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INEFFICIENT DISSOLUTIONS AS A CONSEQUENCE OF PUBLIC GOODS: THE CASE OF NO-FAULT DIVORCE

MARTIN ZELDER*

W_{HEN} the Ukraine and other republics effectively seceded from the USSR in 1991, no one questioned whether that secession was socially desirable. After all, this transaction occurred because Russia could not induce the Ukraine to remain within the union. From the perspective of rational social choice, such a secession does not occur unless it is expected to make society better off.¹ That is, the Ukraine exercised its right to secede because its expected gain exceeded Russia's expected loss from the Ukraine's departure. While a matter of great political significance, the secession was the type of event perceived by economists as inherently economically efficient.

This view may well be false, however. This article presents a novel explanation of why certain dissolutions observed in society, from secession to the disintegration of firms to the division of national park land to divorce, may be against society's best interests. Indeed, this article develops a general model of dissolutions which shows that many unilateral

¹ Of course, secession may *in actuality* decrease social welfare, but the assumption of rational behavior means that it was not *expected* to, given the absence of strategic behavior or other conventional market failures.

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or "no-fault" dissolutions may be economically inefficient, a result not dependent on strategic behavior or other conventional market failures. That is, the benefits to the party ending the relationship may be *less than* the costs of dissolution to the party wishing to maintain the union, and yet the dissolution will occur. This, in turn, may explain why some legal rules prohibit unilateral dissolutions and, equally important, why rules which do not should be replaced by mutual consent provisions.

Consider first the case of divorce. Applying the Coase Theorem, one concludes that the assignment of property rights made by divorce statutes will not affect the divorce rate.² The Coase Theorem implies that the same number of (economically efficient) divorces occurs under no-fault as under fault divorce, even though the legal assignment of property rights is different under the two legal regimes.³

A fault-based divorce statute essentially gives each spouse a property right to continue the marriage. Divorce occurs only if the "innocent" spouse demonstrates that the "guilty" spouse has violated one of the statutory fault grounds (for example, adultery). If both spouses are at fault, divorce is prohibited. Thus, the designated guilty spouse must consent not to counteraccuse the innocent spouse. Divorce also is not granted if neither spouse is "at fault." In this circumstance, one spouse must consent to serve as the "guilty" spouse in order for divorce to occur.⁴ Consequently, a system of fault-based divorce requires mutual consent. By contrast, a no-fault divorce statute confers on each spouse a property right to divorce. That is, under a no-fault statute, divorce is granted if "irreconcilable differences," "incompatibility," or "irretrievable breakdown" of marriage is demonstrated by one spouse or both spouses. Thus, no-fault divorce is in essence a regime of unilaterally chosen divorce.

Mutual consent (fault-based) divorce means, for example, that a husband who desires a divorce must compensate his wife (who wishes to

⁴ Fraudulent and collusive assignment of fault to one of the two spouses was commonplace in fault regimes; see, for example, Roderick Phillips, Putting Asunder 568 (1988).

² Gary S. Becker, A Treatise on the Family 226–27 (1991); and Elisabeth M. Landes, Economics of Alimony, 7 J. Legal Stud. 35 (1978).

³ In addition to the familiar conditions of nonprohibitive transactions costs and zero wealth effects, this conclusion depends on the absence of strategic behavior (see Varouj A. Aivazian & Jeffrey L. Callen, The Coase Theorem and the Empty Core, 24 J. Law & Econ. 175 (1981)), monopoly power, and other market failures in the market for transactions (see Robert D. Cooter, The Cost of Coase, 11 J. Legal Stud. 1 (1982); and Robert D. Cooter, Coase Theorem, in The New Palgrave: A Dictionary of Economics 457 (John Eatwell, Murray Milgate, & Peter Newman eds. 1987)), and asymmetric information (see H. Elizabeth Peters, Marriage and Divorce: Informational Constraints and Private Contracting, 76 Am. Econ. Rev. 437 (1986)).

remain married) in order to obtain a divorce. This compensation consists of the transfer of resources made in the divorce settlement, such as property and alimony awards and custody arrangements. Then, if there are joint gains from divorce (that is, the husband gains more from divorce than the wife gains from continuing the marriage), the husband can induce the wife's consent, and divorce occurs. Alternatively, if the husband gains less from divorce than the wife gains from the marriage, the husband cannot pay his wife to consent to a divorce, and the marriage continues.

In contrast, under a regime of unilaterally chosen divorce (no-fault), the *wife* must now compensate the *husband* to remain married. This compensation takes the form of a transfer of resources *within marriage*, that is, a renegotiation of the marriage contract. This transfer encompasses things besides money, including household commodities which are only exchanged within the household; for example, a wife may agree to be less critical of her husband in order to induce him to remain married. Under no-fault, if there are joint gains to divorce, the wife cannot induce the husband to remain married, so divorce occurs; if there are joint gains to marriage, the wife *can* induce the husband to remain married. Regardless of the legal regime (fault or no-fault), divorce occurs when there are joint gains to divorce, and marriage continues when there are joint gains to marriage. Therefore, the Coase Theorem implies that under both legal regimes, mutually beneficial transactions will occur, producing the same number of economically efficient divorces.⁵

The assignment of property rights implied by divorce law is relevant, however, when parties are prohibited from making certain transactions. One such limitation within marriage results from a public good, children, which makes certain potentially mutually beneficial transactions impossible.^{6,7} This inability to transfer public goods within marriage yields an

⁷ Pertinent examples other than divorce are common. In the case of the Ukraine, the public good might be national defense. In fact, American states (or portions thereof) are constitutionally prevented from seceding by Texas v. White (1869), 74 U.S. (7 Wall.) 700, and by Article IV, section 3, of the Constitution; otherwise, unilateral secession might arise

⁵ Changing the law from fault to no-fault will, however, affect the distribution of income.

