Department of Economics
and
Institute for Policy Analysis
University of Toronto
150 St. George Street
Toronto, Ontario M5S 1A1
Canada

WORKING PAPER
NUMBER UT-ECIPA-REAS-95-01

Breaking Up is Hard to Do: The Economics of Spousal Support

by

Samuel A. Rea, Jr.

January 20, 1995

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Department of Economics
University of Toronto

ISSN 0829-4909

Available on-line at http://www.epas.utoronto.ca:5680/wpa/wpa.html

Abstract

The introduction of "no-fault" divorce in most of North America has eliminated the traditional basis for spousal support without providing a satisfactory alternative. Women who have reduced their labor force participation to look after a home and raise children are particularly disadvantaged by divorce. Recent cases and legal scholarship have attempted to find ways of recognizing the investment that a woman has made in the family and in her husband's career. In a recent case, Elliot v. Elliot, an Ontario court awarded the woman half of the difference between her earnings had she not married and her earnings after the divorce. A logical extension of the case would also award her half of any increase in his earnings resulting from the marriage. The model developed in this paper highlights the changes in earnings that result from specialization in housework or market work, investment in children, and investment in the spouse's human capital. The efficiency of marriage matches and divorce are also analyzed. Many alternative concepts of spousal support are presented within the framework of the model, and the incentive effects on human capital, marriage, and divorce are considered. Although no measure is perfect, the paper concludes that the approach taken in Elliot, adjusted for additional leisure enjoyed during marriage, offers a reasonable compromise between competing objectives. Property division is also considered within the same framework.

I. Introduction[1]

The introduction of "no-fault" divorce in most of North America has eliminated the traditional basis for spousal support without providing a satisfactory alternative. The woman who has reduced her labor force participation to look after a home and raise children will have much more to lose from a divorce than her husband, but the law in North America is still groping for a way of quantifying this loss. In a recent case, *Elliot v. Elliot*[2], an Ontario trial court awarded the wife *half* of the difference between her earnings had she not married and her earnings after the divorce. This difference is referred to as the lost earning capacity. A logical extension of this case would also award the woman half of any increase in the man's earnings resulting from marriage.[3] Ellman (1989) suggests that alimony should equal the loss of earning capacity, except in the case of a homemaker, who may claim *half* of her lost earning capacity. Similar issues arise when the husband has acquired professional qualifications during the marriage. Some courts have held that a woman who has supported her husband during his education is entitled to a portion of his future earnings.[4]

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[1] The author is grateful to Margaret Brinig, Michael Peters, Carol Rogerson, Michael Trebilcock, Richard Posner, and Ralph Winter for their helpful comments.

[2] 42 R.F.L.(3d) 7 (Ont U.F.C. 1992). The Court of Appeal did not endorse this approach, 106 D.L.R.(thy) 609 (Ont. C.A. 1993). A recent Supreme Court of Canada decision (*Moge v Moge*, [1992] 3 S.C.R. 813) agrees that lost earning capacity is *one* ground for support but does not specify any specific method of calculating the loss.

[3] In a previous case, *Ormerod v. Ormerod*, the court awarded all of the lost earning capacity to the woman. 27 R.F.L. (3d) 225 (Ont. U.F.C.1990).

[4] *O'Brien v. O'Brien*, 66 N.Y. 2d 576 (1985). This view has not generally prevailed, however. The Court of Appeal in Ontario recently rejected the idea that a man's professional license could be treated like any other asset *Caratun v. Caratun*, 42 R.F.L. (3d) 113 (Ont C.A. 1992). In some jurisdictions courts have held that a degree is not property (which could be divided), but the contribution to a spouse's education could be taken into account in determining spousal support, *In Re Marriage of Graham*, 574 P.2d 75 (Colo.1978). *Mahoney v. Mahoney*, 453 A.2d 527 (N.J. 1982).

Following the introduction of no-fault divorce, United States and Canadian family law has tended to pay more attention to the woman's investment in children and her spouse and less attention to the loss of her husband's support. The model developed below highlights the changes in earnings that result from specialization in housework or market work, investment in children, and investment in the spouse's human capital.[5] The efficiency of marriage matches and divorce are also analyzed. Alternative concepts of spousal support are presented within the framework of the model.

An economic approach to marriage suggests that family law should have many features in common with contract law. Why not simply allow couples to write their own marriage contracts and use contract law to enforce these contracts? One justification for family law is that the state can provide a standard-form marriage contract, relieving the parties of transaction costs. This justification is more convincing in the marriage context than in other markets. The negotiation of terms for a divorce is incompatible with planning a marriage ceremony. It is not surprising that marriage contracts are found only when there are strong reasons for deviating from the standard terms.

Viewed from an economic perspective, the law should provide the spousal support that the parties would have negotiated, had such negotiation been costless.[6] Such a contract would induce efficient behavior during marriage and allocate the risk of divorce. The default rules for spousal support go beyond what two parties might negotiate because the rules will influence the sorting of prospective mates in the "marriage market". It seems reasonable that another objective of family law should be to maximize the aggregate output from marriages.

