The Effect on Divorce of Legislated Net-Wealth Transfers

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In recent years legislatures have imposed several types of guidelines restricting court discretion. Guidelines designed around "average" cases, however, can lead to problems for "non-average" situations. In the context of divorce, poorly designed Child Support Guidelines may create an opportunity for a net-wealth transfer in excess of the costs of children for "non-average" families, and therefore create an incentive to divorce. This incentive to divorce, when coupled with the ability to divorce under no-fault laws, may lad to higher divorce rates for certain classes of couples. This paper exploits the 1997 Canada Child Support Guidelines to test the divorce prediction using data from the Survey of Labour Income Dynamics. I find separation rates increase after increases in income of $25,000 per year. The results are used to comment on the ongoing no-fault divorce debate.

1. Introduction

Martha Stewart's sentencing in the summer of 2004 to five months in prison, two years probation, and a $30,000 fine was a dramatic introduction to U.S. sentencing guidelines for many Americans. Despite the estimated 300-400 million Stewart lost from the scandal, the federal judge was constrained to impose the stiff sentence. The Stewart case points to the fundamental trade-off in the use of legislated guidelines as a substitute for court discretion. On the one hand, it is argued discretion leads to unpredictable and inconsistent awards. On the other hand, guidelines force the same award on potentially different cases. To the extent guidelines are designed around the "average" case, and to the extent guidelines are inflexible, judgments in "non-average" cases may be inappropriate. A second potential problem is that a poorly designed guideline will lead to inappropriate judgments for large numbers of people. This paper examines a particular type of guideline — child support — and argues that *if* the assignments of dollars of support are out of line with the costs of children for some families, then this can lead to changes in divorce behavior in an attempt to capture the legislated wealth transfer.

Child support guidelines exist in both Canada and the United States. Generally speaking the guidelines in both countries operate along the same principle of attempting to equate the standard of living between the two separated households. There are some differences though. In the U.S. couples tend to bargain in the shadow of the guidelines, which come into play when private negotiations break down.[1] In Canada, however, courts are very reluctant to depart from the legislated amounts, and the amount of pre-trial negotiation is minimal. Furthermore, in Canada the *Guidelines* are federal legislation, whereas in the U.S. each state separately regulates child support. This paper focuses on Canada's recent child support guidelines because their design creates the opportunity for significant

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[1] Argys and Peters (2003) report that substantial numbers of child support arrangements in the U.S. are cooperatively agreed upon, without resort to guidelines. They also find the amount agreed to and received is higher in the case of cooperative settlements, than in court imposed settlements.

wealth transfers, and therefore, provides an opportunity to test the hypotheses of the paper. Although it is necessary to delve into the mechanical construction of the tables in some detail, the lessons apply generally to other jurisdictions with child support guidelines.

In Canada, prior to 1997, child support arising from family breakdown was determined at the discretion of a judge in a family law court. This system was replaced by a set of tables commonly referred to in Canada as *"the Guidelines."* These tables determine the amount of child support based on only two parameters: the number of children in the custodial home, and the non-custodial parent's income.[2] Officially the *Guidelines* were designed for the best interests of children in an attempt to reduce child poverty, and provide more consistent awards across the country. In practice, however their actual construction over-compensates for the cost of raising children for families with higher incomes, and this over-compensation exists compared to child support paid out prior to 1997. This then provides an incentive to divorce within high income families at the "margin of divorce." This prediction is tested using data from a panel of individuals from 1993 to 2002. The results show that the guidelines made marriages less stable as certain incomes within the family increase.

This paper makes no general argument for or against guidelines, *per se*. Rather, there are two broad implications of this paper. First, if child support guidelines are to be successful in equating standards of living between the custodial and non-custodial homes, then care must be taken in their design to avoid large wealth transfers in excess of cost. As will be shown, avoiding the use of linear scales is

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[2] The *Guidelines* are a little more complicated than this. The amount paid depends on whether custody is shared or not, and there is an allowance for judges to depart from the *Guidelines* for high incomes or extraordinary expenses. Still, there is a legal presumption that the *Guidelines* will be followed, and in practice this almost always means they are adhered to. The federal act only applied to married individuals. However, the provinces immediately adopted the legislation to apply to other quasi-marital arrangements. Most important for the purposes of this paper, the law does apply to common-law couples.

the easiest means to avoid this problem. Second, this paper highlights the fundamental *link* between property/custody/support laws and the grounds for divorce. Since the late 1960s the western world has radically altered the grounds for divorce through the introduction of no-fault laws. These laws create an *ability* for a married individual to engage in unilateral divorce. Many studies have attempted to find a connection between no-fault laws and divorce rates — with mixed results. All of these studies implicitly assume there is an underlying *incentive* to divorce. Yet the willingness to divorce is different from the ability to divorce. In fact, changes in divorce rates over time are likely related to changes in marital property and custody laws, which provide some of the incentives to divorce or not. Failure to recognize the interaction of property/custody/support laws with no-fault divorce laws may lead to a misinterpretation of changes in divorce rates over time.[3] I return to this point at the end of the paper, and use the unique changes in Canada's child support guidelines to elaborate on it.

The paper is organized as follows. The next section lays out in considerable detail the construction of the guideline tables and demonstrates the theoretical possibility of an over-compensation. Section 3 shows, in a simple model, how this creates an incentive for divorce, and lays out the three main predictions of the paper. Section 4 describes the data, experimental design, and results of the tests. Finally, section 5 places these results within the context of the no-fault divorce debate.

2. Do the Guidelines Result in an Over-Compensation?

What makes the Canadian guidelines academically interesting is that they increased child support for certain types of families relative to the amounts they would have paid prior to 1997. I demonstrate this with a two stage argument. First

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[3] Indeed, many legal changes to these laws over the past 30 years have reduced net wealth transfers. Thus the Canadian guidelines are a departure from the series of family property and custody law changes which have taken place both in Canada and the U.S. since the adoption of no-fault divorce legislation.