⁶ Previous work by Peters analyzes another: the constraint placed on spousal bargaining by an ex ante fixed contract over the division of marital output (see Peters, *supra* note 3). Although Peters's model predicts that no-fault divorce will increase the divorce rate, a prediction unsupported by her empirical analysis, there are problems with both the model and the econometric results, which are discussed in Martin Zelder, Did No-Fault Divorce Law Increase the Divorce Rate? A Critical Review of the Evidence (1992). The suggestion that children are an important public good within marriage has been made by Gary S. Becker, A Theory of Marriage, in Economics of the Family 320 (Theodore W. Schultz ed. 1974); Landes, *supra* note 2, at 35 (1978); and Yoram Weiss & Robert J. Willis, Children as Collective Goods and Divorce Settlements, 3 J. Lab. Econ. 268 (1985).

interesting positive result—the divorce rate will be higher under no-fault than under fault—and an interesting normative result—too many divorces will occur under no-fault.⁸ Tests of this model conducted on a panel data set⁹ provide strong support for the proposition that no-fault increases the divorce rate due to the nontransferability of children within marriage.

Section I of this article presents the basic theoretical model. Here I examine the effect of a public good, children, on the occurrence and efficiency of divorce when the legal regime switches from fault to no-fault. Although children are not entirely public goods within marriage, they represent a large, measurable fraction of the public goods consumed within marriage.¹⁰ Children embody large assets, such as educational and intellectual capital, and health capital, which are jointly consumed by the two spouses. Section II provides evidence from empirical tests I conducted using the Panel Study of Income Dynamics (PSID) over the period 1968–1981. These tests confirm that the divorce rate (inefficiently) increases under no-fault because of the presence of children in marriage. Section III presents concluding remarks.

I. A MODEL OF MARITAL STATUS WHEN CHILDREN ARE (IN PART) PUBLIC GOODS

To simplify, assume there are two goods: a private good, X, and a public good, C. Define the husband's utility function as $H(\cdot)$, and the wife's utility function as $W(\cdot)$. Denote each spouse's consumption of the private good, X, as X_{ij}^* , where i = M (marriage) or D (divorce), and j = H (husband) or W (wife), and "*" indicates an optimal value. Additionally, denote consumption of the public good as C_i^* , where *i* again equals M or D (no subscript *j* is needed, as husband's and wife's consumption of C must be equal within each marital state since C is a *public* good).¹¹

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because a state could not be compensated with a public good such as free trade with other states. Also, federal land may not be sold by the unilateral desire of the electorate (43 U.S.C.A. \S 1713); federal government consent is necessary, perhaps because the land the government has to offer the electorate is a public good.

⁸ The adjective "positive" refers to cause and effect, while "normative" refers to social desirability.

⁹ A panel data set follows the same group of people over some period of time; in the case of the data set used in this analysis, approximately 6,000 families are followed for fourteen years.

¹⁰ Other examples of public goods within marriage are, perhaps, home heating and love. Generally, home heating is a measurable but not large public good within marriage, while love is a large but unmeasurable public good within marriage.

¹¹ Good C is a public good within either marriage or divorce; thus, consumption of C within marriage is equal for husband and wife, and consumption of C within divorce is

Finally, divorce divides the public good by means of a visitation rate, v_H^* , which is the husband's visitation rate; the wife's visitation rate is $(1 - v_H^*)$, with v_H^* defined to lie in the interval [0,1]. Thus, it follows that the utility of the wife within marriage is $W(X_{MW}^*, C_M^*)$, and that of the husband is $H(X_{MH}^*, C_M^*)$, and the utilities of wife and husband in divorce are, respectively, $W(X_{DW}^*, (1 - v_H^*)C_D^*)$ and $H(X_{DH}^*, v_H^*C_D^*)$.¹²

To study the effect of divorce law regimes on the likelihood of divorce, I examine six possible combinations of gains and losses between marriage and divorce for the husband and wife: (a) each spouse experiences higher utility in marriage than in divorce; (b) the wife has higher utility in marriage, the husband has higher utility in divorce, but joint gains to marriage exist such that reallocation of resources within marriage provides utility gains to each spouse; (c) the wife has higher utility in marriage, the husband higher utility in divorce, but joint gains to each spouse; (d) the wife has higher utility in divorce, but joint gains to each spouse; (d) the husband has higher utility in marriage, the wife higher utility in divorce, but joint gains to each spouse; (d) the husband has higher utility in marriage, the wife higher utility in divorce, but joint gains to marriage exist; (e) the husband has higher utility in marriage, the wife higher utility in divorce exist; and (f) each spouse gains from divorce. Note that d and e are analytically analogous to b and c, respectively, differing only in the role reversal of husband and wife.

The scenarios in which each spouse gains from marriage, case a, or in which each spouse gains from divorce, case f, are analytically uninteresting; in the former case, marriages persist regardless of the law; in the latter case, marriages dissolve in divorce, regardless of the law. The case of joint gains to marriage, case b, raises analytical issues of interest in this inquiry. As noted earlier, previous economic analysis of case b indicates that marriage will continue regardless of legal regime.¹³

The presence of children as a public good, however, alters this conclusion. Suppose, for simplicity, that each spouse's utility function is additive in X and C; that is, $W_i = X_{iW} + C_i$, and $H_i = X_{iH} + C_i$.¹⁴ Assume also that $C_M^* = C_D^* = C^*$.¹⁵ When the wife's gains to marriage exceed

equal for husband and wife. But because of the custody arrangement within divorce, the effective consumption of C (C multiplied by each spouse's visitation rate) is a private good within divorce.

 $^{^{12}}$ The optimal conditions for the choices of X and C within marriage and divorce are described in Martin Zelder, Children as Public Goods and the Effect of No-Fault Divorce Law upon the Divorce Rate (unpublished Ph.D. dissertation, Univ. Chicago December 1989).

¹³ Becker, supra note 2; and Landes, supra note 2.

¹⁴ The following analysis is valid even with completely general utility functions.