There are several features which make marriage different than a typical contract. First, marriage may provide significant non-pecuniary benefits; second, these benefits may

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[5] Landes(1978) and Posner(1992a, 1992b) discusses the merits of alternative divorce regimes. Brinig and Carbone(1988) emphasize the woman's investment in marriage.

[6] See Trebilcock and Keshvani (1991).

disappear or become negative in the future, leading to divorce; and third, during the marriage many decisions will be made altruistically for the benefit of the other person.

An economic model of the marriage decision and individual choices within marriage must capture the fundamental tension between concern for one's spouse and the recognition that there is a chance of divorce. Given this tension, the model in this paper is based on two assumptions concerning behavior. First, it is assumed that decisions to marry, divorce, and invest in human capital are based on self-interest. Consequently, the spousal support rules will affect the efficiency of these decisions.[7] Second, it is assumed that spouses are constrained to share consumption equally. Allen (1992) explains how an equal-sharing rule can emerge as a method of reducing shirking in the supply of marital inputs. Farrell and Scotchmer (1988) suggest that sharing may be necessary to avoid costly rent-seeking behaviour. Couples who do not want equal-sharing can contract around equal sharing, but equal-sharing seems to be an obvious default rule.

The next section of the paper describes the impact of spousal benefits on the marriage market. Section III presents a simple model of the important variables in marriage that is general enough to permit analysis of a wide range of spousal support rules. Section IV examines the incentives for investment in human capital, labor supply and divorce. Section V outlines a set of alternative measures of spousal support. Section VI considers the effects of the rules on the efficiency of decisions within marriage. Section VII extends the model to property settlement, and Section VIII applies the model to some much-discussed examples, the woman who puts her husband through medical school and the man who passes up a promotion because his wife does not wish to move. The policy implications of the results are discussed in a concluding section.

[7]If the investment decisions maximize joint profits, the spousal support rules will not affect these decisions.

II. Spousal Support and the Incentive to Marry

Becker(1981) describes the marriage and engagement process as a market in which single individuals sort into marriage. The terms of the marriage contract are significantly altered by mandatory spousal support. It is in the interest of both parties to have an *ex ante* efficient marriage contract, i.e., one that encourages efficient investment in human capital and specialization in the family. However, the benefits of the marriage must be positive for the parties to marry in the first place. In Becker's model sorting maximizes the aggregate output in the marriage market. This conclusion is altered if bargaining prior to marriage is constrained by sharing during marriage or by laws that regulate spousal support.

In the marriage context there is reason to believe that pre-nuptial contracting imposes high transactions costs and may be interpreted as a signal of a high probability of divorce. Therefore, I assume that this contracting does not take place[8] and that dowries and bride prices are not permitted. In the same spirit it is assumed that married couples share income equally and cannot make side payments within the marriage.[9]

Each person seeking a partner will attempt to maximize the individual benefits from marriage. These benefits consist of half of family income plus non-pecuniary benefits (including household production). Therefore, it is desirable to find a mate with high income, as well as one that is compatible. In a world without search costs, the law of large numbers would suggest that individuals with equal incomes could find mates who are highly compatible. More realistically, the number of possible mates is finite, and individuals will not always find mates with exactly the same income.

Maximum output is achieved in the marriage market when the sum of non-

[8]In some jurisdictions some aspects of property settlements cannot be altered by pre-nuptial agreements.

[9]Farrell and Scotchmer (1988) similarly constrain partnership contracts.

pecuniary benefits is maximized.[10] The pooling of family income merely transfers income from the higher income spouse to the other. Given the constraints imposed by equal sharing and the lack of pre-nuptial transfers, the marriage market will not necessarily maximize the sum of non-pecuniary benefits.[11]

Mandatory spousal benefits may make the marriage market less efficient than otherwise. In a subsequent section of this paper it is demonstrated that a distinguishing feature of alternative rules for spousal benefits is the amount of the pre-existing earning capacity that is transferred from one spouse to another if divorce occurs. It follows that some spousal support measures will place a significant "tax" on the marriage of individuals with unequal market earning capacity, reducing the total output in the marriage market.

One can conclude that the constraints imposed on couples by the sharing rule, the lack of transferability of non-pecuniary benefits, and the transactions costs of pre-nuptial bargaining deter some efficient marriages between spouses with different earning capacity. Spousal benefits that transfer initial wealth further increase the cost of marrying someone with lower earning capacity and further reduce the expected aggregate marital output.[12] Given that alternative legal rules for spousal support differ in the in the amount of pre-existing earning capacity that is transferred in the event of divorce, some measures will lead to more efficient marriages than others. For such transfers to be beneficial there must be some other benefit which is created, such as improvements in the efficiency of investment in human capital, specialization in the household, or allocation of risk between individuals. These issues are discussed below.

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[10]Psychologists have found evidence of matching based on physical attractiveness, among other things. See Feingold (l988) for example.

[11]See Mortensen (1988, S222).

[12]These results do not necessarily extend to commercial contracting situations because contracting parties can usually contract around the damage rule by altering the price.

III. The Basic Model

In the model that is developed below the two parties to the contract are referred to as the man and woman for expositive purposes In the discussion it is also assumed that the male has higher earnings than the woman before and after marriage, but the model is equally applicable with the stereotypical roles reversed.