I argue that the current guidelines over estimate the cost of children based on what economists currently understand about equivalence scales. I argue the *Guidelines* make three critical assumptions which all lead to an over-compensation. Second, I use what information we have regarding the earlier judicial decisions to argue that court assigned support awards were consistent with estimated costs of children. Hence, the post-1997 awards are larger relative to the pre-1997 awards for some families.

2.1. Three Issues in Guideline Creation

Canada's Department of Justice (DOJ) began designing the *Guidelines* in 1990. In arriving at the tables they made three critical decisions with respect to the costs of children, the sharing rule, and the value of children. These decisions systematically increased the net-wealth transferred to the custodial household. This section identifies the three sources of over-compensation.

a. Estimating The Costs of Children

Canada's child support guidelines are based on a linear equivalence scale of the form: $a + b(n - 2)$, where n is the total number in the household, a is the number necessary to make a two member household equivalent in terms of goods and services to a single member household, and b is the "marginal cost" of extra members in the household.[4] At the time, the DOJ had a choice of 15 scales to choose from, with values of a ranging from 1.09 to 1.46.[5] In the end, it was decided to use the Statistics Canada 40/30 rule which set the value of $a = 1.4$ and the value of $b = .3$, for an equivalence formula of $1.4 + .3(n - 2)$.

The chosen equivalence scale depends on just two parameters: the number of children; and income. In terms of estimating costs based on the number of children,

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[4] An equivalence scale is a ratio of two expenditure functions.

[5] See Finnie, *et al* (1995), p. 11. The 1.46 value came from a study of low income data, and according to their table is "higher than a true 'equivalence,' due to an important aspect of social assistance policy." The next highest is the Statistics Canada value of 1.4. The ranges for the value of b were between .15 and .4. Thus the DOJ picked the highest value for a and one of the highest values for b from their choice set.

the 40/30 rule does a reasonable job.[6] Consider Figure 1 where the number of individuals living within a household is listed on the horizontal axis. Along the vertical axis is the equivalent income ratio necessary to make these households have the same equivalent income as a household of one individual.

As we can see, the 40/30 rule assumes a linear relationship between the two, up to six children. After six children the guidelines assume the marginal cost is zero. Economists often assume the cost function in terms of numbers in the household are approximately equal to $\sqrt{n}$ in order to capture economies of scale.[7] Figure 1 plots this function as well. For four members in the household, the 40/30 rule provides exactly the same equivalent income as the $\sqrt{n}$ cost function. For fewer members there is a trivial difference, and even though this difference grows with increases in the household, at seven members the maximum difference is only 9.8% (.26/2.64). Clearly no significant wealth transfer results over the number of children.

The net-wealth transfer is potentially much different in terms of income because there is more variation in income than family size, the chance for extremely high income levels is not uncommon, no cap similar to "more than 6 children" is available for income, and the 40/30 rule was designed for expenditures around Canada's low-income cut off.[8] Thus the 40/30 rule can lead to serious errors in estimating the costs of children when incomes are not at the cut-off levels. Using the linear 40/30 rule in the neighborhood of the low income cut off will tend to yield small errors, but as you move away from the level of income used to arrive at them the magnitude of the errors increase if the 40/30 rule is inappropriate.[9]

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[6] The *Guidelines* have a built-in limit placed on six children. That is, there is no increase adjustment in payments made for more than 6 children.

[7] For example, See Atkinson, Rainwater, and Smeeding, (1995) for a classic reference.

[8] This last point needs emphasis. The 40/30 rule was devised to help Statistics Canada determine its "low-income cutoff," which is Canada's unofficial "poverty line." In calculating expenditures at these levels Statistics Canada uses the 40/30 rule. Thus the irony of choosing the linear 40/30 rule is that even though it was devised by Statistics Canada to study expenditures around the low income cut off levels, the *Guidelines* apply to *all* levels of income.

[9] The *Guidelines* also ignore that savings increase with income. Expenditures on children could

Figure 1

Equivalent Expenditures For Different Sized Households
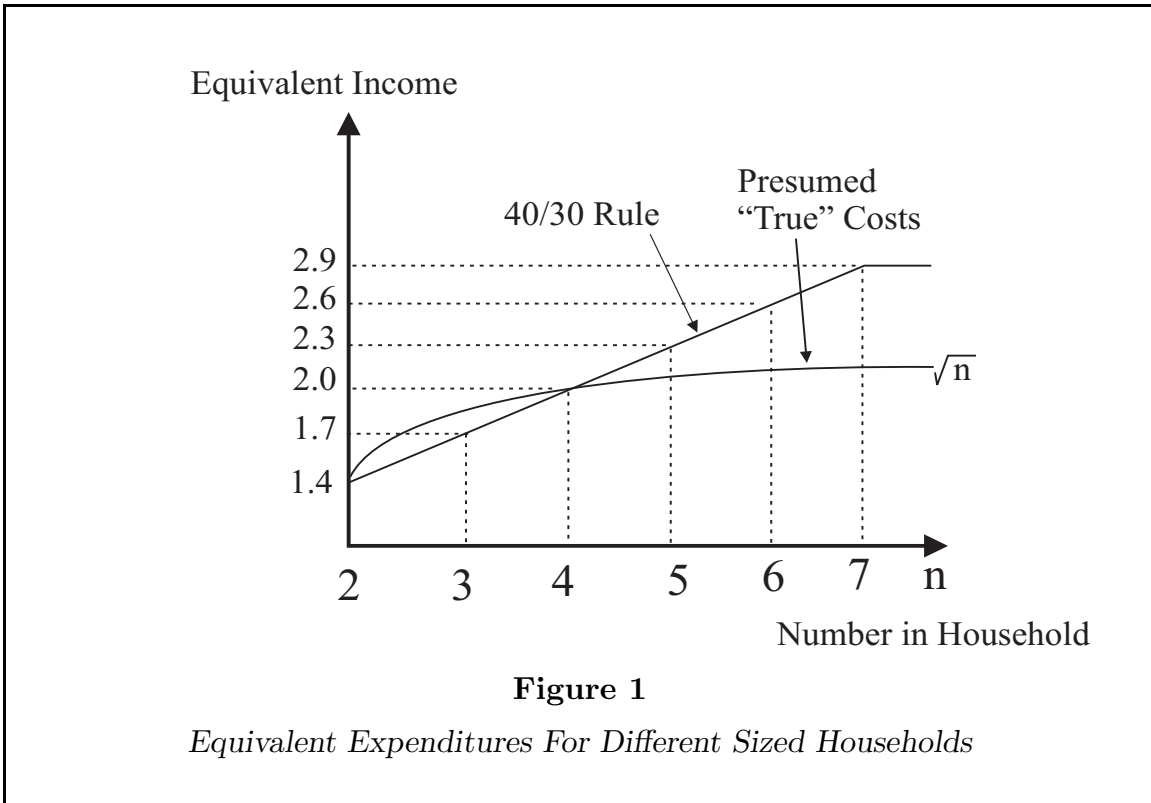
Consider Figure 2 where the income of a single individual is given along the horizontal axis and the equivalent income for a household of three is given along the vertical axis. The 40/30 rule generates an equivalence income function which is linear through the origin and has a slope of 1.7 (=1.4+.3). This means if a single household has an income of $10,000, a three member household would require $17,000 to be equally well off; if the single income is $100,000, then the triple household would require $170,000, etc. The most recent empirical estimates of this relationship show that this type of linear relationship is false. Figure 2 shows an estimated equivalence income function based on Donaldson and Pendakur (2002).[10]