¹⁵ Zelder deduces that $C_M^* = C_D^*$ when utility is maximized in each marital state using the general utility functions described in note 14 *supra*; see Zelder, *supra* note 12.

the husband's gains to divorce, then the following three equations are valid:

$$(X_{MW}^* + C^*) - [X_{DW}^* + (1 - v_H)C^*] > 0, \tag{1}$$

$$(X_{MH}^* + C^*) - (X_{DH}^* + v_H^* C^*) < 0,$$
⁽²⁾

and

$$[X_{MH}^{*} + (X_{MW}^{*} - X_{DW}^{*})] + \{C^{*} + [C^{*} - (1 - \nu_{H}^{*})C^{*}]\}$$

> $X_{DH}^{*} + \nu_{H}^{*}C^{*}.$ (3)

Equation (1) simply indicates that the wife gains from marriage; similarly, equation (2) reflects the husband's losses from marriage (or gains from divorce). Finally, equation (3) demonstrates that the husband could be made better off in marriage (compared to divorce) if the wife could transfer to him all of her surplus in both X and C.¹⁶

Note, however, that the joint-utility-maximizing transfer described in (3) involves a hypothetical transfer of the wife's gains to marriage in the public good, $C^* - (1 - v_H^*)C^{*.17}$ Suppose the divorce law in effect is no-fault (that is, divorce can be unilaterally chosen). Such a transfer may be necessary to induce the husband to remain married in a no-fault regime. However, such a transfer of joint consumption cannot occur—the husband cannot consume more than C^* within marriage. As a result, within marriage, the wife can only transfer the private good, X. Consequently, while (3) indicates the condition required for the marriage to continue, the public-good transfer implied by that equation is not possible. Thus, the wife's transferable consumption (from the private good) may be inadequate to prevent the husband from divorcing in a no-fault regime even though there are joint gains to marriage. This potential inadequacy is expressed by the following inequality:

$$\alpha X_{MW}^* < (X_{DH}^* - X_{MH}^*) + (v_H^* C^* - C^*), \tag{4}$$

where α is the fraction of the wife's consumption of X within marriage that she can transfer (given that she cannot transfer C) and still not be

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¹⁶ Equation (3) is the no-fault representation of joint gains to marriage (the wife compensates the husband within marriage); the mutual consent representation of this condition is $(X_{MW}^* + C^*) - ((X_{DW}^* + \beta X_{DH}^*) + (1 - v_H^*)C^* + \varphi v_H^*C^*) > 0$. That is, if the husband makes the best possible transfer to the wife (the husband retains $(1 - \beta)X_{DH}^*$ and $(1 - \varphi)v_H^*C^*)$ such that he is not worse off in divorce (as compared to marriage), the wife's (posttransfer) divorce utility is still lower than her marriage utility.

¹⁷ This public good gain to marriage must be nonnegative, as it can be proven that $C_M^* = C_D^*$ (see Zelder, supra note 15).

worse off within marriage as compared to divorce.¹⁸ That is, even if the wife offers her maximum private good transfer within marriage, the husband prefers divorce. Thus, in a no-fault regime, divorces can occur even when joint gains from marriage exist.¹⁹

A numerical example illustrates the situation in which both (3) and (4) are valid. Suppose the husband's gain to divorce, $(X_{DH}^* - X_{MH}^*) + (v_H^*C^* - C^*)$, is 60, the wife's gain to marriage, $(X_{MW}^* - X_{DW}^*) + (C^* - (1 - v_H^*)C^*)$, is 90, and the wife's maximum private good transfer within marriage, αX_{MW}^* , is 50. Because the wife can only transfer the private good gain of 50 and not the public good gain of 40 (90 - 50) within marriage, her husband will divorce under no-fault, gaining 60, even though the wife loses 90.

Under *fault* divorce, the fact that C is a public good within marriage will not affect the likelihood of divorce. For fault divorce to occur, the husband must compensate the wife enough from his gains to divorce to induce her to divorce. But, in case b, such a transaction will not occur, as his gains to divorce are less than her gains to marriage.

Finally, consider scenario c, in which joint gains to divorce exist. In this case, the law is irrelevant to the result. In a fault regime, the husband can successfully compensate the wife in order to induce her to divorce. The nontransferability of children within marriage does not affect the husband's ability to bargain over the surplus from divorce.²⁰ On the other. hand, if divorce can be unilaterally chosen, it is obvious that if the wife's gains to marriage are less than her husband's gains to divorce, she cannot prevent him from divorcing, as her transferable gains to marriage are even less than her total gains.

If children are public goods within *divorce* as well as within marriage, the foregoing analysis is slightly altered. Specifically, in case c, there will be circumstances in which the husband cannot induce his wife to consent to a fault divorce, even though he would gain more from the divorce than she would lose. Again, the consequence of no-fault is to increase the divorce rate.

The analysis developed in this section indicates that the assignment of property rights by divorce law *is* relevant to the divorce decision.

²⁰ Since $C_M^* = C_D^*$, the husband's public good "gain" to divorce, $v_H^* C_D^* - C_M^*$, is negative, and thus he is not constrained by the public good in negotiating with the wife.

¹⁸ Formally, α is defined such that $(1 - \alpha)X_{MW}^* + C^* = X_{DW}^* + (1 - v_H^*)C^*$. That is, since the wife cannot transfer any of her gains to marriage realized in C, she is willing to transfer a quantity of X which *exceeds* her gain to marriage in X; that is, $\alpha X_{MW}^* > X_{MW}^* - X_{DW}^*$.

¹⁹ This result is analogous to the "failure" of the Rotten Kid Theorem (when utility is nontransferable) found in Theodore C. Bergstrom, A Fresh Look at the Rotten Kid Theorem—and Other Household Mysteries, 97 J. Pol. Econ. 1138 (1989).

Specifically, couples are more likely to divorce in a no-fault regime relative to a fault regime, the higher the ratio of their gains from continued marriage in the form of children (the public good) relative to their gains from marriage received in private, transferable goods. This result is also of normative interest. If children are a public good within marriage but not in divorce, no-fault is inefficient compared to fault because more than the socially desirable number of divorces occurs under no-fault.²¹ The additional divorces which occur under no-fault all occur when there are joint gains to marriage; thus, by the Kaldor-Hicks efficiency criterion,²² these additional divorces are inefficient.