A simple two-period model can illustrate most of the economic issues in marriage and divorce. The marriage occurs at the beginning of the first period. The woman may reduce her participation in the labor force in the first period to look after children. After the children become independent at the end of the first period, divorce occurs, and the woman's earnings are lower than they would have been had she not married. It is assumed that the woman would have returned to the labor force in the second period had the divorce not occurred.[13] For simplicity, discounting is implicit, and it is assumed that there are no advantages or disadvantages of sharing a home.[14] It is assumed that during marriage all income is divided with a fraction λ for the husband and $(1 - \lambda)$ for the wife. All income that is not spent on tuition is consumed during period 1.[15] For simplicity, household public goods are excluded from the model. It is implicitly assumed that the children are supported by both parents out of their shares of income.[16] Finally, assume that there is constant marginal utility of income, that the rate of time preference equals the

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[13]I assume that the woman would be expected to mitigate any loss by working in the labour market if it is efficient to do so.

[14]The conclusions are not unaffected by altering this assumption.

[15]Saving and asset accumulation are considered below.

[16]In the paper the children are assumed to be independent at the time of divorce. If they continue to be dependent, it seems reasonable to calculate child support after spousal support. The contribution of each spouse to child support would depend on the relative incomes, including spousal support. Time spent on child care by the custodial parent would implicitly be compensated under the spousal support measures considered here if child care reduced market earnings.

interest rate, and that the monetary value of non-pecuniary benefits is not affected by the level of income.

Define the following variables, where j is m if male and f if female (each variable is measured per period and is discounted to the beginning of period 2):

Y_{ji}' = Earnings if *no* marriage, person j, period i

Y_{ji} = Earnings if marriage, person j, period i

C_{ji} = Value of children to person j in period i

B_{ji} = Value of marriage to person j in period i

T = Expenditures on Parents' Education in period 1

At the time of the marriage both are better off because of the marriage. If they expect the marriage to continue, there are expected profits, π_m and π_f, which are expressed in present value as of the beginning of period 2:

$$\pi_m = \lambda\ (Y_{m1}+Y_{m2}+Y_{f1}+Y_{f2}-T)\ +\ \Sigma_i (C_{mi}+B_{mi}) - Y'_{m1} - Y'_{m2} \qquad \textbf{(1)}$$

$$\pi_f = (1-\lambda)\ (Y_{m1}+Y_{m2}+Y_{f1}+Y_{f2}-T)\ +\ \Sigma_i (C_{fi}+B_{fi}) - Y'_{f1} - Y'_{f2} \qquad \textbf{(2)}$$

If there is no spousal support, there is the possibility of opportunistic divorce at the beginning of period 2. The male's net gain (loss) from divorce at the beginning of period 2 is:

$$(1-\lambda)\ Y_{m2} - \lambda\ Y_{f2} - B_{m2} \qquad \textbf{(3)}$$

The advantages of divorce will be greater to the extent that male earnings exceed female earnings. This is likely for two reasons: first, male earnings are generally higher, and second, women are more likely to have spent time in period 1 looking after children and the household, further lowering their period 2 earnings. Divorce at the beginning of period 2 (when children are independent) may be attractive for the man if the non-pecuniary benefits from marriage become sufficiently small.

IV. Behavioral Responses to Spousal Support Within Marriage

A. Assumptions

Spousal support rules may affect the decision to marry and the decision to divorce. If some of the decisions taken during marriage are made by one person without regard to the benefits or costs imposed on the other, the spousal support rules might also influence behaviour during marriage. Assume that the couple have agreed on a rule for sharing income during the marriage (λ for the husband , 1 - λ for the wife). Each person chooses how much to invest in human capital based on his or her own costs and benefits, without regard to the spouse. Investment decisions are emphasized because concern over the investment made by women drives much of the current debate on spousal support.

B. Efficient Female Household Production and Market Work

An important issue that runs through most current discussion of spousal support is the sacrifice of future career prospects for current child-rearing and household services. Alternative measures of spousal support are likely to influence the willingness of women to forgo future career prospects when divorce is a possibility (see Landes, 1978). The stereotypical male derives benefits not only from the woman's provision of household services and child-rearing, but also from the ability to enhance his own earning power (Korenman and Neumark, 1991). The exact mechanism by which the earning power is increased is not clear, but for simplicity assume that the woman's withdrawal from the labor force in the first period permits the man to increase his earnings in the second period.

Assume that the woman must decide how much to work in the market in period one. A decrease in market work (H_{f1}) will increase the value of the children to both parents but will decrease the period 2 income of the woman. The period 2 income provides a benefit to the woman if divorce occurs and provides a benefit to the family if they remain married. The reduction in the woman's market work in period 1 may also increase the man's earnings in period 2. If there is no spousal support, the man will

capture all of his increase in income when divorce occurs. The probability that they remain married in period 2 is assumed to be exogenous and equal to p.

