<sup>16</sup>The inclusion of quadratic federal state specific time trends does not alter the results.

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