If, on the other hand, children are also a public good within *divorce*, then the welfare comparison of fault and no-fault is clouded. In this situation, while more than the efficient number of divorces occur under no-fault, *fewer* than the efficient number occur under fault. The choice between fault and no-fault then rests on a comparison of welfare loss triangles.

The model provides an unambiguous positive prediction—a higher divorce rate under no-fault. Normative comparison of fault and no-fault remains an empirical matter *if* children are public goods within divorce. If children are public goods only within marriage, however, then no-fault is inefficient. As a logical matter, it is conceivable that it is necessary for parents to coreside happily in order for the public good to exist.²³ If this is the case, serious consideration should be given to replacing no-fault with a mutual consent mechanism such as fault.

II. EMPIRICAL EVIDENCE

I tested the hypothesis that the ratio of gains to marriage from children relative to gains to marriage from private transferable assets is a positive determinant of the divorce rate in a no-fault regime using data from the Panel Study of Income Dynamics (PSID). I used the period 1968–81, Wave 14 of the PSID, since this was a period of rapid transition from fault-based (mutual consent) to no-fault (unilaterally chosen) divorce. The main advantage of the PSID is that its longitudinal structure provides

²¹ The reader may note that, in the model just analyzed, the choice of C (and X) is presumed to be exogenous with regard to the type of legal regime. A more complicated model, in which the choice of C depends, in part, on the likelihood of disutility from an inefficient no-fault divorce, indicates that C would be reduced (and X increased) as a consequence of no-fault. Nevertheless, some inefficient no-fault divorces would still occur (see Zelder, *supra* note 12).

 $^{^{22}}$ A legal rule is inefficient (in a Kaldor-Hicks sense) if its costs to society exceed its benefits.

²³ This may be a sense in which people remain married "for the children."

observations on couples both before and after the institution of no-fault divorce law. From these observations one can determine if the legal transition to no-fault significantly affected the likelihood of divorce.²⁴ Panel data largely avert the problem of simultaneity bias inherent in cross-section data, where no-fault states are not randomly selected.²⁵ In this study, observations are pooled for the sixteen states which became "pure" no-fault states, that is, states with only no-fault grounds rather than a mixture of fault and no-fault grounds, during the period 1968–81.²⁶ Virtually no bias should result from this pooling since the law changed in all but five of the sixteen states during the interval 1971–73. Because the divorce law changes occurred within a short period of time, any differences between early-changing and late-changing states should have only a minor effect on the estimates obtained. (Table 1 contains information on the temporal distribution of divorce law changes.)

Because specific measures of the gains to marriage are unavailable, a proxy was constructed from data collected in the PSID. This proxy is the ratio of wealth in children (explained below) relative to wealth in private transferable assets. Using this proxy, I expect that the probability of divorce will increase in no-fault states relative to fault states, the higher the *ratio* of wealth in children (which, by assumption, is nontransferable) relative to non-child-wealth (which is transferable). I call the ratio of nontransferable to transferable wealth RELATIVE CHILD-WEALTH. In other words, the explanatory variable NO-FAULT DUMMY*RELA-TIVE CHILD-WEALTH is expected to have a positive coefficient when the divorce rate is regressed on it. Since RELATIVE CHILD-WEALTH is a crucial variable in the empirical analysis, the method of its construction is worth consideration.

Wealth in children is not directly measured in the PSID. However, the analysis of Edward Lazear and Robert Michael²⁷ provides a procedure for obtaining RELATIVE CHILD-WEALTH estimates from observables

²⁴ Problems from using panel data arise from unobserved heterogeneity and duration dependence. The bias induced in the coefficient on the marriage duration variable is unambiguously negative for unobserved heterogeneity but ambiguous for duration dependence. The nature of the bias on the coefficient on the variable of interest due to unobserved heterogeneity and duration dependence is an unresolved question. See Nicholas M. Kiefer, Economic Duration Data and Hazard Functions, 26 J. Econ. Literature 646 (1988), and Alice Nakamura & Masao Nakamura, Analysis and Empirical Evidence on Measuring the Labor Supply Effects of Children (1991).

²⁵ Peters, supra note 3, presents one example of this problem.

 $^{^{26}}$ The methodology for selecting these sixteen states and attributing the dates at which their laws changed is described in Table 1 and in the Appendix.

²⁷ Edward P. Lazear & Robert T. Michael, Allocation of Income within the Household (1988).

TABLE 1

YEAR (and Effective Date) OF STATE DIVORCE LAW CHANGES TO NO-FAULT

1970	1971	1972	1973	1974	1976	1977
California (January 1)	Florida (July 1)	Colorado (January 1)	Arizona (August 8)	Minnesota (March 15)	Montana (January 1)	Wyoming (May 27)
Iowa (July 1)	Oregon (October 1)	Kentucky (July 1)	Hawaii (July 1)			
		Michigan (January 1)	Indiana (September 1)			
		Nebraska (July 6)	Nevada (July 1)			
			Washington (April 25)			

Note.—The exact dates at which the law became effective were determined via consultation of the relevant state codes listed below and by conversations with state legislative information personnel. See Cal. [Civ.] Code § 4506(1) (West 1983); Iowa Code Ann. § 598.17 (West 1981); Fla. Stat. § 61.052(1)(a) (1985); Or. Rev. Stat. § 107.025 (1990); 1987 Colo. Rev. Stat. § 14-10-106(II); Ky. Rev. Ann. Stat. § 403.140 (1984); Mich. Comp. Laws Ann. § 552.6(1) (West 1988); Neb. Rev. Stat. § 42-361 (1988); Ariz. Rev. Stat. Ann. § 25-312(3) (West 1984); Haw. Rev. Stat. § 580-42 (1985); Ind. Code Ann. § 31-1-11.5-3(a)(1) (Burns 1987); Nev. Rev. Stat. § 125.010(3) (1986); Wash. Rev. Code Ann. § 26.09.030 (West 1986); Minn. Stat. Ann. § 518.06 (West 1990); Mont. Code Ann. § 40-4-104(b) (1976); Wyo. Stat. § 20-2-104 (1977).