Let D equal the spousal support, which is positive if the woman receives benefits and negative if the man receives benefits. Let r equal the rate of interest. The woman who ignores the husband's financial benefits will choose H_{f1} to maximize:[17]

$$[(1-\lambda)(Y_{m1}+Y_{f1})+(1-\lambda)p(Y_{m2}+Y_{f2})+(1-p)Y_{f2} + \Sigma_i C_{fi}+B_{f1}+(1-p)B_{f2}+(1-p)D]/(1+r) \quad \textbf{(4)}$$

The first order condition is:

$$(1-\lambda)\frac{\partial Y_{f1}}{\partial H_{f1}}+((1-\lambda)p+(1-p))\frac{\partial Y_{f2}}{\partial H_{f1}}+(1-\lambda)p\frac{\partial Y_{m2}}{\partial H_{f1}}+(1-p)\frac{dD}{dH_{f1}}+\frac{\partial B_{f1}}{\partial H_{f1}} + \Sigma_i\frac{\partial C_{fi}}{\partial H_{f1}}=0 \quad \textbf{(5)}$$

If the husband's and wife's benefits are *jointly* maximized, the first order condition is:

$$\frac{\partial Y_{f1}}{\partial H_{f1}} + \frac{\partial Y_{f2}}{\partial H_{f1}} + \frac{\partial Y_{m2}}{\partial H_{f1}} + \frac{\partial B_{f1}}{\partial H_{f1}} + \Sigma_i\frac{\partial C_{fi}}{\partial H_{f1}}+\Sigma_i\frac{\partial C_{mi}}{\partial H_{f1}}=0 \quad \textbf{(6)}$$

When only the financial costs and benefits are considered, the wife's individual decision, in the absence of spousal support, will lead to too much market work and *under-investment* in children and her husband's human capital relative to what is optimal for the couple. In the event of divorce the woman bears all the costs in period 2 from her reduction in market work in period 1, and her husband captures all the returns to investment in his human capital. The value of the non-pecuniary benefits, increased leisure for a woman without children for example, would lead in the absence of divorce

[17]The costs and returns must be discounted one period because all variables are expressed in terms of present value at the beginning of period 2.

to *over-investment* in household production because the cost of the added benefits is subsidized by the husband. In other words her consumption in period 1 falls by a fraction (1-λ) of any reduction in her income. The net result of the two effects, the loss of the investment in the event of divorce and the subsidy to leisure, may be positive or negative.

The inefficient incentive or disincentive can be offset if the husband provides spousal support, with probability (1-p), which varies with H_{f1} in the following way:

$$\frac{dD}{dH_{f1}} = (1-\lambda)\frac{\partial Y_{m2}}{\partial H_{f1}} - \lambda\frac{\partial Y_{f2}}{\partial H_{f1}} - \frac{\lambda}{1-p}\frac{\partial B_{f1}}{\partial H_{f1}} + \frac{\lambda}{1-p}\Sigma_i\frac{\partial C_{fi}}{\partial H_{f1}} - \frac{1-\lambda}{1-p}\Sigma_i\frac{\partial C_{mi}}{\partial H_{fi}} \quad \textbf{(7)}$$

Section VI examines whether alternative spousal support measures satisfy this criterion.

C. Investment in Male Human Capital

Alternatively, the woman might contribute to her husband's human capital in the form of additional education. The man may reduce his current earnings and rely on his spouse's current earnings for support. The investment consists of a reduction in labor supply in period 1 (H_{m1}) that leads to an increase in Y_{m2}. The previous section considered the effect of changes in male human capital caused by reductions in female market work. Knowing that there is a probability of divorce, *(1-p)*, the husband will over-invest in his own human capital in the absence of spousal support. The man will capture all of the benefits of the investment in the event of divorce, having borne only a share λ of the costs of the investment and having received all of the non-pecuniary benefits of the reduction in labor supply in period 1.

The man will make the optimal decision if spousal support satisfies:

$$\frac{dD}{dH_{m1}} = (1-\lambda)\frac{\partial Y_{m2}}{\partial H_{m1}} + \frac{1-\lambda}{(1-p)}\frac{\partial B_{m1}}{\partial H_{m1}} \quad \textbf{(8)}$$

The spousal support induces the man to take account of the woman's share of his second period earnings and his benefits from leisure in period one.

The woman may contribute toward the cost of the man's education. The woman's

contribution is (1-λ)T, where *T* is the actual tuition plus the interest that could have been earned to the beginning of period 2. In the absence of spousal support she will under-invest in his education because he receives all of the benefits of the increase in earnings in the event of divorce. Spousal support will give the woman the correct incentive if

$$\frac{dD}{dT} = (1-\lambda)\ \frac{\partial Y_{m2}}{\partial T} \qquad \textbf{(9)}$$

The spousal support gives the woman her share of the increase in the man's second period earnings. Alternatively, the efficient investment would be induced if $dD/dT = 1 - \lambda$. This condition is satisfied if the woman's share of the tuition is repaid with interest (D = (1-λ)T).

D. Incentive to Divorce

The model of marriage outlined above accepted divorce as an exogenous event. If the divorce can be initiated by either party, the monetary incentives may affect the incidence of divorce. As analyzed by Landes(1978,38-39), efficient divorce would occur if $B_{m2} + B_{f2} < 0$. A mutual consent requirement would allow one party to benefit from a continuation of marriage at the expense of the other ($B_{f2} > 0$, $B_{m2} < 0$ and $B_{m2} + B_{f2} > 0$ for example), while unilateral divorce permits either party to initiate divorce even if the joint gains from marriage are positive. In this latter case the party wishing to remain married could compensate the other (if it were possible to deviate from equal sharing during marriage) and still choose marriage over divorce.