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be linear with the total expenditures of the household. However, as income increases, savings increase and total expenditures fall as a percentage of total income. Added to this is the "extra-expense" clause in the *Guidelines*. Extra-expenses are shared between the parents in proportion to their relative incomes. What constitutes an extra-expense has become a major source of litigation, thus defeating one of the goals of the *Guidelines*. The extra-expense provision amounts to double-counting since the *Guidelines* were created based on all expenses.

[10] The estimates made by Donaldson and Pendakur (2002) are complicated, but they find:

It shows that as we move away from moderate levels of income, the difference between the equivalent income generated by the 40/30 rule and the true equivalence relation starts to grow. At an income of \$1,000,000 the 40/30 rule states a three member household needs \$1.7 million, but using the Donaldson/Pendakur results suggest the estimated costs of the triple household would be \$1.2 million. The 40/30 rule, therefore, over-estimates the equivalent income by \$500,000.[11]

b. The Choice of Apportions

The second feature of Canada's *Guidelines* is its particular sharing rule called the Revised Fixed Percentage. The general idea of the adopted rule was to share the post-separation costs of the child when the parent's incomes are equal, and use this as the basis of a fixed percentage approach. It is useful to examine the actual formula for doing this.[12] Suppose the income of the non-custodial parent (NC) is \$60,000, and the income of the custodial parent (C) is also \$60,000, and that this couple has two children. The Revised Fixed Percentage rule assumes the income relative to the needs of the household should be the same. This means the following equation should hold:

$$\frac{\text{Disposable\quad Income\quad of\quad NC}}{\text{Expenditures\quad of\quad NC}} = \frac{\text{Disposable\quad Income\quad of\quad C}}{\text{Expenditures\quad of\quad C\quad and\quad Children}} \quad (1)$$

... that equivalence scales for households with children decrease significantly with expenditure. For example, the GESE-restricted equivalence scale for dual parents with one child is 1.93 at low expenditure and 1.62 at high expenditure.

[p. 4, 2002]

What this means is the equivalence income function *does not* go through the origin and *may not* be linear. They find that for two children living in a single parent household the equivalence scale falls dramatically (their estimated point elasticity is -0.40 (Table 4, p.22)). They go on to estimate many scales under a number of different assumptions. They also estimate these scales for average and low incomes, which means little confidence can be placed in extrapolating their numbers to large incomes. In Figure 2 I do the extrapolation for the purpose of demonstration only, the true equivalence scale at large incomes is likely much smaller than what they estimate. I also use the scale of 1.2, which is an interpolation of one of their scales (p. 24, 2002) which comes closest to the example of $n = 3$ I use here.

[11] For incomes over \$150,000 the guidelines do allow the courts the discretion to set the amount of child support. If we take the Donaldson and Pendakur estimates seriously, however, the 40/30 rule over-estimates costs at very low incomes as the number of children increases.

[12] This is found in a technical report of the Department of Justice, (Canada, 1997).
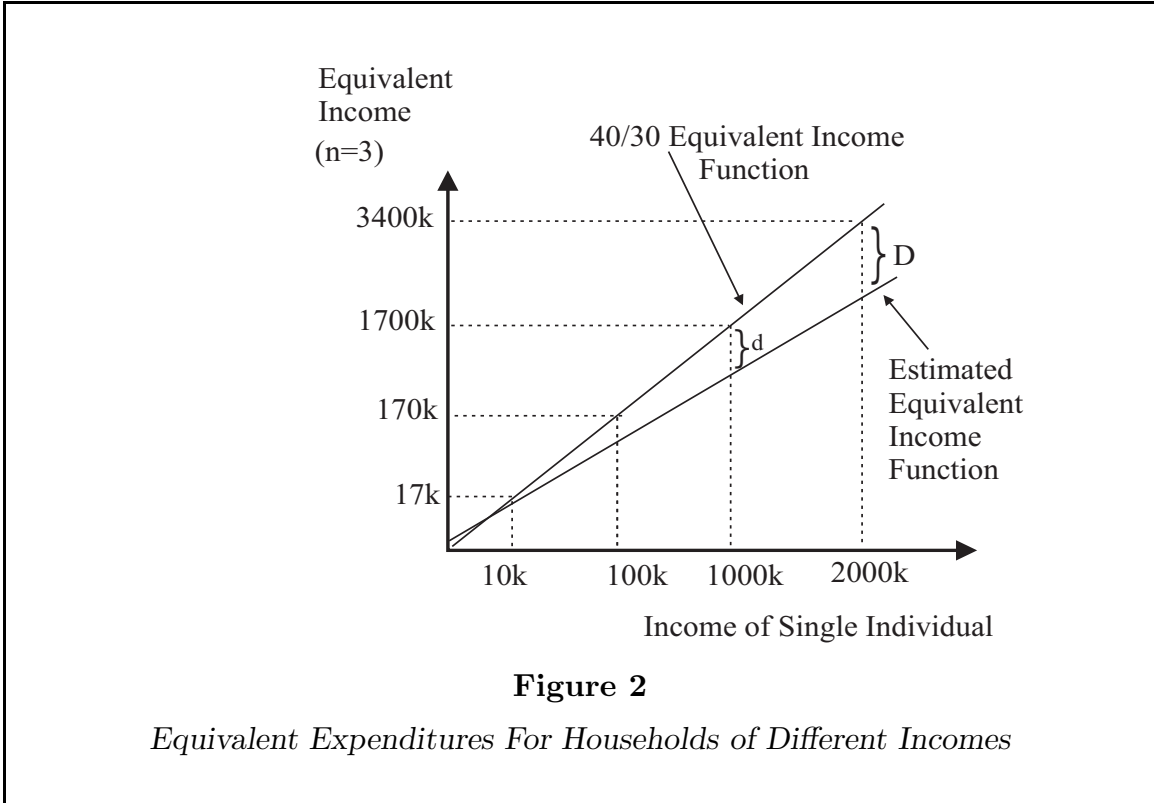
Figure 2