in the PSID. They estimate the proportion of expenditures per child relative to expenditures per adult (within a family) from a regression employing Consumer Expenditure Survey (CES) data. This same proportion can then be derived from the PSID; estimates of the proportion from the PSID can then be multiplied by "spending per adult," which is observed, to determine total spending on children within a household.²⁸ This measure of total spending on children is used as the numerator of RELATIVE CHILD-WEALTH. The denominator of RELATIVE CHILD-WEALTH is the sum of a constructed asset measure (house value plus car values) and a permanent income measure based on a three-year moving average

²⁸ The equation I employed to predict this proportion, or ratio, is RATIO = .11917 + .01662*(YEARS OF SCHOOLING) + .00238*(AGE OF HUSBAND) - .00428*(TOTAL INCOME IN THOUSANDS) - .01443*(SOUTH DUMMY VARIABLE) - .06638*(RU-RAL DUMMY VARIABLE) - .06948*(RACE DUMMY VARIABLE) + .1087*(HOUSE-HOLD LABOR FORCE PARTICIPATION RATIO) - .01668*(NUMBER OF CHILDREN); see *id*. The average value of the ratio estimated from the PSID is .36, as compared to the average value of .38 found by Lazear and Michael in the CES. Total spending on children is then estimated by [(NUMBER OF CHILDREN)*RATIO*(TOTAL EXPENDI-TURES)]/[2 + RATIO*(NUMBER OF CHILDREN)].

of total household income, converted from a stock to a flow.²⁹ This conversion allows numerator and denominator to be expressed in the same units, either "wealth" or "income," yielding a ratio which could be named "RELATIVE CHILD-WEALTH" or "RELATIVE CHILD-INCOME."

Table 2 presents a benchmark regression, regression (1), containing the principal variable of interest, NO-FAULT DUMMY*RELATIVE CHILD-WEALTH.³⁰ The coefficient on this variable is positive and significant at the 5 percent level.³¹ (Variable definitions and summary statistics are reported in the Appendix.) Other regressors in (1) exhibit the expected signs. TOTAL CHILD EXPENDITURES decreases the probability of divorce (significant at the 1 percent level), a result consistent with the interpretation of investments in children as marriage-specific.³² Increased ASSETS decreases the probability of divorce (significant at the 1 percent level), suggesting that decreased spousal specialization (between the labor market and the household) is maritally destabilizing.³³

Additional results from regression (1) can be noted. Catholics are less likely to divorce; the RELIGION DUMMY is negative and significant at the 5 percent level. The greater the number of PREVIOUS DIVORCES by the husband, the greater the likelihood of divorce in the current marriage. This effect, significant at the 5 percent level, suggests that PREVI-OUS DIVORCES reflects unobservable marriage-detrimental characteristics. MARRIAGE DURATION reduces the probability of divorce and is significant at the 1 percent level. The husband's AGE AT MARRIAGE is negative and significant, probably reflecting that longer search leads to more stable marriages. The EDUCATION OF WIFE, probably a proxy for wife's age at marriage (which cannot be obtained from the PSID), also reduces the likelihood of divorce and is significant at the 5 percent

 29 This denominator, which is a stock, is then divided by 10 to convert it into a flow to correspond to the numerator, which is also expressed as a flow. (That is, the real rate of interest is assumed to be 10 percent.)

 30 In all regressions, the dependent variable is a 0-1 dummy variable which indicates one if divorce occurred between the previous and current survey, and the unit of observation is marriage-years.

³¹ The effect, that is, coefficient times mean, of NO-FAULT DUMMY*RELATIVE CHILD-WEALTH on the dependent variable is the same order of magnitude as all other independent effects in the regression.

³² See, for example, Gary S. Becker, Elisabeth M. Landes, & Robert T. Michael, An Economic Analysis of Marital Instability, 85 J. Pol. Econ. 1141–87 (1977).

³³ HUSBAND'S INCOME is insignificant since its effect is picked up by the ASSETS variable; the correlation coefficient between the two is .81.

VARIABLE (1) ((2)
INTERCEPT -1.70 -1.7	76
(2.33)** (2.3	30)**
TOTAL CHILD EXPENDITURES00020	0002
(2.70)*** (2.5	56)***
NO-FAULT DUMMY* RELATIVE CHILD-WEALTH 1.24 1.3	35
(2.01)** (1.7	79)*
HUSBAND'S INCOME .000004 .00	0004
(.14) (.	14)
WIFE'S INCOME .0002 .0	0002
(5.51)*** (5.4	49)***
RELIGION DUMMY (CATHOLIC = 1) 32 $$	32
(2.04)** (2.0	04)**
RACE DUMMY (NON-WHITE = 1) $.21$	21
$(1.46) \qquad (1.4)$	46) 20
$MIGRATION DUMMY (MOVED = 1) \qquad .30 \qquad$	30
$(2.22)^{**} \qquad (2.22)^{**} \qquad $	21)**
UKBAN POPULATION INDEX (SMALLEST = 6) 10 $$	10
$(2.0)^{+++} (2.0)$	44 44
# FREVIOUS DIVORCES .44 .4 (2.56)** (2.56)**	44 57)**
AGE AT MAPPIAGE = 04 = 0	57) 04
$\begin{array}{c} \\ \\ (4 \ 71) \\ *** \\ (4 \ 71) \\ *** \\ (4 \ 71) \\ *** \\ (4 \ 71) \\ *** \\ (4 \ 71) \\ *** \\ (4 \ 71) \\ *** \\ (4 \ 71) \\ *** \\ (4 \ 71) \\ *** \\ (4 \ 71) \\ *** \\ (4 \ 71) \\ (4 \ 71) \\ (4 \ 71) \\$	0 4 71)***
MARRIAGE DURATION -04 -0	04
(6.17)*** (6.	13)***
EDUCATION OF HUSBAND .04	04
(1.04) (1.9	04)
EDUCATION OF WIFE09	09
(2.10)** (2.1	09)**
DIVORCE LAW DURATION .0001 .9	0002
(.00) (.0	00)
U.S. DIVORCE RATE .04 .0	05
(.97) (.9	99)
ASSETS0000080	00008
(3.53)*** (3.4	2)***
NO-FAULT DUMMY VARIABLE	07
(24)
N 12.599 12	,599
-2(log L*) 2,680.97 2,6	80.90

