Child Support Guidelines and Divorce Incentives

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ABSTRACT

A child support guideline is a formula used to calculate support payments based on a few family characteristics. Guidelines began replacing court awarded support payments in the late 1970s and early 1980s, and were later mandated by the federal government in 1988. Two fundamentally different types of guidelines are used: percentage of obligor income, and income shares models. This paper explores the incentives to divorce under the two schemes, and uses the NLSY data set to test the key predictions. We find that percentage of obligor income models are destabilizing for some families with high incomes. This may explain why several states have converted from obligor to income share models, and it provides a subtle lesson for the no-fault divorce debate.

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1. Introduction

The introduction of no-fault divorce in the late 1960s and 1970s led to a series of changes in family law well beyond the removal of fault grounds. It is commonly accepted that under fault based grounds for divorce, couples often colluded in the manufacture of the necessary ground and then perjured themselves in court in order to get a divorce.[1] Indeed, this was often argued as the moral failure of the fault provision, and at the time it was considered a major factor in necessitating reform. However, colluding over a fabricated ground for divorce meant that the divorce was mutual to some extent. A divorcing couple would agree to a division of property, a child custody arrangement, and a *child support settlement* that was acceptable to both parties. Each divorce, in effect, was a private agreement that took into account all of the particular circumstances within the marriage. No-fault divorce, when it is fundamentally a change to unilateral divorce, eliminates the mutual feature of fault laws and allowed for non-Pareto divorces.[2]

The issue of inefficient divorce became apparent immediately after no-fault divorce was introduced.[3] Early problems arose over the division of property within the marriage, and the classification of what actually constituted marital property. For example, U.S. common law jurisdictions where "title" determined ownership of assets were particularly troublesome.[4] Throughout the 1970s and 1980s, as the practice of alimony and spousal support was reduced, and as grounds for divorce

[1] See Jacob, Chapter 5, 1988 for a source of this understanding.

[2] Of course, bargaining over divorce is not costless, and therefore, under fault laws the reciprocal problem was non-Pareto marriages. Almost all no-fault states are unilateral divorce states. There are exceptions, however. Mississippi, for example, is a no-fault state, but since the irreconcilable difference must be agreed to, the divorce is mutual.

[3] An inefficient divorce exists when the gains from one party leaving are lower than the losses caused by the divorce to the other party.

[4] As a result, property quickly became categorized as either marital (and subject to equitable or community division) or separate (and claimed by the title holder), (Fineman 1983, Allen 1990). Most Canadian provinces also determined ownership of property within a marriage based on title, and this led to large wealth transfers early on, until the property laws were changed (Allen 1999).

were made more unilateral through reduced separation periods and the removal of fault considerations from divorce settlements, various lobby groups began to draw attention to the problem of poverty among single-mother households — many of which reached that status through divorce. When in dispute, child custody and child support had historically been left to family courts to decide on a case-by-case basis using the "needs of the child" and "ability to pay" doctrine. This naturally led to different awards in situations which appeared similar in terms of basic family characteristics, but which may have differed on margins unobservable to third parties. Calls for more consistent child support awards were made, and these calls were accelerated when it was discovered that single mothers made up a disproportionate share of families below the poverty line, and that a large proportion of court awarded child support payments were never paid. These efforts to reform child support culminated in the creation of child support guidelines.[5]

In the United States, several states experimented early with child support guidelines, almost always within the context of AFDC issues and matters of failure by non-custodial fathers to pay.[6] By 1988 every state was federally mandated to have some type of child support guideline. Although it took a few years for each state to comply, eventually the entire country converted to guidelines. Some states simply extended to all households, or adopted, the existing guidelines developed within their welfare departments. Others started from scratch and developed different types of guidelines.[7] In either case, the explicit purpose of a child support guideline was to reduce the discretion of the family court, provide more consistent awards

[5] Although this paper exploits differences in guideline formulas for support, the term "guideline" generally refers to a whole body of legislation that mandates enforcement, support amounts, penalties for non-performance, and other logistical issues regarding support payments. The history of how support guideline legislation came into being is, obviously, more complicated. See Beller and Graham (1993) for the American details, or Allen (forthcoming) for the Canadian history.

[6] Rogers and Bieiewicz, pp. 60–63, 2004. See also American Law Institute, pp. 423–437, 2002. Garrison (1998) provides a detailed review of U.S. guideline history.

[7] As did the "fifty-first state", Canada, in 1997.

across jurisdictions, generally increase the average award, and achieve some type of equality of equivalence scales across households.[8]

There are many theoretical issues involved in the design of a child support guideline. How are the costs of children to be calculated? How are they to be allocated across the divorced parents? How is the utility of custody to be dealt with? And what specific factors will be used to determine the level of child support payments? There are practical considerations as well which have to do with measurement, enforcement, reporting, and incentives. Child support guidelines must balance along a knife's edge. If payments are too low then children living in the custodial home may be deprived of a standard of living they had when the marriage was intact, or may end up with a standard of living below a poverty line — thus defeating the guideline objective. If payments are too high the welfare of the non-custodial parent, who may have a subsequent spouse and children, will suffer. Almost the entire academic discussion among social scientists considering child support guidelines has centered on this issue of adequacy of support — and almost exclusively on the issue of adequate custodial support. However, guidelines can have a more subtle impact on divorce incentives, and therefore, indirectly, have an impact on child outcomes. Child support guidelines, depending on how they are designed, may create strong incentives for some individuals in marginal marriages to divorce in order to capture a wealth transfer along with custody. This creates an ironic, if not sad, outcome. If a child support guideline is designed to protect children, but in the process creates incentives that encourage divorce, then the effect of the incentives is at odds with the stated objective of the guideline since children are typically both emotionally and financially disadvantaged by divorce. The truth is, it is impossible to separate out the question of adequacy and incentives.