Equivalent Expenditures For Households of Different Incomes

The relative expenditures are simply given by the equivalence scales, so this equation is rewritten as:

$$\frac{\text{Disposable Income of NC}}{1} = \frac{\text{Disposable Income of C}}{1.4 + .3(n-2)} \qquad (2)$$

where n is the number of people living in the custodial household (this holds for families with up to 6 children). For the given incomes above this would give:

$$\frac{\$60,000 - T - CS}{1} = \frac{\$60,000 - T + CS}{1.7} \qquad (3)$$

where T are the taxes paid and CS is the amount of child support. In this case, if we solve for CS we get $\$15,555 - .26T$. If we assume an average tax rate of 25% the amount of the child support award is $\$11,655$.

Seeing the explicit way in which the tables are calculated demonstrates a key assumption which leads to an over-compensation to the custodial parent. In equation

(2), the non-custodial parent's disposable income is deflated by 1. This assumes that a single parent has expenses identical to a single individual who is not a parent. Non-custodial parents, however, have to maintain a home where the children can stay over for weekends and vacations without having to camp out on the living room floor. This extra housing stock remains unused for much of the year, but must be maintained. Likewise, whereas a single individual living in an urban setting may be able to get by without a car, the non-custodial parent may have to maintain a mini-van for the children, their friends, and sporting outings. In short, it seems plausible that the non-custodial parent should have their disposable income deflated by some amount closer to the custodial parent's deflator.[13] Thus we see the sharing rule itself, with its non-custodial deflator, generates a transfer to the custodial household.[14]

c. The Value of Children

The third major assumption that causes problems in the *Guidelines* relates to the treatment of children. The theoretically correct way to account for the cost of children is to begin by recognizing children enter the utility function of their parents, and then construct an expenditure function. In practice, however, this requires the comparison of unobservable utilities across individuals ... an intractable task. Interestingly, the expenditure techniques to deal with this *technical* problem amount to excluding children as a valuable marital good. This assumption is also built into the *Guidelines.* In equation 1 only the disposable income of the custodial parent enters the right side numerator. If children generate utility then an inclusion for the dollar value of net utility generated should also be added, which reduces the transfer CS.

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[13] Ironically the *Guidelines* contain a 40% rule, whereby there is an adjustment to the payment if custody is shared and the children spend at least 40% of their time with the non-custodial parent. Why 40% is another one of the arbitrary rules contained in the *Guidelines.* Finnie, (p. 385, 1996) notes that ignoring the direct expenses of the custodial parent leads to inconsistent awards across households.

[14] This sharing rule also assumes that all non-custodial parents who earn the same income have the capacity to pay the same award. Consideration is not given to non-custodial parents who have started a new family.

Of course, children are valuable, and are valued by both parents. In fact, children may be the most valuable "asset" in a marriage or domestic relationship.[15] Not only do the *Guidelines* ignore this fact, they consider time spent with children in the custodial home a cost. Furthermore, they consider time spent by the non-custodial parent is not a cost, since no adjustment is made in support payments for time the children spend with the non-custodial parent. If utility is generated over children by actually spending time with them, then the custodial parent generates more utility from children than the non-custodial parent. The *Guidelines* make no adjustment for this, and as a result the effective net-wealth transfer to custodial parents is increased.

2.2. **Awards Prior to 1997**

The current Guidelines may provide larger amounts of support compared to estimated cost functions and what economists consider should be counted in equivalence scales. However, the issue is whether or not the child support awards are large relative to what they were prior to 1997. Fortunately the DOJ conducted a cross country survey of actual court child support awards over a three month period in 1991.[16] The sample was drawn from the population of all divorces in 15 cities where a request was made for child support. The usable sample was 869, and included data on the number of children and the level of earned income of each parent. According to the FLC "An in depth examination of other potential sources of information (mainly tax databases) indicated that although this database under-represents high-income earners, it does, overall, represent those cases that child-support formulas are intended to cover."[17]

One of the findings of this data when compared to the simulated amounts of support that would have been awarded had the *Guidelines* applied, are that court

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[15] Brinig and Allen (2000) point out that the number-one factor in predicting who files for divorce (by a wide margin) is who can expect custody of the children. In a low wealth marriage, the children may be the only marital good of any significant value.

[16] See Stripinis, (1992) for details of the survey.

[17] Canada, p. 53, 1995.

awards quite naturally varied considerably more by location and family type. More importantly for this study, however, was the conclusion that

> On average, the simulated awards tended to be higher than current awards for families earning over $60,000, but lower than current awards for families earning under $30,000. Simulated awards also tended to be higher than current awards for large families but lower than current awards for small families.