TABLE 2

BENCHMARK REGRESSION RESULTS Dependent Variable: DIVORCE DUMMY VARIABLE (DIVORCE = 1)

NOTE.—Numbers in parentheses are asymptotic *t*-statistics. * Significant at 10 percent level. ** Significant at 5 percent level. *** Significant at 1 percent level.

level. Finally, the URBAN POPULATION INDEX is negative (residents of smaller areas are less likely to divorce) and significant at the 1 percent level, and the MIGRATION DUMMY is positive (recent movers are more likely to divorce) and significant at the 5 percent level. Other variables measuring RACE, EDUCATION OF HUSBAND, and various time trends, are insignificant.

Regression (2) in Table 2 includes both the NO-FAULT DUMMY and NO-FAULT DUMMY*RELATIVE CHILD-WEALTH variables to test the hypothesis that no-fault, operating through some mechanism other than that described in this article, may be significant. If the transition to no-fault divorce law increases the probability of divorce *regardless* of the relationship between investments in children and investments in transferable assets, the coefficient on the NO-FAULT DUMMY should be positive and significant. Since such an effect is not observed in regression (2), this result appears to support the hypothesis that a shift to no-fault divorce law will not increase the divorce rate *independent* of the transferability problem described in this article. Nevertheless, despite the inclusion of the NO-FAULT DUMMY, the coefficient on NO-FAULT DUMMY*RELATIVE CHILD-WEALTH is still positive and significant at the 10 percent level.^{34,35}

Given the evidence supporting the hypothesis that the transition to no-fault divorce law has increased the divorce rate (given the presence of the public good, children), it is worthwhile to calculate the magnitude of this effect. The increased probability of divorce due to no-fault can be

³⁵ The robustness of the benchmark regression results was tested in a variety of ways. NO-FAULT DUMMY*RELATIVE CHILD-WEALTH remained significant at the 10 percent level despite the inclusion of state dummy variables to remove fixed effects. RELA-TIVE CHILD-WEALTH itself was insignificant when included in divorce regressions on two samples: states whose laws changed and states whose laws did not. Substituting alternative measures in the numerator and denominator of RELATIVE CHILD-WEALTH sometimes made NO-FAULT DUMMY*RELATIVE CHILD-WEALTH insignificant and sometimes did not, depending on the closeness of the substitutes to the original definition. Pooling the "pure" and "mixed" no-fault states kept NO-FAULT DUMMY*RELATIVE CHILD-WEALTH significant, but substituting Jacob's group of "pure" no-fault states for the author's caused the variable of interest to become insignificant. Also, the benchmark results were robust to the inclusion of explanatory variables such as Aid to Families with Dependent Children payments (as suggested by Robert T. Michael, Why Did the U.S. Divorce Rate Double within a Decade? in 6 Research in Population Economics 367 (T. Paul Schultz ed. 1988)), and a quadratic age-at-marriage term (as suggested by Becker, Landes, & Michael, supra note 32). Also, certain highly correlated explanatory variables were omitted without affecting the central result.

³⁴ Additionally, a regression was run including only NO-FAULT DUMMY without NO-FAULT DUMMY*RELATIVE CHILD-WEALTH. NO-FAULT DUMMY was insignificant in this misspecified regression. Finally, besides the results presented in the article, a set of regressions was run in which the NO-FAULT DUMMY was added to every specification tested; it never attained a t-statistic exceeding 1.00.

calculated by comparing two divorce-rate estimates computed from the benchmark regression estimates.³⁶ For a couple with the average characteristics of the sample, the probability of divorce in any particular year is 1.16 percent in a fault-based legal regime but rises to 1.43 percent as the result of a one-year change to no-fault. The change from fault to no-fault results in an estimated increase in the annual divorce rate of .27 percentage points, or a rate of increase of 23.3 percent.

III. CONCLUSION

This article demonstrates that more divorces occur in a regime of nofault divorce. The reason is that the public-goods aspect of children within marriage can make a large fraction of each spouse's gains to marriage nontransferable. Under no-fault, this can lead to divorce even when the joint gains from marriage are positive. The model predicts that residents of states whose divorce laws changed from fault to no-fault are more likely to divorce, the higher the fraction of their assets invested in children. I tested this prediction on data from the Panel Study of Income Dynamics over the interval 1968-81. These tests support the prediction that more divorces occur under no-fault for this reason. Moreover, this effect is substantial. The transition to no-fault divorce law increases the annual divorce rate by 23 percent. In addition, no-fault is inefficient compared to fault if children are not also a public good within *divorce*. Consequently, no-fault divorce may be less desirable than mutual consent divorce, at least for couples with children (or other important marital public goods).

³⁶ Estimating the probability of divorce by means of a logistic regression implies that the cumulative distribution function of the probability of divorce is of the form p = F(a + bX)= $1/[1 + e^{-(a+bX)}]$. In order to capture the effect of changing the divorce law from fault to no-fault, two components of the X vector are set to 0-NO-FAULT DUMMY*RELATIVE CHILD-WEALTH and DIVORCE LAW DURATION. Other components of the X vector are set to the mean sample values, except for the seven dummy/categorical variables-RELIGION DUMMY, RACE DUMMY, MIGRATION DUMMY, URBAN POPULA-TION INDEX, PREVIOUS DIVORCES, EDUCATION OF HUSBAND, and EDUCA-TION OF WIFE-which are set equal to the integer nearest to the mean value. Substituting the estimated values of a and b into the expression for the cumulative distribution function thus yields the average annual probability of divorce (total annual divorces divided by the stock of marriages) for a couple with average characteristics in the sample, 1.16 percent. The calculation is then repeated with NO-FAULT DUMMY and DIVORCE LAW DURA-TION set equal to one and RELATIVE CHILD-WEALTH set equal to its mean value to evaluate the one-year impact of a change to no-fault. The average annual probability of divorce generated by this calculation is 1.43 percent. Note that calculating the increase in the divorce rate in this manner may yield somewhat of an overestimate, however, since the realization that RELATIVE CHILD-WEALTH is endogenous means that it will decrease in response to a transition to no-fault divorce (see Zelder, supra note 12). Thus, the 23.3 percent increase should be interpreted as an upper bound on the true magnitude.