This paper examines the broad incentives that are created under different types of guideline schemes in the U.S., and then empirically investigates them using the

[8] Most guideline legislation also addressed the enforcement of payments.

1979 Youth cohort of the National Longitudinal Survey (NLSY). There are two major different types of guidelines in the U.S.. We argue that one of them is flawed in terms of its divorce incentives. Our empirical work supports this claim.[9]

2. A Brief History and Detailing of U.S. Child Support Guidelines

As the number of children living with a single parent and the number of children living below the poverty line increased throughout the 1970s, attention grew towards what were considered inadequate child support payments. When the U.S. Census Bureau released its first report on child support and alimony in 1980, many were shocked to find out that only 41% of children under twenty-one, who had a father living elsewhere had a child support award.[10] Worse, about 25% of those with an award received nothing, and another 25% received less than the award. As the concepts of a "dead-beat dad" and "feminized poverty" began to enter the popular nomenclature, and as concerns over rising AFDC payment developed, policy makers focused on how child support payments could be made more adequate. Their efforts were supported by the famous Weitzman (1985) study that, based on a small non-random sample of Los Angeles divorces, claimed ex-husbands substantially increased their welfare in the first year post-divorce, while ex-wives experienced a severe reduction.[11] Couched within a conservative era which held that parents, rather than the state, should be accountable for raising their children, the need for child support guidelines seemed self-evident.

Beginning in the mid-1970s the U.S. federal government started to pass various laws to assist specific state departments in enforcing support payments, finding payers, and establishing support awards. Although several states had voluntarily

[9] Both of the major guideline systems in the U.S. have better divorce incentives than the Canadian system. See Allen (2007).

[10] Census Bureau, 1980.

[11] The actual percentages were a 73% fall for divorced wives, and a 43% increase for ex-husbands. Though widely cited for over a decade, they have been largely discredited. For example, see Peterson (1996).

initiated their own support guidelines, the federal government required all states to have some type of numeric guideline in place by the end of 1987.[12] The Family Support Act of 1988 made these guidelines a "rebutable presumption," meaning that alterations must be justified before a court.[13] In terms of the amount of awards, Beller and Graham find that on average the guidelines have had the effect of "increasing the value of awards among the ever-married" population,[14] and that the previous court assigned awards were "low by any reasonable standards."[15] Table 1 provides a list of each state, the type of guideline, the date implemented, and whether or not the guideline has changed.

Of interest to us are the different effects guideline constructions have had on divorce incentives across the various states. Over the time period we consider, there were four types of child support systems. Prior to guidelines, support awards were determined by a court according to a discretionary standard based on the needs of the child and the ability of the non-custodial parent to pay. We will call these older court awards the "needs of child" doctrine. Once guidelines were introduced states generally chose one of three different types. The first is called the "percent obligor" (PO), "percentage of income," or "Wisconsin" model. In this system the child support amounts generally depend on just two factors: the number of children and the non-custodial income.[16] The amount of child support is simply a legislated fraction of the non-custodial income for a given number of children. The *fraction* always increases with the number of children, but may increase or remain constant with respect to income depending on the state. The PO model was originally designed to recover AFDC payments for low income custodial mothers, and was

[12] Illinois and Maine introduced the first voluntary guidelines in 1975.

[13] Beller and Graham, p. 5, 1993.

[14] Beller and Graham, p. 162, 1993. Using data up to the mid-1980s they show that overall guidelines increase the amount of average support by $260 (p. 194).

[15] Beller and Graham, p. 164, 1993.

[16] Income may be gross or net of some expenses, depending on the state.

never intended for widespread use.[17] From Table 1 we see that there were eleven states that started with a PO model.[18] Of these states, four have switched to the second major child support system: the "income shares" (IS) model.

Under the IS system child support payments depend on the *relative* incomes of both spouses, and possibly other factors. The combined income is multiplied by some percentage to determine the total child support award. Each parent's obligation of this award is based on their fraction of total income. The custodial parent is assumed to make an equivalent cash payment in terms of the care given within the household, and the non-custodial parent makes their cash payment to the ex-spouse. Most states are of the income share type. The third type of support system is called the "Melson" model or the "Delaware-Melson" model, after the Delaware state judge Elwood Melson who developed it. The Melson model is basically an income share system, but allows for a reserve level of income to be removed from the total level of income to be divided in order to provide each spouse with some minimal level of income for basic needs.

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[17] See Institute for Research on Poverty, 1982, pp. 143–144, for a nice history of the PO systems. Given the low income of the intended obligors, it was never considered a problem to use gross income in the calculation of child support. Given that the custodial recipient was often on AFDC, the original Wisconsin guidelines assumed that custodial income was zero. When states hurriedly adopted this form of guideline, these features were adopted at the same time.