<div align="right">[p. 57, 1995]</div>

In other words, the courts appeared to be assigning support awards along the lines of the estimated cost functions in Figures 1 and 2. Thus we can conclude that the post 1997 support awards under the *Guidelines* are likely to provide too little income for the very poorest families, and too much income for the very wealthiest. For family incomes between $30,000 and $60,000 (those levels of income around the Low Income Cut Off) the *Guidelines* are likely providing appropriate amounts of child support. The evidence, when taken in its entirety would suggest a regime change in 1997.

3. Incentives to Divorce

The effect of Canada's child support guidelines on the incentive to divorce is rather straight forward. Let M_i, $i = c, nc$ be the discounted stream of utility generated through marriage to a given individual.[18] M will depend on the family sentiments between all the household members, relations with extended family, household production, and all the other family miscellany marriage generates. Let S_i be the discounted stream of utility generated by the next best living arrangement. This may be living single or living in some other household formation. Let $\theta_i = M_i - S_i$ be the net value of a given marriage between c and nc. If $\theta_i < 0$ for both, then both partners would prefer a divorce, and if $\theta_i = 0$ for both, then both partners consider the marriage to be marginal.

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[18] Let c be the spouse most likely to gain custody if divorced, and nc be the spouse most likely to be non-custodial. M_i would account for the share an individual receives of the marital goods and the separate goods consumed while married. This paper implicitly assumes an efficient marriage involves shares of 50–50. See Allen (1992) for why.

Clearly the value of the next best living arrangement, S, depends on the income available in that state, which is heavily influenced by the *Guidelines*. The *Guidelines*, through their use of the 40/30 rule, sharing formula, and nonconsideration for the value of children, effectively over-compensate the custodial household when non-custodial income is above the low income cut-off compared to the judicial awards prior to 1997. In creating a net wealth transfer through divorce, the *Guidelines* increase S_c, lower θ_c, and create an incentive to divorce for the potential custodial parent with $\theta_c \simeq 0$. Such a divorce is likely to be inefficient because it involves an involuntary wealth transfer through the use of the *Guidelines*. An inefficient divorce is one where a divorce takes place, even though the joint gains from marriage are higher than the joint gains from separation. An efficient marriage is where $M_c + M_{nc} > S_c + S_{nc}$. However, the *Guidelines* may create a situation where although the marriage is efficient, S_c may become greater than M_c. This creates the incentive for an inefficient divorce.[19] If the custodial parent gets custody of the children *and* receives a payment which over-compensates for the dollar expenditures of the children, then that individual may end up with a share of the joint wealth much higher than when together.[20] Because it is virtually impossible to fight the *Guidelines* in court, attempts to bargain around them often fail to save the marriage.[21] Given the problems of the 40/30 rule in over-compensation when

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[19] See Allen (1998) for a detailed discussion of inefficient divorces. Note this does not imply $S_c > S_{nc}$. Even after the Guideline transfer the non-custodial parent may have more income or utility.

[20] This raises the question: why does the non-custodial parent not seek shared custody? There are at least three answers. First, the non-custodial parent (usually the father) may be less able to maintain shared custody given their larger market-place human capital and job market restrictions. Most male occupations are not flexible enough for shared custody. Second, the mother may not want shared custody, perhaps because she would lose the implied spousal support. A costly legal dispute, and low expectation of success may prevent the father from pursuing shared custody. Third, perhaps the non-custodial parent places a lower value on the children than the custodial parent. In all cases, the *Guidelines* still create an incentive on the part of the custodial parent to leave inefficiently.

[21] One response to the argument in the paper is "why does the potential non-custodial parent not respond during the marriage to prevent a divorce in light of the new Guidelines?" In other words, why does some form of Coasian bargaining not keep the marriage together? Of course, the answer is that the *Guidelines* are the legislated avenue along which the inefficient divorce is taking place. Divorce

incomes and family size increase, this becomes a serious problem for high income families since the actual transfer of wealth to the custodial parent increases after separation.[22] Thus we have the following testable predictions:

Prediction 1. *Separation rates should increase after 1997 when the income of the potential non-custodial parent increases.*

Prediction 2. *Separation rates should not be a function of the potential custodial parent income after 1997.*

Prediction 3. *There should be no change in the relationship between separation rates and income for couples without children after 1997.*

4. Testing the Predictions

This paper uses the Survey of Labour Income Dynamics (SLID), a Statistics Canada Panel data set used to track labor force and income details for the provincial and federal governments. The SLID is made up of three overlapping six year panels starting in 1993, 1996 and 1999, with 2002 being the most recently available data year.[23] A great advantage of the SLID is it accurately measures the exact income measure used to determine the child support payment: before tax income.[24] This

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rates increased after the introduction of no-fault divorce *because* many factors prevented Coasian bargaining. Some of these factors were legal, like the *Guidelines* (eg., title property laws), while others where more related to procreation (eg., different timing of specific fertility investments). The list is extremely long, see Allen (1998) for a discussion. Furthermore, using the *Guidelines* as a threat point within marriage to increase one's share of the marital wealth is likely to cause breakdown. For reasons discussed in Allen (1992) changing shares within a marriage is likely to be infeasible or very costly. Renegotiation based on divorce threats and property transfer is also likely to create bad-will between the spouses.

[22] Since the *Guidelines* generate a small net transfer with respect to the number of children, there should be no significant change in separation rates regarding the number of children.

[23] Data from the fourth panel, which began in 2002, is not yet available.