A number of other papers report empirical investigations supporting the proposition that no-fault had no effect on the divorce rate.³⁷ A careful examination of the studies suggests that their results should be cautiously received. Two shortcomings should be noted. First, there are problems in estimating or controlling for divorce trends in the absence of no-fault. Second, there are problems in classifying states as either "fault" or "nofault." Had these shortcomings been remedied, the results of these studies might well have indicated that no-fault divorce law *did* increase the divorce rate.³⁸

Finally, the idea of nontransferable public goods can be extended to question the presumption that unilateral dissolutions of every type of human relationship, from two friends to a nation-state, are likely to be efficient. This article suggests paradoxically that greater restrictions on the termination of relationships may enhance efficiency.

APPENDIX

METHODOLOGY FOR CLARIFYING DIVORCE LAWS AND DEFINITIONS AND SUMMARY STATISTICS FOR EXPLANATORY VARIABLES

LAW CLASSIFICATION

In order to analyze no-fault divorce law's effect, states must be categorized properly as "fault" or "no-fault" at each moment in time. For this purpose, state codes were carefully examined to discover the presence of language signifying the adoption of no-fault law. Furthermore, to specify the exact date on which no-fault became effective in each state, each state's legislative information office was contacted. Beyond this simple methodology, however, divorce law classification is still a subject of some controversy. Elizabeth Peters³⁹ and Herbert Jacob⁴⁰ offer two competing alternatives. To

Elizabeth Peters³⁹ and Herbert Jacob⁴⁰ offer two competing alternatives. To understand the differences in their categories, it is necessary to describe the different configurations of state divorce laws which exist. States fit into one of

³⁷ Examples of studies discerning no effect are Robert Schoen, Harry N. Greenblatt, & Robert B. Mielke, California's Experience with Non-adversary Divorce, 12 Demography 223-41 (1975); Becker, *supra* note 2; Annemette Sørenson, The Flight from Unhappiness: Causes and Implications of the Recent Upturn in Divorce. The Case of Denmark (unpublished Ph.D. dissertation, Univ. Wisconsin, August 1980); Alan H. Frank, John J. Berman, & Stanley F. Mazur-Hart, No Fault Divorce and the Divorce Rate: The Nebraska Experience—an Interrupted Time Series Analysis and Commentary, 58 Neb. L. Rev. 1–99 (1978); William R. Johnson & Jonathan Skinner, Labor Supply and Marital Separation, 76 Am. Econ. Rev. 455-69 (1986); and Peters, *supra* note 3.

³⁸ These two problems and their specific occurrences in the literature are explored in detail in Zelder, *supra* note 6.

³⁹ Peters, *supra* note 3; and H. Elizabeth Peters, The Impact of Regulation of Marriage, Divorce, and Property Settlements (unpublished Ph.D. dissertation, Univ. Chicago, December 1983).

⁴⁰ Herbert Jacob, Another Look at No-Fault Divorce and the Post-divorce Finances of Women, 23 Law & Soc'y Rev. 95 (1989).

three basic groups: "pure" no-fault (only no-fault grounds are offered), "pure" fault (only fault grounds are offered), and "mixed" (both fault and no-fault grounds are offered). Peters defines as effectively no-fault those states which are either (1) "pure" no-fault states or (2) belong to a particular subset of "mixed" states. Excluded from this subset are states which allow "no-fault" divorce only if the couple *mutually* consents to the divorce *settlement* (and thus are not essentially no-fault states) and states which allow "no-fault" divorce only if the couple *separates* for a specified period of time.⁴¹ Consequently, the states classified by Peters as *mutual* consent are the states with only fault grounds *plus* the two excluded categories described above. Peters's decision to categorize *any* "mixed" state as effectively no-fault is, however, only defended by her claim that, for "mixed" states, "[i]n practice, . . . [no-fault] dominates."⁴² Peters, however, does not support this claim formally or with evidence regarding the frequency of no-fault divorce in states with "mixed" grounds.

Peters's taxonomy of divorce laws has been criticized by Jacob.⁴³ The essence of Jacob's critique is that it is inappropriate to classify any "mixed" states as "no-fault." Consequently, Jacob regards as effectively no-fault only the "pure" no-fault states. All states with "mixed" fault and no-fault grounds are classified as mutual consent (along with the "pure" fault states).

Jacob rightfully perceives states with "mixed" grounds as difficult to classify because no data exist with respect to the proportion of no-fault divorces in such states. The method of classification selected by Jacob, however, is arbitrary. The categorization chosen by Peters implicitly assumes that states with "mixed" grounds and required separation periods are states in which the total resources available at divorce are larger under fault-based divorce and that, for all other "mixed" states, total resources are maximized by choosing no-fault divorce. Jacob implicitly assumes, alternatively, that in any "mixed" state, resources are always maximized by choosing fault-based divorce.

Even if one accepts Jacob's method of classification, the results he derives are puzzling. Jacob claims to apply strictly the categories of divorce law classification found in the periodic summary articles by Doris Freed and Henry Foster in Family Law Quarterly⁴⁴ and purports to find thirteen states with "pure" no-fault grounds.⁴⁵ Although this list bears some resemblance to the list of "pure" no-fault states I constructed (see Table 1), it is not a match in terms of timing and membership. Jacob appears to inappropriately include Missouri and Wisconsin and fails

⁴¹ Peters, The Impact of Regulation of Marriage, Divorce, and Property Settlements, *supra* note 39, at 12.