[18] The attraction of this type of guideline was its simplicity. However, this type of guideline was not recommended by the federal government. One report stated:

> The Wisconsin standard is designed to act like an income tax. With only two primary parameters, gross income and number of children, the Wisconsin standard is intended to be applied automatically by employers under a statewide holding system. However, the administrative benefit of simplicity may be obtained at the price of loss of equity because it does not provide treatment for certain key factor (e.g. custodial parent income, child care expenses). Because the Wisconsin standard is designed as a constant percentage of gross income, it also has the effect of setting orders as an increasing percentage of net income as obligor income rises. This effect is contrary to the economic evidence on actual child rearing expenditures.
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> [U.S. 1987, pp. II-126]

Within the policy literature these three different systems are often presented as being equivalent. This is often done by some type of simple numerical exercise. For example, assume that q is the fraction of non-custodial income paid as child support in a PO state, and s is the fraction of total income assumed to be the costs of children in an IS state. Assuming the wife is the custodial parent, let M_h be the husband's income, M_w be the wife's income, and $\bar{M}$ be their joint income. In the PO state the wife receives qM_h from the husband for child support. In the IS state the wife receives $(M_h/\bar{M}) \times s \times \bar{M}$, or sM_h. If $s = q$, then the two awards amount in the same payment. For example, consider two households that experience a divorce, with the only difference being the custodial income between the two families. In one case the non-custodial parent earns \$60,000 per year and the custodial parent earns nothing. In the other case, each earns \$60,000, and in both cases child costs are assumed to be 25% of income. In the first case the non-custodial parent pays \$15,000 in child support regardless of whether residence is in a PO or IS state since the child support is $.25 \times 60,000$. In the second case the total child costs are \$30,000 and split 50/50, and so the non-custodial child support amount in the IS state is also \$15,000. In this second case, had the couple lived in a PO state, the child support payment would still have been \$15,000. Hence, the non-custodial parent pays the same support in all cases. The higher incomes in the second household imply an off-setting higher cost of children, and this results in the same payment.

3. Incentives to Divorce

The reality, however, is that such a simple numerical example is not applicable in practice. To consider the incentives to divorce that result from any type of child support award, we must consider the incentives of a husband and wife in a marginal marriage. In a no-fault divorce environment, either one can terminate the marriage. Recognizing that marital property is generally split along well defined equitable lines (typically 50/50), what is often left over for splitting are any children and income devoted to their maintenance. If we assume for the moment that there is no shared

custody, and that the utility from being a parent is drastically reduced with a loss of custody, then the broad incentives to divorce under the different guidelines are relatively straight forward.

The construction of each type of child support guideline creates various incentives to divorce for each parent in a marginal marriage because they determine who will be the winner or loser over custody and payments. These incentives stem from several sources, some common to all guidelines, others depending on the specific form. All guidelines, compared to the old court awards, transfer more income from the non-custodial home to the custodial home, and when combined with tax treatments, the difference in income can be substantial. All guidelines create a moral hazard problem on the part of the custodial parent in terms of the choice between child and adult related expenses, and this problem is worse when the support transfer exceeds the child expense. Finally, by their construction, all child support guidelines always ignore the utility generated from children and custody. Separate from these issues, the PO guidelines create additional incentives to divorce compared to the IS guidelines. These incentives arise because of Engel's Law and tax treatments for custodial households.

3.1. **Common Features of Guideline Awards**

Considerable work has been done on the effect of guidelines on award amounts. As might be expected, guidelines increased the average amounts of awards. Beller and Graham, for example, find that monthly awards were higher by $228 in states with guidelines after accounting for socioeconomic characteristics of women.[19] In addition to this, the guidelines tend to increase the receipt rate for awards and the government spending on enforcement. Overall, the custodial parent received more dollars with the introduction of guidelines.

[19] p. 193, 1993. They conclude "Thus, guidelines appear to work as one would hope for the divorced and separated mother ...".

When awards were made in terms of the "needs of child" doctrine, child support amounts were *not* automatically adjusted when the parent's income changed.[20] However, all guidelines assume that child costs are a function of parental income, and as result, all child support amounts change (in some way) with changes in parental income. This means that all guidelines assume that child related expenses are an exogenous function of income. But, of course, child related expenses are endogenous and determined by the custodial parent. Under both the PO and IS systems of guidelines, cash transfers only flow from the non-custodial household in cases where there is full custody in one parent. The guidelines presume that the custodial household makes the relevant payment directly in the form of goods and services provided to the child. This means that for every dollar of extra income earned by the non-custodial parent, a fraction necessarily goes towards the custodial household, presumably for child related expenses. The custodial parent, however, spends this money, along with any of their own earned income, unilaterally. Neither system of guideline monitors how custodial income is spent.[21] Thus, the custodial parent is free to choose how increased income is spent and may choose to substitute expenditures away from the child and more towards private consumption as income increases. The freedom to spend custodial income, especially as the award increases beyond the costs of children, is an advantage of the guideline system over the "needs of child" doctrine, for the custodial household.

Perhaps the most significant change created by child support guidelines was their failure to account for the utility generated by custody of children. When designing the various types of guidelines, children are assumed to be a cost to the custodial household — a drain on welfare because children impede remarriage and participation in the labor force. Under such an assumption, it makes sense for the non-custodial household to compensate for this extra burden. This fails to recognize

[20] This is not to say that awards were fixed in stone. Substantial changes in incomes (up or down) could result in a (costly) hearing brought by the spouse wanting to change the amount.