[24] The SLID also computes an hourly wage for every respondent, but not for the spouse of the respondent. Running the regressions reported in Table 2 using this measure of income (and not including a measure of spouse income) yields results which are larger in terms of the test variables and statistically significant. These regressions are available from the author.

detailed income data, often comes directly from the tax records of the individuals.[25] The SLID also contains the minimum necessary information on family structure and marital status to conduct the above tests.[26]

For this paper, individuals were selected year by year from the panel (starting with the most recent year) if they were married or living common-law on January 1 of that year and remained married throughout the year, or if they were married or living common law on January 1 of that year but became separated during the year. Individuals were selected only if they were married one time.[27] The yearly data files were then merged, creating a survival panel where individuals enter in at the beginning of their panel married, and either drop out when they separate or stay in if they remain married. No single individual is in the data set for longer than six years.[28]

When married, both parents are "custodial" and the SLID does not contain direct information on which parent becomes the custodial parent once there is a separation. However, after separation the custodial parent can be identified as the one living with the children. I use this information in a two-step procedure to identify the potential custodial and non-custodial parents when married. Specifically a logit regression on separated respondents is estimated where the dependent

[25] Individuals are interviewed in January, and then again in the middle of the year for their income information. An individual may waive the second interview and allow Statistics Canada access to their tax records. I have no information on how many chose this option.

[26] The SLID is not a public use data set. To use the data, a proposal is screened by the Social Sciences Research Council of Canada, an RCMP criminal check is conducted, an oath to the Queen is sworn, and the researcher becomes a deemed employee of Statistics Canada subject to the penalties of the Statistics Act. Results are screened by Statistics Canada, and as a result, no maximums or minimums for variables are reported in this paper, and the data is not available from the author.

[27] Where I count a never married individual living common-law as married once. For the remainder of the paper I use "married" to describe both types of relationships.

[28] In such a panel there are two types of censoring: left and right side. The classic right side censoring results from individuals still remaining married when they leave the panel. Left side censoring results from individuals entering the panel at different stages of their marriage. The former issue is dealt with by using a discrete time logistic model, the latter with duration variables on the right hands side. See Guo (1993) for a discussion.

variable is 1 if they have custody. The logit coefficients are then use to estimate the probability a married individual will be custodial if a separation occurs. If this probability is greater than .5, the respondent is considered the "potential custodial parent." If lower than .5, the respondent is considered the "potential non-custodial parent."[29] For every respondent, their spouses income is determined from the SLID. To test the predictions in this paper, I use four samples: the non-custodial parents; the custodial parents; all parents; and couples without children.[30]

Variable definitions are reported in Table 1.[31] Table 2 shows the results of three discrete time logistic regressions using three samples of parents.[32] The dependent variable equals 1 if the parent separated in the reference year, and is zero if married. Table 2 shows some standard and consistent results across all three samples. Duration effects are captured by the length of marriage variables, and show that the probability of separation increases with the length of marriage, but at a slow

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[29] The sample for this regression consists of all separated respondents, some of whom had custody and the remainder who did not. The actual regression results for the custody regression are (t-statistics in parentheses):

Age	-0.022 (-1.79)
Education	-0.018 (-1.05)
Major Income Earner	2.471 (5.08)
Before Tax Income	$.008$ (2.90)
Spouse's Before Tax Income	$.056$ (6.37)
Male	-1.439 (-14.97)

To test for the robustness of this method I used two other procedures for identifying custody. First I used information within the SLID on whether child support payments are received to proxy for custody, and reran the above identifying regression. Second, I used samples of "major income earner" and "secondary earners" to proxy custody. In both cases the qualitative results in both economic and statistical significance did not change.

[30] The non-custodial sample is created when the SLID respondent was the non-custodial parent. Likewise, the custodial sample is created when the SLID respondent was the custodial parent. In both cases the data contains information on the spouse.

[31] Because the SLID is not a public use data file, Statistics Canada does not allow the reporting of most summary statistics. The mean of the dependent variable is reported in Table 2.

[32] The SLID is not a random sample of the Canadian population. All regressions were run using weights with insignificant changes in the coefficient estimates. The t-statistics, however, were much larger. The reported regressions use the unweighted data.

decreasing rate. Evaluated at the mean of the dependent variable, an increase of 1 year in the length of marriage increases the probability of separation by .33% when using regression (3)'s coefficient. A number of controls were used, and a number of consistent results show up across the three regressions: immigrants consistently have lower separation rates, as do couples with more children; respondents living in urban centers or Quebec have higher separation rates. Most notable is the large impact an unemployed spouse has on separation rates.[33]

The variables relevant for this paper are under the heading *Test Variables*. Prediction 1 states that the child support guidelines made higher non-custodial income marriages less stable after 1997. In other words, the predicted sign on the variables NC INCOME × POST 97 and (NC INCOME × POST 97)^2 are positive. Prediction 2 states that the guidelines should have no impact on the stability of marriages when custodial income changes. Thus the variables CUSTODIAL INCOME × POST 97 and (CUSTODIAL INCOME × POST 97)^2 are predicted to be insignificant. These two predictions hold up across all three regressions.

The results from Table 2 are quite striking. Regression (3) contains all respondents to the SLID which satisfy the selection criteria, and I will focus my discussion on this regression.[34] Across the three samples income is stabilizing to a marriage, and this is shown by the negative coefficients on both NON-CUSTODIAL INCOME and CUSTODIAL INCOME. The marginal effect of the guidelines through income, however, are destabilizing. Consistent with prediction 1 separation probabilities increase with non-custodial income after 1997. Consistent with prediction 2 the separation probabilities are unaffected by changes to custodial income after 1997. At first glance the coefficients appear small, however, for large changes in income,

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[33] I ran these regressions with a number of control variables, but dropped those which were economically and statistically zero. Notable among these variables was "empty nester." I could find no effect of children leaving on the separation probability.

[34] In fact, this is the regression of interest since every divorced marriage has a custodial and non-custodial parent (in this sample). The first two regressions are reported simply to show the results do not change based on which type of parent was the respondent to the SLID survey.

the squared income term starts to dominate. For example, evaluating at the mean of the dependent variable in regression (3), the *total* effect on the probability of separation for a change in income of $10,000, $30,000, $50,000, and $100,000, is -0.24%, 0.22%, 1.95%, and 11.80%, respectively.[35] For the full sample, changes in income stabilize the marriage in total until just over $25,000, after which the marginal destabilization caused by the guidelines starts to dominate. Changes of income over $100,000 per year start to have very large impacts on the probability of separation. Thus the apparently small coefficients have significant impacts at income differences that are very common.