Without spousal support the man is more likely to initiate divorce in order to avoid making up the difference between his income and his wife's income in the second period. He will ask for a divorce if:

$$(1-\lambda)\ Y_{m2} - \lambda\ Y_{f2} \geq B_{m2} \qquad \textbf{(10)}$$

That is, the financial advantages of divorce exceed the value of the non-pecuniary benefits of remaining married in the second period. Spousal support will eliminate this

opportunistic divorce if

$$D = (1-\lambda)Y_{m2} - \lambda Y_{f2} + B_{f2} \quad \textbf{(11)}$$

V. Alternative Measures of Spousal Support

A. Introduction

Several important articles have analyzed spousal support with the language of contracts.[18] The contract damages analogy offers a useful starting point for consideration of spousal support. The usual contract remedy is expectation damages which places the victim of breach in the same position as if the contract had been performed. In the discussion of family law the man is usually considered to be the breaching party because he can frequently profit from divorce in the absence of spousal support, but the concept of fault is clearly not appropriate under a no-fault divorce regime. Alternative measures of support that are based on a division of the "profits" of marriage offer more relevance under no-fault divorce. These other measures are considered below. The alternative support rules are based on an assumption that the man and woman share income equally during marriage and that the value of children is the same for men and women.

B. Expectation

If one assumes that the woman is the victim of breach, the lost expectation (D_e) is:

$$D_e = .5\ (Y_{m2} - Y_{f2}) + B_{f2} \quad \textbf{(12)}$$

The support would equal half of the difference between male and female earnings plus the lost non-pecuniary benefit of marriage. This measure guarantees the standard of living

[18]Brinig and Carbone (1988), Ellman (1989), Carbone (1990), Carbone and Brinig (1991).

that the woman would have enjoyed in the second period.

For purposes of comparison with other measures, the Expectation measure can be decomposed into three components:

$$D_e = .5(Y'_{f2} - Y_{f2}) + .5(Y_{m2} - Y'_{m2}) + .5(Y'_{m2} - Y'_{f2}) + B_{f2} \quad \textbf{(13)}$$

That is, the expectation includes half of the woman's loss of earning capacity, half of the man's increase in wages due to marriage, and half of the difference between their unmarried wages. The support would be paid for the duration of period 2, *i.e.,* for life.

C. Equal Profits

Another objective of spousal support might be to equalize the profits (or losses) from the failed marriage. The profits will be equalized if the man pays the woman an amount equal to

$$D_\pi = .5(Y'_{f2} - Y_{f2}) + .5(Y_{m2} - Y'_{m2}) - .5(Y'_{m1} - Y'_{f1}) - .5(B_{f1} - B_{m1}) \quad \textbf{(14)}$$

The profit-sharing support would be one-half of the woman's wage loss plus one half of the man's wage gain *minus* one-half of the initial difference in income. If the woman's non-pecuniary value of marriage in the first period is greater than the man's (discussed below), half of the difference is also subtracted.[19] This measure of spousal support might result in payment by a lower-income woman to a higher-income man if she has not suffered a significant loss in income but received substantial benefit from her husband's income during the marriage.

D. *Elliot v. Elliot*

In *Elliot* the husband and wife had nearly equal earnings, but the wife took time out of the labor force to raise a family.[20] The court compared her earnings after divorce

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[19]All the variables are discounted to present value as of the date of divorce.

[20]*Elliot v Elliot*, 42 R.F.L. (3d) 7 (Ont U.F.C. 1992).

with the earnings that she might have earned if she had remained single. Half of this loss of earning capacity was awarded to the woman.

The *Elliot* decision seems to compare the future profits (or losses) from the divorce with the profits in the second period if no marriage had taken place. The profits from the divorce, relative to no marriage, will be equalized if the man pays the woman an amount equal to

$$D_c = .5(Y'_{f2} - Y_{f2}) + .5(Y_{m2} - Y'_{m2}) \qquad \textbf{(15)}$$

The award is equal to half of the woman's loss of earning capacity plus half of the man's gain in earning capacity.[21]

The derivation of the Elliot measure does not have an obvious rationale, other than as one of several ways of dividing the profits of marriage. One obvious omission from the measure is any recognition of what happened during the marriage, other than through the effect of marriage on future earnings. It will be shown below that the Elliot measure is an intermediate approach between the Expectation and Equal Profits concepts.

E. Modified Elliot

Ellman(1989) recommends that support be half of lost earning capacity for the homemaker-spouse, but he draws distinctions between financially rational and irrational decisions. He argues that women who withdraw from the labor force without looking after children should not be compensated. Similarly, income losses resulting from lifestyle decisions designed to accommodate a spouse would not be compensated. Those making economically rational decisions that increase family income (moving to accommodate the spouse's career, for example) would receive *all* of the lost earning capacity. The analysis of incentives in this paper indicates that an award should only reflect half of the loss of

[21]The court in *Elliot* did not consider the possibility that the man's income was increased by the marriage.

earning capacity. Otherwise, the woman will reduce her earnings excessively and the man will invest too little in his own human capital. However, there is a basis for Ellman's conclusion that the woman who made an uneconomic withdrawal from the labor force should receive reduced support.