[21] Weiss and Willis, 1985.

that children are often the most valuable family asset, and that much of the utility that arises over children does not come from simple procreation, but from contact and involvement with one's own children on a day-to-day basis. It is the relationship between parent and child that is often the most valuable attribute of parenthood. The relationship is not a public good in the marriage, and is not the same as simple procreation. Not counting custody as a gain in the calculation of child support means that guidelines will tend to "double count" the award for custody.[22] The custodial parent will get the utility from custody, plus a high cash transfer to fund the child expenses. It is similar to one side retaining ownership over the family car, while the other side continues paying for the fuel and maintenance without hope of recouping on resale. Prior to the introduction of support guidelines, child support awards were considered inappropriately low. However, this no doubt reflected the courts awareness that the custodial parent obtained custody over one of the most valuable assets of the marriage: the children. Perhaps the main complaint of non-custodial parents under the guideline system is the lack of contact they have with their children.

3.2. **Income Shares versus Percentage of Income**

The above numerical example which showed the presumed equivalence of the IS and PO systems does not hold in practice because by their construction and based on the way the tax system treats income and expenses, IS and PO guidelines are not the same. PO models provide incentives to divorce because of Engel's law, and tax treatments. The above simple calculation assumed that the cost of children is a fixed constant fraction of total family income. It has been well known for some time that this is not the case.[23] As family income increases, expenditures on

[22] "Double counting" is a phrase often used by non-custodial parent rights groups to get at what they believe is an over payment.

[23] See Houthakker (1957) or Donaldson and Pendakur (2002). The estimates made by Donaldson and Pendakur (2002) are complicated, but they find:

> ... that equivalence scales for households with children decrease significantly with

children increase, but the fraction of expenditures to total income are falling. In the example above, suppose that when each parent earns $60,000 the child costs are 20% of total income rather than 25%, or $24,000. Now the non-custodial share would be $12,000 in the income sharing state, but remains at $15,000 in an obligor state. The custodial parent would end up paying $9,000 in child support rather than $12,000. In effect, the Obligor law subsidizes non-child related expenses in the custodial household when the average cost of children falls with income. If the child costs, as a fraction of total income, fall with increases in income, then it is necessary to use the total family income to calculate child costs, and not just the non-custodial income. Of course, the PO guidelines do not do this.

Until very recently, all but one PO state had linear cost functions for children. For example, in Alaska the state still determines the child support award as 20% of the non-custodial income for one child, 27% for two children, 33% for three children, et cetera. There is no cap on child support awards, and the percentage of income is *constant* across low and high income levels. On the other hand, thirty of the IS states have realized this problem and have cost functions where average child costs fall with increases in income.[24] For example, in Arizona child costs are assumed to be 23.8% if monthly joint income is $700 month, but this falls to 20.2% if monthly income is $2500 per month. Thus, PO states will end up penalizing households where one member earns a significant amount of income. For example, consider another family where the non-custodial parent earns $120,000 and the custodial parent earns nothing. Assuming that the PO state determines child support based on a flat 25% of income and the IS state assumes that at this income level the child

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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 3, p.22)).

[24] Beller and Graham, p. 200, 1993.

support award falls to 20% of income, then in the PO state the non-custodial parent pays $30,000 in support while in the IS state the non-custodial parent would only pay $24,000. To the extent average child costs are falling with respect to income, the flat rates used in PO states means there is a net transfer of wealth to the custodial household. This transfer amounts to a form of hidden spousal support.

Finally, under US tax law, there are often considerable advantages to custodial households in Obligor states. Because the custodial parent is the head of a household, that parent is able to claim a larger standardized deduction.[25] The custodial parent, barring a private agreement, is likely the only one who can claim dependent exemptions, and custodial parents are the only ones eligible for child tax credits, such as children's tax exemptions, earned income tax credits, and dependent care tax credits. Since child support payments in Obligor states are often based on gross income of the non-custodial parent, these differences can make a large difference in after tax income across the households. This does not hold for Income Share states where support payments are based on intact total family incomes.[26]

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[25] Of course, this is only an advantage if the custodial income is high enough.

[26] Rogers, p. 144, 1999. Rogers, in assessing differences between Obligor and Income Shares states claims that Obligor states:

> .... transfer income from non-custodial parents to custodial parents in a manner that results in the custodial parent having a significantly higher standard of living than the non-custodial parent in most income situations involving from one through five children. the custodial parent generally ends up with a higher standard of living than the non-custodial parent on an after-tax, after-child support basis.
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> [p. 139, 1999]

Rogers and Bieniewicz (2004) extensively examine relative standards of living for custodial and non-custodial households under PO and IS systems. They systematically find that PO schemes transfer more income to the custodial home, especially for high income levels.

> With Wisconsin-style, gross income basis guidelines, as reported in table 5a.9 for situations in which the custodial parent has 50, 70 or 100 per cent of the non-custodial parent's income, the former ends up with a dramatically higher standard of living that the non-custodial parent. And when the custodial parent has a higher gross income, the custodial parent's standard of living advantage is boosted even further.