Prediction 3 noted that the guidelines should have no impact on couples without children.[36] Table 3 uses a sample of respondents who do not have children, and who therefore, should have separation rates independent of the *Guidelines*. As the results show, separation rates are not a function of post 1997 income in this sample. Thus all of the regressions from the two tables provide evidence that the guidelines increased the separation rates for a particular type of family: those families with children and high primary income earners.[37]

5. No-Fault Divorce and Property Rules

The results from Tables 2–3 are interesting in their own right, and they drive home the lesson that improperly designed guidelines will have consequences beyond

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[35] On the other hand, using the estimates from the custodial sample for changes in the total probability of separation when income of the non-custodial parent changes by these amounts leads to -1.03%, -2.01%, -2.15%, and 3.20%. In this sample the marginal effect caused by the guidelines doesn't wash out the direct effect until approximately a change of income around $78,000.

[36] Although not tested here, presumably the Guidelines could influence the fertility rates of these couples.

[37] As mentioned above, the *Guidelines* are also a function of the number of children in the custodial household. As mentioned in section 2, the table amounts were adjusted such that they mimic fairly well a cost function which demonstrates economies of scale within the household. As a result, it is unlikely net wealth transfers arise over the number of children. Table 2, indicates that though children tend to stabilize marriages, the marginal effect measured by the coefficient "Number $\times$ Post 97" is usually insignificant, consistent with the view that no net-wealth transfer takes place on this margin.

only transferring wealth. However, the results also draw attention to an important implication for divorce rate studies. Twenty to thirty years after the first moves to no-fault/unilateral divorce, economists are still not agreed over whether or not they contributed to permanent increases in divorce rates over this period. Since 1990 the consensus has been that these laws did contribute to a rise in divorce rates, but the legal change explains between 8-17% of the increase. More recently, work is showing that the effect of no-fault laws is not permanent. For example, Wolfers (2003), shows that there was an increase in divorce rates for about a decade following the legal changes, but after this time the divorce rates return to trend. This result confirms Becker's early study on California which also showed only a temporary change in divorce rates. The problem with purely econometric studies of no-fault divorce is that they ignore the actual incentive structure faced by those making the divorce decision. As argued in the introduction, it is the interaction of property/custody laws with the unilateral provision that matters, not just the existence of no-fault legislation.

Economic studies on divorce rates and unilateral provisions go back to the Landes *et. al* application of the Coase theorem. They argued efficient marriages stay together no matter what the legal regime — inefficient ones break up. Thus, any rise in divorce rates must result from transaction costs that break down the bargaining process between spouses. One source of these costs are the property, custody, and support laws in existence. When no-fault laws began to be passed in the late 1960s, they didn't come into existence in a vacuum. Each state (or province) had laws regulating how assets would be split. In the U.S. three basic property laws existed: title, community, and equitable, each with its own implication under no-fault.[38] The very definition of what constituted marital property caused all sorts of bargaining problems.[39] Child custody is a major factor in explaining who petitions

[38] See Allen (1990) for a discussion of these property laws.

[39] It is almost ancient history, but at one time academic degrees were not considered property, and therefore no subject to division at divorce. The result was, many walked away from marriages with a considerable share of the marital pie.

for divorce.[40] These child custody laws, therefore, interact with the unilateral provisions in the decision to divorce. Indeed, the no-fault laws, especially over time, even started to influence the timing of marriage.[41]

Over the past twenty years there has been a major movement in the definition of marital property, the implications of title, custody innovations (joint, shared, etc), and other general marital property provisions. Generally speaking, these changes have been a matter of patching up those margins where one spouse may take advantage of the other through divorce. As a result, these legal changes have worked to *reduce* divorce, and may explain the recent evidence of movement towards trend.

The general point regarding unilateral divorce is that to study the effect of no-fault divorce laws on divorce rates, one must consider the entire marital law regime the divorce decision is made under.[42] Unilateral divorce, by itself, is unlikely to have a significant effect on its own since it only allows the *opportunity* to leave without a mutual agreement. Unilateral divorce in a jurisdiction with exploitable property/support laws, on the other hand, should have a large bearing on divorce rates. Hence, this paper showed that an improperly designed set of child support guidelines that created an opportunity to transfer wealth through divorce actually increased some divorce rates substantially. Other laws which mitigate wealth transfers can lower divorce rates, and thus, movements back to trend may simply be the result of the patching which occured over time.

6. Conclusion

Quite often when it comes to empirical work on family issues the variables of interest are ambiguous (*e.g.,* what constitutes "no-fault" divorce), are unobservable

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[40] See Brinig and Allen (2000).

[41] See studies, like Gruber (2000), examine how growing up in a no-fault state influences future decisions over education, marriage, and separation.

[42] A good example of this is Brinig and Buckley (1998) where they define "no-fault" based on how much it costs to divorce in terms of property and custody, not just in terms of the unilateral character.

(*e.g.,* who actually instigated a divorce), or there is tremendous measurement error in the data (*e.g.,* contributions to the marriage). Canada's Child Support Guidelines offer a case where these problems are minimized. The discrete change in a federal law over the actual dollars transferred is unambiguous. The actual separation and the level of income are observable. And the SLID contains the exact income tax variables used to generate the payments. In this particular example of the effect of legal regimes on family behavior we can have more confidence than is often the case.

Given the movement towards the use of guidelines in the area of spousal and child support, it is important to recognize there use may be non-neutral if they create serious wealth transfers, and if the rules are relatively inflexible. The purpose of this paper is not to argue that court discretion is better than guidelines — discretion has costs as well. Rather it is to argue two points. First, child support guidelines should be designed to avoid wealth transfers in order to minimize impact on divorce. Second, the ability to achieve a wealth transfer with something like child support laws is what generates increased divorce rates under no-fault divorce laws. Studies of no-fault laws should carefully consider the interaction of property and custody laws with no-fault divorce laws on separation rates, not just the no-fault provision alone.

Table 1: Variable Definitions

Duration Effect

Length Marriage	=	length of marriage in years.
Length Squared	=	the square of length of marriage.