The additional non-pecuniary benefits from work in the home are implicit in the above model in the non-pecuniary benefits of marriage. If the woman without children is able to enjoy added leisure or enjoys work in the home compared to work in the labor market, this will be reflected in the difference between her non-pecuniary benefit and her husband's ($B_{f1} > B_{m1}$), and the Equal Profits measure would lead to lower spousal support. The Elliot approach would not recognize this consideration, and the Expectation approach would result in *greater* spousal support to the extent that B_{f2} is increased and Y_{f2} is decreased. The woman will have a reduced incentive to work in the first period if the spousal support does not recognize the benefit that a woman without children may have received from working in the home.

The "Modified Elliot" approach induces efficient investment:

$$D_g = .5(Y'_{f2} - Y_{f2}) + .5(Y_{m2} - Y'_{m2}) - \frac{.5(B_{f1} - B_{m1})}{(1-p)} \qquad \textbf{(16)}$$

In effect the woman who reduces her earnings without engaging in additional household production repays half of the value of the added leisure that she enjoyed during the marriage, adjusted for the probability of divorce. In the case of a woman who reduces her labor force participation and does not provide household services, an obvious approximation for the added non-pecuniary benefit is the opportunity cost of staying at home, $Y_{f1}' - Y_{f1}$.[22]

[22]Anticipating the reduction in damages, the woman who stays at home must value leisure such that $\Delta B_{f1} \geq ((2\text{-}p)/2)(Y_{f1}' - Y_{f1})$, where p is the probability that the marriage survives.

F. A Comparison of the Levels of Spousal Support

The Equal Profits, Expectation and Elliot measures bear an interesting relationship to each other. Assuming that $Y_{mi}' > Y_{fi}'$ and $B_{f1} - B_{m1} > 0$, the measures are ranked in Table 1 from highest to lowest, with the exception of the Modified Elliot measure which may be less than the Equal Profits measure. Ignoring the non-pecuniary terms for the moment, the measures differ in the extent to which the pre-existing earning capacity is transferred on divorce. For example, the Elliot measure does not include the third term in the expectation measure, the period two differences in initial earning capacity. The Equal Profits measure subtracts period one differences in earning capacity from the Elliot measure. In the special case in which the husband and wife enter the marriage with equal earning capacity and have equal non-pecuniary benefits, the last four measures are identical. The Expectation measure exceeds the others by the value of marriage in the second period.[23]

The ranking of the alternatives changes if the woman's earning capacity exceeds the man's ($Y_{mi}' - Y_{fi}' < 0$). Consider a case in which the woman makes career sacrifices despite her higher earning capacity. For example, in order to assist her husband's career she may refuse to accept a transfer to another city. The reduction in her earnings is economically justified if the family income would be reduced by the move. In that situation the woman receives the least under the Expectation measure and the most under the Equal Profits measure.

VI. Efficiency of Alternative Measures of Spousal Support

The discussion of the incentives within marriage concluded that without spousal support investment in human capital decisions would be distorted. Furthermore, the non-transferability of non-pecuniary benefits within marriage might also distort these decisions.

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[23]It is noteworthy that the court in *Elliot* found that the man and woman started the marriage with equal earning ability.

In order to focus on the spousal support, assume for the moment that there are no non-pecuniary costs or benefits of decisions to work in the home or to invest in education. Under this assumption the spousal support must offset the distortions caused by the lack of sharing of the costs and benefits of investments after divorce.

Table 2 summarizes the conclusions in the absence of non-pecuniary benefits. A surprising result is that all of the measures described above give appropriate incentives for investment in human capital. This is possible because each of the measures contains terms reflecting half of the impact of investment on earnings, $.5(Y'_{f2}-Y_{f2}) + .5(Y_{m2}-Y'_{m2})$. At the time when the investment decisions are made the other components in the support are fixed.

It is easy to verify that the Expectation measure will give an incentive for efficient divorce. Expectation eliminates any opportunism on the part of the higher income spouse. The Elliot and Equal Profits measures lead to excessive divorces. The equal profits measure may even lead to more divorces than would exist without spousal benefits if the higher income spouse receives support under this measure.

On the other hand, the ranking of the measures with respect to the efficiency of the marriage market is reversed (holding investment constant). The expectation support is the least efficient because it discourages efficient marriages between those with unequal incomes. The equal profits measure is the most efficient because it makes the partner with the lower earning capacity repay the other for consumption enjoyed during marriage. This amount would not be payed in the absence of spousal support.

If one allows for the non-pecuniary benefits associated with work and investment decisions, there are greater differences between the measures. The Modified Elliot measure gives the appropriate incentives because if compensates for the added non-pecuniary benefits enjoyed in the first period as well as the second period changes in earnings. The other measures will give too much or too little market work of women, depending on which effect dominates. If time spent acquiring education is more enjoyable

than time in the labor market, the male will spend too little time in the labor market unless the Modified Elliot measure is used. All of the measures give appropriate incentives for direct expenditures on education.