3.3. **Incentives to Divorce**

These various effects of wealth transfer caused by guidelines can be summarized in Table 1. When child support awards are given under the "needs of child" doctrine, the custodial parent has a reduced incentive to leave on the basis of the low child support award. Although the custodial parent gained the utility through custody, this came at a cost since the courts implicitly recognized the utility gain and the child support awards were small. For the average, "involved," non-custodial parent, the incentive to divorce under "needs of child" were also probably small. Payments would be low, but there is a loss of utility over custody. Interestingly, for those non-custodial parents not interested in parenthood (e.g., the dead-beat dad), such "needs of child" awards would have encouraged abandonment of the family, since they would only be concerned with the reduced payments. Income Share awards create minimal incentives for either party to leave. Given their design, the custodial parent does not receive a significant net transfer of wealth because i) their income is included in the calculation of the award, and ii) most IS states assume that child costs decline with total family income. Hence for the custodial parent they may gain custody, but the cash award likely just covers the cost of the child. On the other hand, the non-custodial parent loses any utility from custody and the dead-beat dad, as well as the involved parent, must pay a larger child support award. As a result, the non-custodial parent in an IS state also has no strong incentive to divorce. With the Percent of Income (PO) model, however, the divorce incentives are the opposite of the "needs of child" case. Now the custodial parent has a strong incentive to divorce since all factors designed into the guidelines create a transfer

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[p. 79, 2004]

Obligor models of child support have one other non-pecuniary advantage for custodial parents: freedom from income monitoring. Since child support awards are not a function of their incomes, the non-custodial parent has no financial interest in making sure the income is reported honestly. On the contrary, the custodial parent has a strong incentive to monitor non-custodial parent income changes closely in Obligor states. This may or may not bring utility to the custodial parent, but it is certainly a matter of disutility for the non-custodial parent.

of wealth: they obtain custody and a cash award that over compensates for costs, especially for high incomes.[27] The non-custodial parent in this case is less interested in divorce since the payments are high and the utility over custody is lost.[28]

Table 1: Divorce Incentives

	Custodial Parent	non-custodial Parent
Needs of Child	Small	Large (if Dead-beat) Small (if Involved)
Income Shares (IS)	Small	Small
Percent Obligor's Income (PO)	Large	Small

This simple framework guides our empirical work. We expect to observe the following:

1. The switch from "needs of child" awards to PO awards should increase divorce rates.
2. With the transition to a PO state divorce rates should be higher in families where the non-custodial parent's pre-divorce income increases.
3. With the transition to a PO state divorce rates should be unaffected by the level of the custodial parent's pre-divorce income.

[27] The Canadian situation points to an extreme example. Designed after early versions of the Wisconsin PO model, the Canadian guidelines use a linear equivalence scale that greatly over estimates the cots of children, assumes children spend no time with the non-custodial parent, and requires the non-custodial parent to subsidize extra expenses, such as sports equipment and piano lessons. The result is a very strong incentive for custodial parents to divorce after non-custodial incomes of $60,000. See Allen (2007).

[28] If there were no costs to negotiate different splits within an efficient marriage, then none of these different guidelines would have made any difference. PO states would just mean an increase in wealth within the marriage to the potential custodial parent. However, transaction costs are positive in marriage and divorce, and as a result the rules matter.

4. The switch from "needs of child" awards to IS awards should have lowered divorce rates.
5. When couples have no children, the probability of divorce should be unaffected by the type of child support law.
6. Couples with children living in states that determine child support based on a flat percentage of non-custodial income (PO states), should be more likely to divorce than similar couples in IS states.

4. NLSY 1979 Data and Results

Data to test our predictions come from the 1979 National Longitudinal Survey of Youth (NLSY). This panel begins in 1979 and follows 12,686 men and women who were between the ages 14 and 22 in 1979. Individuals were interviewed annually until 1994, and biennially since then. We follow them until 2002, which means our panel starts before most states adopt a guideline, and carries on for some time after. Although the NLSY is mostly concerned with labor market participation, it does track the marital histories of individuals. It does not keep adequate track of child support payments or custody. As a result, we assume that the wife always obtains custody.[29] One nice feature of the NLSY for our study is that individuals enter the data very young, and few of them are married in 1979. This minimizes a censoring problem. From the NLSY we extracted a panel of first time married individuals. Thus, a person enters our panel the year they first marry, and they remain in the panel until they divorce or reach 2002.[30] We estimate the effect of many covariates (listed in Table 3) on the probability of divorce using discrete time

[29] Although this assumption creates measurement error, Brinig and Allen (2000) find that this is true between 70-80% of the time.

[30] Of course, there is an attrition to the sample as well from individuals who drop out of the NLSY.

varying logit regressions.[31] This methodology provides an estimate of the divorce effect conditional on being married for a given length of time.[32]

Table 4 shows the results of four discrete time logit regressions that compare divorce rates before and after the switch from "Needs of Child" to some type of guideline.[33] Each regression only shows the test variables we are interested in, but each regression includes the list of control variables in Table 3. The dependent variable in each regression is 1 if the individual divorced in the reference year. Equation (1) in Table 4 shows that moving from "Needs of Child" to Percentage of Non-Custodial Income (PO) guidelines significantly increased the divorce probability (Prediction 1). That is, the coefficient for OBLIGOR STATE is positive and significant. Interacting the PO variable with both custodial and non-custodial income shows that this increase is the result of increases in non-custodial income. Changes to the custodial income make no difference to the divorce probability, but increases to the non-custodial income have a significant impact, as we expect, since custodial income makes no difference to the amount of the transfer (Predictions 2,3). When the income interaction terms are included, the PO dummy variable is no longer positive or significant.

Equations (3) and (4) in Table 4 shows that the opposite effect happens in states that switch to Income Shares from "Needs of Child" child support. These states experienced a reduction in divorce rates (Prediction 4), and this result holds up

[31] Because we use individual data, but are interested in a clustered (ie. state level) covariate (ie. whether or not a state has a particular guideline), we estimate using clustered robust standard errors. This allows for non-zero correlations between the error terms within the aggregate covariate. The effect of this is to considerably increase the size of our standard errors.