   Controls

Age	=	Age of respondent in reference year.
$(Age)^2$	=	the square of individual's age.
Immigrant	=	1 if respondent was an immigrant.
Education	=	total years of schooling.
Urban	=	1 if respondent lived in urban area.
Quebec	=	1 if respondent lived in Quebec.
Major Income Earner	=	1 if respondent was the major income earner in the family.
Spouse Unemployed	=	1 if the respondent's spouse earned no income.
Year	=	reference year. Range: 1993-2002.
Post 97	=	1 if reference year was 1997 or later.
Panel 1	=	1 if respondent was in the first SLID panel: 1993-1998.
Panel 2	=	1 if respondent was in the second SLID panel: 1996-2001.
Death of Child	=	1 if respondent's child died in reference year.
Birth of Child	=	1 if respondent became parent in reference year.
Number Children	=	total number of children in reference year.
Number $\times$ Post 97	=	number of children in reference years after 1996.
	=	1 if respondent was in the second SLID panel: 1996-2001.

   Test Variables

Non-Custodial Income	=	Non-Custodial respondent's before tax income (in 1,000's).
NC Income $\times$ Post 97	=	Non-Custodial respondent's before tax income after 1996.
(NC Income $\times$ Post 97)^2	=	Non-Custodial respondent's before tax income after 1996 squared.
Custodial Income	=	Custodial respondent's spouse's before tax income (in 1,000's).
Custodial Income $\times$ Post 97	=	Custodial respondent's spouse's before tax income after 1996.
(Custodial Income $\times$ Post 97)^2	=	Custodial respondent's spouse's before tax income after 1996 squared.

Table 2: Discrete Time Logistic Regressions

Dependent Variable = 1 if separated in reference year

Variable	Non-Custodial Sample (1)	Custodial Sample (2)	All-Parent Sample (3)
Constant	−43.68 (−0.57)	−184.74 (−2.45)	−87.61 (−1.66)
Duration Effect			
Length Marriage	.261 (11.58)	.165 (7.15)	.211 (13.24)
Length Squared	−.008 (−11.64)	−.003 (−4.76)	−.005 (−10.91)
Controls			
Age	0.041 (0.81)	0.142 (2.47)	0.168 (4.50)
$(Age)^2$	−0.002 (−2.43)	−0.003 (−3.47)	−0.003 (−6.67)
Immigrant	−.729 (−4.61)	−.795 (−4.99)	−.757 (−6.78)
Education	−0.049 (−3.71)	0.000 (0.01)	0.036 (3.71)
Urban	.177 (1.80)	0.487 (4.67)	0.332 (4.70)
Quebec	.254 (2.37)	0.263 (2.33)	0.202 (2.66)
Major Income Earner	.210 (0.63)	−0.322 (−1.05)	1.946 (13.63)
Spouse Unemployed	4.757 (25.05)	3.70 (26.86)	4.798 (21.54)
Year	.019 (0.49)	.090 (2.37)	.039 (1.48)
Post 97	−.513 (−1.87)	−0.524 (−2.07)	−0.265 (−1.63)
Panel 1	−.169 (−0.96)	.023 (0.13)	−.103 (−0.82)
Panel 2	−.165 (−1.29)	.040 (0.32)	−.055 (−0.62)
Number Children	−.597 (−4.64)	−.247 (−2.64)	−.373 (−5.19)
Number × Post 97	.229 (2.08)	−0.019 (−0.21)	0.061 (0.95)
Death of Child	0.416 (0.32)	1.144 (0.80)	.431 (0.41)
Birth of Child	−0.621 (−1.53)	−0.613 (−1.99)	−.616 (−2.54)
Living with Children	0.284 (1.41)	.552 (3.45)	.334 (2.75)
Test Variables			
Non-Custodial Income	−.017 (−4.66)	−.097 (−10.40)	−0.032 (−10.49)
NC Income × Post 97	.028 (3.40)	.020 (2.36)	.007 (2.26)
$(NC\ Income × Post\ 97)^2$	.0005 (3.85)	.001 (9.25)	0.001 (3.89)
Custodial Income	−0.045 (−2.70)	−0.012 (−2.60)	−.013 (−3.49)
Custodial Income × Post 97	−0.035 (−1.61)	.008 (1.10)	0.003 (0.62)
$(Custodial\ Income × Post\ 97)^2$	.001 (1.96)	0.000 (1.46)	.000 (1.16)
χ-square (df)	5320.07 (26)	6649.97 (26)	11627.77 (26)
percent correct	98.9	98.9	98.9
N	58,255	68,446	126,701
Mean of Dependent Variable	.0161	0.0156	.0158

t-statistics in parentheses.

Table 3: Discrete Time Logistic Regressions

Dependent Variable = 1 if separated in reference year

Variable	Non-Parent Sample
Constant	−38.28 (−0.50)
Duration Effect	
Length Marriage	.204 (10.06)
Length Squared	−.005 (−8.38)
Controls	
Age	0.259 (5.41)
$(\text{Age})^2$	−0.004 (−7.27)
Immigrant	−.912 (−5.77)
Education	0.039 (2.85)
Urban	0.349 (3.40)
Quebec	0.187 (1.69)
Major Income Earner	.158 (0.43)
Spouse Unemployed	5.637 (14.09)
Year	.014 (0.37)
Post 97	−0.225 (−0.98)
Panel 1	−.442 (−2.47)
Panel 2	−.284 (−2.21)
Number Children	−.247 (−2.64)
Number × Post 97	−0.019 (−0.21)
Death of Child	1.144 (0.80)
Birth of Child	−0.613 (−1.99)
Test Variables	
Before Tax Income	−0.013 (−3.53)
Income × Post 97	.000 (0.00)
$(\text{Income} \times \text{Post } 97)^2$	0.000 (0.41)
Spouse Before Tax Income	.000 (0.00)
Spouse Income × Post 97	0.006 (0.19)
(Spouse Income × Post 97	.000 (0.27)
χ-square (df)	4954.70 (20)
percent correct	96.7
N	20,993
Mean of Dependent Variable	.0513

t-statistics in parentheses.

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