VII. Relationship of Support to Property Settlement

Assets can easily be integrated into the above measures of spousal support. Let A_j be the assets of individual j at the time of divorce and A_j' be the assets of individual j if he or she had not married. The Expectation measure applied to property division as well as earnings would divide all assets equally. The woman would receive $.5(A_m - A_f)$ from the man, in addition to the spousal support. The Elliot, Modified Elliot, and Equal Profits measures would give the woman assets equal to $.5(A_m - A_m') + .5(A_f' - A_f)$, over and above the spousal support.[24] After the property settlement, the woman would have total assets equal to $A_f + .5(A_m - A'_m) + .5(A'_f - A_f) = A'_f + .5(A_m + A_f - A'_m - A'_f)$.

Assuming that the man and woman would have each consumed all income and capital gains (real and nominal) had they not married, each is entitled to the assets that he or she brought into the marriage plus half of the increase in family assets during the marriage. This is the rule in a Deferred Community Property regime such as Ontario. In effect the income from assets after marriage is shared and the (nominal) principal remains the property of the individual who contributed the assets.

The assumption that assets would have remained constant in nominal terms in the absence of marriage is arbitrary. If divorce occurs when life-cycle savings are nearing their peak, the Deferred Community Property rule over-compensates the person with lower income earning capacity in period one. For example, if the man would have saved a

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[24]The Equal Profits measure is altered slightly when assets are taken into account. The period 1 income terms ($-.5(Y_{m1}' - Y_{f1}')$) are changed to consumption in period 1, had the marriage not taken place. In other words, the spouse with the higher earning capacity is re-imbursed for the added *consumption* provided to the other in period 1.

considerable amount for his retirement had he not married, the Deferred Community Property rule, in conjunction with an Elliot approach to spousal support, over-compensates the woman if the objective is to equalize the profits of divorce (relative to no marriage).

The property rule may affect saving and consumption in marriage. If one partner has assets and there is no mandatory sharing of assets on divorce, there is an incentive to add to those assets rather than consume. The private return to saving is greater than the social return because the future consumption does not have to be shared in the event of divorce. All of the rules eliminate this disincentive to consume by sharing increments to family wealth.[25] The Deferred Community Property rule will lead to less efficiency in the marriage market, compared to these other measures, to the extent that it underestimates the asset accumulation that would have taken place without the marriage. The Expectation measure applied to assets would lead to the least efficiency in the marriage market.

VIII. Applications

A. Wife Puts Husband through Medical School

The above analysis applies to the scenario in which there is substantial investment in the husband's human capital. Should the divorced woman be entitled to half of the former husband's earnings? She may have provided all the family income during the husband's education and may have forgone opportunities to invest in her own human capital. The Expectation measure would give half of the doctor's earnings to the woman for the rest of their lives. The other measures would not allow the woman to capture any of the man's initial relative earning capacity ($Y_{m2}' - Y_{f2}'$), but would provide her with half of the husband's increase in earnings due to marriage. Unfortunately, it is not easy to separate the husband's wage gain due to marriage from the gain that would have taken

[25]Assuming no sharing during marriage, the sharing of assets at divorce would encourage excessive consumption during marriage (Fethke, 1984).

place had he not married.

Assume that the woman has not given up any future earning prospects because of the investment in the man's education (This loss is a separate calculation). Assume also that the market rate of interest is r. Rather than borrow at this rate, the woman's earnings are diverted from family consumption to tuition payments. In the absence of this contribution the husband would have borrowed the tuition and his net earnings after receiving his degree would be reduced by the amount of the loan plus interest. The net earnings in the absence of the spouse, Y_{m2}', equal the actual earnings, Y_{m2}, less the cost of borrowing. The woman would be entitled to half of $Y_{m2} - Y_{m2}'$, which equals half of the cost of the hypothetical loan.[26] It also equals the return on the consumption she gave up in period 1 in order to add to her husband's human capital. The husband gave up consumption to make the other half of the hypothetical loan.

If the man would have invested in education by reducing his earnings had he not married, there is no increased earning capacity that is attributable to the marriage, even though the woman contributed half of her earnings during the investment period. Half of the difference between the man's and the woman's earnings would, however, be paid under the Expectation measure. Under the Elliot and Modified Elliot approaches the woman's only claim would be based on loss of earning capacity in period 2 due to her labor supply in period 1, $.5(Y_{f2}' - Y_{f2})$. If she worked through period 1 and did not forgo any career prospects, this amount would be zero. Under the Equal Profits measure the woman would be paid back half of the difference in earnings in the first period ($.5(Y_{f1}' - Y_{m1}')$).[27]

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[26]This is the effect of statutes that deduct student loans from community liabilities before dividing net assets. (Calif. Civil Code § 4800.3).

[27]The earning capacity for the man is his earnings as a student or during the earlier stage of his career, not the maximum period 1 earnings that are attainable. The earning capacity in periods one and two represents the career path that would be chosen had he not married.

B. Husband Passes Up Promotion for Wife's Benefit

Ellman(1989) concludes that there should be no compensation for reductions in income when a couple sacrificed income for some non-pecuniary benefit other than children. Consider a case in which a husband passed up a promotion that would have required the couple to move far away from her parents. A mechanical calculation of the spousal support under Elliot would make her compensate him for half of his future income loss. The Modified Elliot method would also make her pay half of the value of being close to her relatives, if that benefit were included in the non-pecuniary benefit. Where does one draw the line in the calculation of the compromises that were made during marriage?