[32] Although not presented, our estimated coeffiecients on the covariates listed in Table 3 confirm some well known results. Divorce probabilities rise and then fall with the length of marriage and the age of the individual; education levels and income have strong negative effects on divorce probabilities for both spouses; and some type of religious affiliation has a small but negative effect on divorce probabilities.

[33] To simplify presentation, for our empirical work we combine Melson and Income Share states. Empirically we cannot distinguish the two, and the results are almost identical whether they are grouped together or not.

even when parent incomes are interacted with the legal term. Neither of the income interaction terms are significant, reflecting the lack of incentive the income share system creates to divorce with changes in income. The results from regressions (1) – (4) in Table 4 are quite striking. Although family income is generally stabilizing to a marriage, the marginal effect of the guidelines through non-custodial income is destabilizing in PO states. Consistent with our prediction on non-custodial income, regression (2) shows that divorce probabilities increase with non-custodial income in Obligor states. Calculating the marginal effect, evaluated at the mean of all variables, we find a $10,000 change in non-custodial income leads to a .2 change in the probability of divorce. As an approximation, a $100,000 change in non-custodial income would lead to a 1% increase in the probability of divorce, which is basically the difference in divorce rates between IS and PO states. Consistent with our prediction on custodial income, the divorce probabilities are unaffected by changes to custodial income in Obligor states. Looking at the coefficients on the interaction effect in regression (2), the coefficient on CUSTODIAL INCOME $\times$ OBLIGOR is 1/4 the size of the coefficient on NC INCOME $\times$ OBLIGOR. Remarkably, this relationship is not found in the income shares states.

Table 5 presents the results of four other discrete time logistic regressions using different samples of individuals to provide some additional support for Table 4. The dependent variable again equals 1 if the couple separated in the reference year, and is zero if they remained married. Regressions (1) and (2) use the sample of married couples without children. For these couples the child support guidelines are irrelevant for divorce considerations (prediction 5). As the results from regressions (1) and (2) show, divorce probabilities are not a function of either custodial or non-custodial incomes in this sample. Furthermore, childless couples in Obligor states do not have higher divorce rates compared to couples in other types of states. The regressions from equations (1) and (2) in both Tables 4 and 5 provide evidence that the Obligor guidelines increased the divorce probability for a particular type of family: those with children and high primary income earners.

The last two regressions in Table 5 use observations prior to the imposition of child support guidelines in 1988. Only those states that voluntarily imposed child support guidelines have them during this period. This sample is used to test for endogeneity problems with the full regression. States which adopt Obligor type guidelines may, for some reason, have families that are more susceptible to divorce when non-custodial incomes increase. Given that some states adopted guidelines endogenously on their own prior to 1988, and others had them imposed on them by the federal government, we can look at the effect of Obligor status on a subsample. Regressions (3) and (4) in Table 5 show the results when the sample is restricted to years prior to 1988. As can be seen, the general result still stands: divorce probabilities increase in non-custodial income and are unrelated to custodial income.[34] These regressions suggest there is no serious endogeneity problem.

Finally, Table 6 shows the results from three regressions to see if there is a significant difference between PO and IS states.[35] Looking at the unconditional divorce rate averages, PO states have higher divorce rates: 5.4% vs. 4.4%. Equation (1) in Table 6 shows a strong positive coefficient for OBLIGOR, which implies a higher divorce rate, controlling for most of our other variables. However, when we add in the income interaction terms, this coefficient remains positive, but becomes insignificant.

5. A Lesson For the No-Fault Divorce Debate

There are many studies on the effect of no-fault divorce laws on divorce rates, and the latest conclusions are that no-fault divorce laws increased divorce rates

[34] We do not report the regressions run on post 1988 years, nor the regressions where we drop the income interaction terms. The results are similar in those regressions to regressions (1) and (2) as well.

[35] These regressions include three extra explanatory variables: Gross Income, College Support, and Shared Parenting Offset. These were used to control for additional guideline differences across states. The results shown in Table 6 did not differ based on whether these variables were in or out of the regression.

only temporarily.[36] How serious one considers the rise in divorce rates depends on whether or not a short run effect of ten to fifteen years is a big number. These studies use aggregate state wide data, controlling for state and year effects with dummy variables. A common interpretation of these results is that couples learn to anticipate the effects of these laws and adjust their behavior accordingly. Hence divorce rates fall back to trend over time. However, this conclusion may not be warranted.

First, let us repeat our guideline experiment using aggregate data. We obtained the data from Justin Wolfers, who used it in his (2006) study of unilateral divorce laws on divorce rates.[37] These administrative data from *Vital Statistics* create a state panel, and measure the divorce rate as the number of new divorces for every 1000 people within a state in a given year. Using these data we run the following regression:

$$\begin{aligned}\text{Divorce Rate}_{s,t} = \text{Constant} + \sum_k \beta \text{Years Obligor law has been in effect} \\ + \sum_t \text{Year Fixed Effects} + \sum_s \text{State Fixed Effects} \\ + 1950\text{StateDivorceRate} + \epsilon_{s,t}\end{aligned}$$

The results of this regression for the β's are found in Table 6. Here we run six different specifications, changing the combination of year and state effects in each equation. In equations (1)–(3) the dependent variable is the number of divorces per 1000 population. For equations (4)–(6), the dependent variable is the number of divorces per 1000 married population. For all of the regressions, rather than use a dummy variable for whether or not a state has a PO child support law in a given year, we use the Wolfers' method of creating a series of dummy variables

[36] The first to find this result was Wolfers (2006). Matouschek and Rasul (2008) also find a large but temporary effect.