⁴² Peters, The Impact of Regulation of Marriage, Divorce, and Property Settlements, *supra* note 39, at 11, n.11.

⁴³ Jacob, *supra* note 40.

⁴⁴ Doris Jonas Freed, Grounds for Divorce in the American Jurisdictions, 6 Family L. Q. 179 (1972); Doris Jonas Freed, Grounds for Divorce in the American Jurisdictions (as of June 1, 1974), 8 Family L. Q. 401 (1974); Doris Jonas Freed & Henry H. Foster, Jr., Divorce in the Fifty States: An Outline, 11 Family L. Q. 297 (1977); Doris Jonas Freed & Henry H. Foster, Jr., Divorce in the Fifty States: An Overview as of 1978, 13 Family L. Q. 105 (1979).

⁴⁵ The thirteen states and their purported dates of adoption of no-fault are California (1970), Iowa (1970), Colorado (1971), Florida (1971), Michigan (1971), Oregon (1971), Kentucky (1972), Nebraska (1972), Arizona (1973), Missouri (1973), Washington (1973), Montana (1975), and Wisconsin (1977); see Jacob, *supra* note 40, at 103.

to include "pure" no-fault states Hawaii, Indiana, Minnesota, Nevada, and Wyoming. Jacob also sets the year of legal change one year too early in Colorado and Michigan, using the year in which the law was approved rather than the year in which it became effective. Finally, Jacob presents no evidence regarding the frequency of use of no-fault versus fault grounds in states with "mixed" grounds. Because disagreement exists as to the proper classification of "mixed" states. two tests were conducted to determine if the "mixed" and "pure" no-fault states were significantly different. First, the "mixed" and "pure" states were combined into one sample, and a regression (with the divorce dummy variable as the dependent variable) was run which included all of the independent variables used in the benchmark regression found in Table 2, column 1, as well as a dummy variable to distinguish the "mixed" and "pure" states. The dummy variable was significant. Also, a Chow test was performed, and the likelihood ratio of 36.59 with seventeen degrees of freedom indicates that the pure and mixed samples are different at the 1 percent level if all coefficients are allowed to vary. Consequently, the "pure" and "mixed" states were separated, and the "pure" states were used as the sample of no-fault states for this inquiry.

VARIABLE DEFINITIONS

TOTAL CHILD EXPENDITURES = real total expenditures (in 1967 dollars) on all children in family; constructed from observables and regression coefficients in Lazear and Michael (1988).

NO-FAULT DUMMY = 1 if state is no-fault; 0 if state is mutual consent.

RELATIVE CHILD-WEALTH = (10*TOTAL CHILD EXPENDITURES)/ASSETS.

HUSBAND'S INCOME = sum of husband's labor income, rent, interest, and dividend income, and miscellaneous transfers; in 1967 dollars.

WIFE'S INCOME = sum of wife's labor income, income from assets, and transfer income; in 1967 dollars.

RELIGION DUMMY = 1 if Catholic; 0 if not Catholic.

RACE DUMMY = 1 if nonwhite; 0 if white.

MIGRATION DUMMY = 1 if moved; 0 if not moved (within last sample period).

URBAN POPULATION INDEX = categorized according to size of largest city in primary sampling unit: 1 = 500,000 or more; 2 = 100,000-499,999; 3 = 100,000-499,000; 3 = 100,0000-499,000; 3 = 100,000; 3 = 100,000; 3 = 100

50,000-99,999; 4 = 25,000-49,999; 5 = 10,000-24,999; 6 = less than 10,000.

PREVIOUS DIVORCES = number of previous divorces by husband. AGE AT MARRIAGE = age of husband at beginning of marriage.

EDUCATION OF HUSBAND = categorized as follows: 0 = cannot read or write; 1 = grades 0-5; 2 = grades 6-8; 3 = grades 9-11; 4 = grade 12; 5 = grade 12 plus nonacademic training; 6 = college but no degree; 7 = college degree; 8 = college degree plus advanced degree.

EDUCATION OF WIFE = same as EDUCATION OF HUSBAND.

DIVORCE LAW DURATION = time since change to no-fault divorce law.

U.S. DIVORCE RATE = annual divorce percentage among married women aged 15-44.

AFDC PAYMENTS = average real (1967 dollars) AFDC payments per state, per family.

ASSETS = real (1967 dollars) nonchild assets; sum of house, automobiles, and permanent income values.

MARRIAGE DURATION = length of marriage in years.

TABLE A1

SUMMARY STATISTICS

-

Variable	Mean	SD	Minimum	Maximum
TOTAL CHILD EXPENDITURES	2,001.28	1,984.14	0	12,459.30
NO-FAULT DUMMY VARIABLE	.80	.40	Ø	1
NO-FAULT DUMMY*RELATIVE				
CHILD-WEALTH	.13	.14	0	.75
RELATIVE CHILD-WEALTH	.17	.15	0	.75
HUSBAND'S INCOME	7,529.27	5,670.67	0	71,647.40
WIFE'S INCOME	1,380.08	2,067.78	0	18,782.90
RELIGION DUMMY (CATHOLIC = 1)	.23	.42	0	1
RACE DUMMY (NON-WHITE $= 1$)	.19	.40	0	1
MIGRATION DUMMY (MOVED = 1)	.18	.38	0	1
URBAN POPULATION INDEX				
(SMALLEST = 6)	2.85	1.81	1	6
# PREVIOUS DIVORCES	.20	.41	0	2
AGE AT MARRIAGE	26.98	10.32	12	83
MARRIAGE DURATION	22.52	12.09	1	63
EDUCATION OF HUSBAND	4.28	1.85	0	8
EDUCATION OF WIFE	4.11	1.59	0	8
DIVORCE LAW DURATION	4.33	3.45	0	12
U.S. DIVORCE RATE	19.16	3.00	13.4	22.8
ASSETS	117,064	63,300.2	6,411.01	630,573