The efficiency of spousal support based on reductions in earning capacity and increased leisure followed from the adverse incentives for labor supply and investment in human capital when spouses engage in opportunistic behaviour. The model could include every type of decision made during marriage and attempt to alter the incentives, but at some point it is unrealistic to assume that the decisions are made independently and that the spousal benefits can reflect non-verifiable non-pecuniary considerations. To be consistent with the model it can be assumed that labor supply decisions are made independently, but major decisions involving non-pecuniary benefits are made jointly. Under this assumption, there is no need for spousal benefits to influence these decisions. Consequently, there is merit in Ellman's suggestion that spousal benefits be limited to changes in income resulting from pecuniary considerations. The loss or gain in income resulting from marriage should, therefore, be limited to those changes resulting from labor supply and investment in human capital decisions where it seems likely that the decisions were not made jointly. For example, the term reflecting the non-pecuniary benefits could be limited to changes in the value of leisure. There are obvious measurement problems, but courts manage to deal with such problems in tort cases.

IX. Conclusions

What is the basis for choosing between the alternative measures of spousal support? At the time of marriage contracting for divorce is extremely costly. Therefore, an efficient default rule is desirable. It seems reasonable that such a rule should attempt to maximize the value of matches in the marriage market. This objective suggests that the Equal Profits approach be adopted. One might also ask what contract would a couple choose on entering into marriage in the absence of transaction costs. It seems reasonable that they would choose a contract that induces efficient behaviour and one that efficiently allocates the risk of divorce. None of the approaches to spousal support provide efficient incentives for every possible decision. The Expectation measure induces efficient divorce by the husband but may reduce the wife's incentive to take precautions against divorce. The Expectation measure would distribute the risk of divorce evenly but might discourage efficient marriages between individuals with differences in earning capacity. The Expectation measure would have the same problem when applied to property division. The Deferred Community Property rule reduces the efficiency of marriages to the extent that asset accumulation in the absence of marriage is underestimated.

The Equal Profits approach would lead to the most efficient marriages but may lead to opportunistic divorces by men. The Elliot approach to spousal support provides a compromise between the Expectation and Equal Profits approaches. Unfortunately, it offers too much incentive for the woman to stay out of the labor market during the marriage. The Modified Elliot approach would provide additional incentive for work. The woman who gave up future earnings in order to enjoy increased leisure during the marriage would have to credit half of the value of this leisure to the husband. The woman who gave up future earnings to look after children would face no such deduction from the spousal support and would have the same support as in Elliot. On balance, the Modified Elliot approach to spousal support, limited to the effects of labor supply and human capital decisions, seems to provide a workable compromise between competing objectives and the

problems of verifying non-pecuniary values. When combined with the Deferred Community Property approach to assets, the Modified Elliot approach may over-compensate the lower income spouse to the extent that accumulated savings are not a result of the marriage.

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Table 1
Comparison of Spousal Support Levels

Expectation

$$D_e = .5(Y'_{f2} - Y_{f2}) + .5(Y_{m2} - Y'_{m2}) + .5(Y'_{m2} - Y'_{f2}) + B_{f2}$$

Elliot

$$D_c = .5(Y'_{f2} - Y_{f2}) + .5(Y_{m2} - Y'_{m2})$$

Modified Elliot

$$D_g = .5(Y'_{f2} - Y_{f2}) + .5(Y_{m2} - Y'_{m2}) - \frac{.5(B_{f1} - B_{m1})}{(1-p)}$$

Equal Profits

$$D_\pi = .5(Y'_{f2} - Y_{f2}) + .5(Y_{m2} - Y'_{m2}) - .5(Y'_{m1} - Y'_{f1}) - .5(B_{f1} - B_{m1})$$

Table 2
Comparison of Spousal Support
No Non-pecuniary Values

Spousal Support	Description (All measures include half of Male change in earnings in period 2)	Marriage Market	Divorce by Male	Female Market Work During Marriage	Male Market Work During Marriage	Female Expenditure on Male Education
Expectation	Half of Female decrease in earnings in period 2 *plus* Half of difference in period 2 initial earnings (Male - Female)	Least Efficient	Efficient	Efficient	Efficient	Efficient
Elliot	Half of Female decrease in earnings in period 2		Inefficient	Efficient	Efficient	Efficient
Equal Profits	Half of Female decrease in earnings in period 2 *less* Half of difference in period 1 initial earnings	Most Efficient	Inefficient	Efficient	Efficient	Efficient
None	None		Inefficient	Too much	Not enough	Not enough

Table 3

Comparison of Spousal Support with Non-pecuniary Values

Spousal Support	Marriage Market	Divorce by Male	Female Market Work During Marriage	Male Market Work During Marriage	Female Expenditure on Male Education
Expectation	Least Efficient	Efficient	?	Not enough	Efficient
Elliot		Inefficient	?	Not enough	Efficient
Modified Elliot		Inefficient	Efficient	Efficient	Efficient
Equal Profits	Most Efficient	Inefficient	?	Not enough	Efficient
None		Inefficient	?	Least	Not enough