[37] Wolfers got most of this data (1968 to 1988) from Leora Friedberg (1998), but enlarged it to include years 1956 to 1998. We updated the data further to include the years 1956 to 2004.

that measure how long the PO law has been in effect. When no state or year fixed effects are included, the PO laws appear to significantly increase divorce rates for the first decade following the law's introduction (equations (1) and (4)). However, when both state and year fixed effects are included, while a positive effect remains, the result is generally not statistically significant.

The reason for the weaker result is that the aggregate data are not well suited for testing the effect of various child support laws on divorce rates. As shown by the NLSY results, the different guideline laws influence families differently depending on whether or not children are present and what the distribution and level of income is between the spouses. These differences cannot be captured by a state fixed effect term. Across a given state different family types will tend to "wash out" and not show up in aggregate statistics.

There is a general lesson here for no-fault studies. No-fault 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. No-fault divorce, combined with exploitable property/support laws, on the other hand, should have a large bearing on divorce rates. To create an incentive to inefficiently divorce requires both the *opportunity* and the *willingness* of one party to divorce. Simply looking at whether a state has no fault laws is, in principle, inadequate. The amazing coincidence for most no fault results has been that, in practice, most states had combinations of family laws that generally created incentives to divorce across all family types, and therefore, positive correlations were found. However, over time legislation is enacted governing property, custody, and support, which reduces the willingness of any party to opportunistically divorce. This legislative effect can also explain the short run effects of no-fault divorce rates.

In general, to study the effect of no-fault divorce laws on divorce rates one must consider the entire marital law regime surrounding the divorce decision. Within the context of this paper, an improperly designed child support guideline that creates an opportunity to transfer wealth through divorce actually increased some divorce

rates substantially. Other laws which mitigate wealth transfers can lower divorce rates. Thus, reductions in divorce rates over time may simply be the result of well designed net wealth transferring laws which occurred over time. They may also be the result of endogenous changes in spouse matching. Future divorce research will be more successful in sorting this out if it recognizes the distinction between the ability and willingness to divorce.

6. Conclusion

Our empirical work provides support for the claim that different guideline formulas provide different divorce incentives. Families with a high primary income earner within a PO state, are more vulnerable to a divorce compared to a similar family prior to guidelines. This relationship is likely to hold compared to an income share system as well. From Table 2 we see that several states have switched from PO to IS models of child support. Given the results of this paper, this makes good sense. Percentage of obligor income models were designed to handle very specific marriage situations. Namely, they were designed for low income welfare families, where the non-custodial parent was absent and earned a low income, where the custodial parent had custody 100% of the time, earned zero income, and where the support award was limited by the AFDC payment. With the exception of Minnesota, all of the other states which adopted this type of guideline seem to have done so in the haste created by the federal mandate to acquire guidelines. They simply took the existing guidelines being used in their welfare departments and applied them to all divorce cases with children. The result was a bad fit for families that did not meet the low income conditions and subsequent increase in inefficient divorces. The PO model of child support led to an opportunity for custodial parents to achieve a spousal support award in addition to child support, and this created an incentive to divorce.

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Table 2: State Classifications

State	Year Enacted	Year Changed	State	Year Enacted	Year Changed
			Percentage Obligor Income		
Alaska	1987		Nevada	1987	2002*
Arkansas	1989		North Dakota	1991	2003*
Georgia	1989	2005 (IS)	Tennessee	1987	2006 (IS)
Illinois	1986		Texas	1989	2007**
Minnesota	1983	2005 (IS)	Wisconsin	1987	2004 (IS)
Mississippi	1989				
			Income Shares		
Alabama	1987		Nebraska	1987	
Arizona	1987		New Hampshire	1988	
California	1992		New Jersey	1986	
Colorado	1985		New Mexico	1989	
Connecticut	1989		North Carolina	1989	
Florida	1987		Ohio	1989	
Idaho	1989		Oklahoma	1988	
Indiana	1989		Oregon	1989	
Iowa	1989		Pennsylvania	1988	
Kansas	1987		Rhode Island	1988	
Kentucky	1990		South Carolina	1989	
Louisiana	1993		South Dakota	1989	
Maine	1989		Utah	1989	
Maryland	1989		Vermont	1985	
Michigan	1986		Virginia	1988	
Missouri	1989		Washington	1988	
Montana	1989	1998 (M)	Wyoming	1988	
			Melson		
Delaware	1990		Massachusetts	1986	
DC	1990		New York	1989	
Hawaii	1986		West Virginia	1989	2001 (IS)

* These states converted to a model where child costs decline with NC income.

** Ceiling placed on support payment

Table 3: NLSY Variable Definitions

Duration Effect

Years Married	=	The number of years married.
Years Married Squared	=	Years Married × Years Married

Controls

Year	=	reference year of survey.
Age	=	Age of respondent.
Age Squared	=	Age × Age.
Spouse Education	=	Highest grade completed by respondent's spouse.
Education	=	Highest grade completed by respondent.†
Number of Children	=	Number of children dependent on respondent.
Two Parents	=	1 if respondents parents were still married in 1979
ESL	=	1 if English was a second language for respondent in 1979.
Black	=	1 if respondent is black.
Catholic	=	1 if respondent was Catholic in 1979.
Baptist	=	1 if respondent was Baptist in 1979.
Mainstream	=	1 if respondent belonged to mainstream denomination in 1979.
Jewish	=	1 if respondent was Jewish in 1979.
No Religion	=	1 if respondent identified with no religion in 1979.
Gross Income	=	1 if gross income was used to calculate payment.
College Support	=	1 if guidelines extended to college.
Shared Parent Offset	=	1 if support payments were reduced when parenting shared.
Non-custodial Income	=	Total before-tax income of husband (in $10,000's).
Custodial Income	=	Total before-tax income of wife (in $10,000's).

Test Variables

Obligor State	=	1 if State Uses % of Obligator Income Guidelines.
NC Income × Obligor	=	Interaction term.
Custodial Income × Obligor	=	Interaction term.
Income Share	=	1 if State Uses Income Share Guidelines.

†Contains significant measurement error, see text for elaboration.

Table 4: Discrete Time Logistic Regressions on NLSY Data

Guidelines vs Court "Needs of Child" Awards

Dependent Variable = 1 if Divorced in reference year

	Obligor		Income Shares	
	(1)	(2)	(3)	(4)
Test Variable				
Obligor State	0.47	−0.73		
	(2.03)	(−1.46)		
Custodial Income × Obligor		−0.10		
		(−0.40)		
NC Income × Obligor		0.43		
		(4.67)		
Income Share State			−0.46	−1.74
			(−3.31)	(−4.23)
Custodial Income × Income Share				−0.19
				(−1.64)
NC Income × Income Share				−0.07
				(−0.48)
Controls:	Yes	Yes	Yes	Yes
χ^2(df)	566.5(17)	801.9(19)	804.9(17)	657.6(19)
N	14,882	14,882	35,168	35,168
Mean of Dep. Var.	0.054	0.054	0.044	0.044

t-statistics in parentheses.

Table 5: Discrete Time Logistic Regressions on NLSY Data

Guidelines vs Court "Needs of Child" Awards

Dependent Variable = 1 if Divorced in reference year

	No Children		Prior to 1988	
	(1)	(2)	(3)	(4)
Test Variable				
Obligor State	0.36	−0.34	0.26	−1.39
	(0.73)	(−0.48)	(0.35)	(−0.89)
Custodial Income × Income Share		0.12		0.21
		(0.29)		(0.90)
NC Income × Obligor		0.28		0.87
		(1.42)		(2.29)
Controls:	Yes	Yes	Yes	Yes
χ^2(df)	330.7(17)	338.2(19)	309.5(17)	586.5(19)
N	4405	4405	7774	7774
Mean of Dep. Var.	0.055	0.055	0.047	0.047

t-statistics in parentheses.

Table 6: Discrete Time Logistic Regressions on NLSY Data

Obligor versus Other Support Awards

Dependent Variable = 1 if Divorced in reference year

	(1)	(2)	(3)
Test Variable			
Obligor State	0.52	0.57	0.35
	(8.49)	(3.32)	(1.16)
Custodial Income		−0.02	−0.017
		(−0.68)	(−0.36)
NC Income		−0.01	−0.05
		(−3.44)	(−0.80)
Custodial Income × Obligor			−0.02
			(−0.15)
NC Income × Obligor			0.07
			(1.15)
Controls:	Yes	Yes	Yes
χ^2(df)	1187.4(18)	459.5(20)	415.2(22)
N	45,459	39,656	39,656
Mean of Dep. Var.	0.049	0.047	0.047

t-statistics in parentheses.

Table 7: OLS Regressions on Aggregate Data

Dependent Variable = Number of Divorces per 1000 population (1)–(3)

Dependent Variable = Number of Divorces per 1000 married population (4)–(6)

	Divorce Rate/1000 Pop			Divorce Rate/1000 Marriages		
	(1)	(2)	(3)	(4)	(5)	(6)
Variable						
First 2 Years	.942	.568	.251	1.784	.818	.384
	(4.21)	(2.80)	(1.72)	(5.08)	(2.86)	(1.88)
Years 3–4	.979	.465	.211	1.873	.655	.311
	(4.21)	(2.19)	(1.39)	(5.13)	(2.19)	(1.47)
Years 5–6	.847	.284	.086	1.722	.403	.133
	(3.84)	(1.37)	(0.58)	(4.97)	(1.38)	(0.64)
Years 7–8	.602	.219	.010	1.34	.283	−0.001
	(2.76)	(1.06)	(0.07)	(3.98)	(0.98)	(−0.01)
Years 9–10	.640	.410	.107	1.51	.642	.191
	(2.79)	(1.93)	(0.70)	(4.19)	(2.14)	(0.89)
Years 11–12	.026	−0.001	−.323	.481	−0.10	−0.549
	(0.12)	(−0.01)	(−2.25)	(1.44)	(−0.35)	(−2.73)
Years 13–14	−0.130	.079	−.344	.264	−0.36	−0.617
	(−0.63)	(0.42)	(−2.53)	(.811)	(−0.14)	(−3.24)
Years 15–17	−0.312	−0.066	−.460	−0.174	−0.281	−0.821
	(−2.45)	(−0.43)	(−4.08)	(−0.59)	(1.29)	(−5.2)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year Effects	No	Yes	Yes	No	Yes	Yes
State Effects	No	No	Yes	No	No	Yes
R^2	.454	.685	.849	.454	.745	.880
F	179.70	86.12	130.39	179.78	115.68	169.57

t-statistics in parentheses. Regressions weighted by State Population.