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The Effect of Child Support Policies on Visitations and Transfers

D. Del Boca and R. Ribero

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Daniela Del Boca — University of Turin

Rocio Ribero — University of los Andes Bogota'

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[1]Address for correspondence: Daniela Del Boca, Department of Economics, University of Turin, via Po, 53, 10124 Torino, Italy. We are grateful to Christopher Flinn, Linda Edwards, and Paul Schultz for very useful comments and suggestions. The usual disclaimer applies.

1 Introduction

Recent research on child support issues has been concerned with normative problems involving the distribution of welfare between divorced parents and their children as well as with the assessment of the behavioral responses of parents to child support orders and custody arrangements (see, e.g., Del Boca and Flinn (1995), Gar..nkel and Klawitter (1990), Bartfeldt and Gar..nkel (1996), Del Boca (1996), Del Boca and Ribero (1998), and Flinn (2000)). While there is by now an extensive literature analyzing the e¤ects of child support policies on monetary transfers of noncustodial parents and the extent of compliance with child support orders, little research has been done on the relationship between monetary transfers between parents and the division of the child's time. While income transfers to the custodial parent are no doubt important for the child's consumption and general well-being, there exists considerable empirical evidence suggesting that the division of the child's time between the parents has important e¤ects on the child's success in school and the labor market and their personality development (Beller and Graham (1993)).

There have been few theoretical analyses of this relationship. Weiss and Willis (1985) provide one theoretical motivation for the positive relationship between the noncustodial parent's contact time with the child and their level of transfers. They claim that increased contact time allows better monitoring of the custodial parent's expenditures on the child, which induces higher levels of transfers to the custodial parent.

We have developed a model (Del Boca and Ribero (1999)) in which visitations and child support are the outcomes of a negotiation process whereby the father exchanges income for visitation time. Institutional agents, such as judges, state legislatures, etc, can impact the welfare of the members of the nonintact family by altering the endowments of each of the parents. In the simpli..ed version of the model examined below, we view the mother as being

given the endowment of all of the child's time. Fathers typically begin with a substantial income endowment advantage over mothers, even if we were to view their incomes as being after mandatory transfers (order by the courts) were made. There are generally gains from trade, with the mother exchanging the good with which she is heavily endowed, the child's time, for income to use for consumption. Given the distribution of the endowments, our model implies a positive relationship between transfers and the visitation time.

Our model implies that institutional agents can have important effects on the distribution of welfare within nonintact families through the endowments. We illustrate this point by performing a simulation exercise, which involves the use of information from the National Longitudinal Survey-High School Class of 1972 data set. We evaluate the effects of forcing different types of mandatory income transfers from the noncustodial parent on visitation time and the mother's net income.

The plan of the paper is as follows. Section 2 presents the behavioral model and the equilibrium determinations of visitation time and child support transfers. Section 3 describes the data and the manner in which it can be used to determine the distributions of parental preferences (as represented by $\pm_m$ and $\pm_f$): The results of a small policy experiment are presented in Section 4 and Section 5 contains a brief conclusion.

2 Gains from Trade Between Parents

In this section we explain visitations and child support payments using a behavioral model of competitive equilibrium in which the variables are the result of competitive allocations realized in a non-cooperative manner. In our framework both parents care about the welfare of the child and they enjoy spending time with the child. While during marriage time with the child is a public good, after separation it becomes a private good.

In this model (and the data set used in the empirical work reported below), parents are divorced and have had one child from the marriage. Because our goal is empirical implementation and conducting a small policy experiment, we assume specific functional forms for parental preferences from the onset. In particular, each parent is assumed to have a Cobb-Douglas utility function,

$$u_j(c_j; h_j) = \pm_j \log(c_j) + (1 - \pm_j)\log(h_j) \tag{1}$$

$$\pm_j \in (0;1); \quad j \in \{m; f\}; \quad c_j > 0; \quad h_j > 0;$$

where the index m refers to the mother and f the father.

We assume that the parents have access to two independent sources of income, y_m and y_f. These incomes could be those that remain after an institutional agent has ordered (a perfectly enforceable) transfer from one parent to the other, but in the application reported below we will assume that these simply represent the pretransfer income levels of the parents. We also set the total time the child can spend with the parents to 1, so that $h_m + h_f = 1$. A critical assumption is that the mother has the sole physical custody of the child, because that guarantees that her initial endowment of "time with the child" is equal to one.

The behavior of the parents is decentralized and non-cooperative. Each of them derives their own demand from utility maximization subject only to their budget constraint, without knowledge of the demands or concern for the tastes of the other parent. Price is a signal of scarcity and through a process of interaction the parents implicitly determine a price of the child's time that equates supplies and demands. By virtue of the first welfare theorem, and, without the existence of public goods, this competitive equilibrium is also Pareto optimal. The competitive allocation is therefore consistent with the maximization of utility of each parent subject to holding the utility of the other parent constant.

Normalizing the price of the consumption good to one, let p represent the monetary price of a unit of time with the child. The budget constraint for each parent guarantees that the monetary value of the consumption vector cannot exceed the value of the initial endowment vector. Given her total endowment of income and time with the child, the mother chooses a level of consumption of the private good and time to spend with the child, by solving the problem:

$$\max_{c_m;h_m} \pm_m \log(c_m) + (1 ¡ \pm_m)\log(h_m) \text{ subject to } c_m + ph_m \cdot y_m + p;$$

while the father solves

$$\max_{c_f;h_f} \pm_f \log(c_f) + (1 ¡ \pm_f)\log(h_f) \text{ subject to } c_f + ph_f \cdot y_f :$$

Given the price of the child's time, the mother's and father's demand function are given by:

$$c_m(\pm_m; p; y_m) = \pm_m(p + y_m); \tag{2}$$

$$h_m(\pm_m; p; y_m) = (1 ¡ \pm_m)\frac{p + y_m}{p};$$

$$c_f(\pm_f; p; y_f) = \pm_f y_f; \tag{3}$$

$$h_f(\pm_f; p; y_f) = (1 ¡ \pm_f)\frac{y_f}{p}: \tag{4}$$

The equilibrium of the "market", given when the sum of the demands for each good is equated to the aggregate supply, holds when:

$$c_m(p; y_m) + c_f(p; y_f) = y_m + y_f; \tag{5}$$

$$h_m(p; y_m) + h_f(p; y_f) = 1:$$

Solving for p in the equilibrium equations, we get the solution for the equilibrium price p and the equilibrium allocations $c_m; h_m; c_f$ and h_f. Given the demand functions, we find that the equilibrium price is given by

$$p(\alpha_m; \alpha_f; y_m; y_f) = \frac{(1 - \alpha_m)y_m + (1 - \alpha_f)y_f}{\alpha_m}.$$

The child support transfer is the amount of money that the father pays to the mother, which in this model represents the cost of the time with the child. Denoting the child support transfer by t; we have $t = ph_f$: The visitation time of the father is definitionally given by $v = h_f$: Under our Cobb-Douglas assumptions, we have

$$t(\alpha_f; y_f) = ph_f(\alpha_m; \alpha_f; y_m; y_f) = (1 - \alpha_f)y_f; \quad (6)$$

$$v(\alpha_m; \alpha_f; y_m; y_f) = h_f(\alpha_m; \alpha_f; y_m; y_f) = \frac{\alpha_m(1 - \alpha_f)y_f}{(1 - \alpha_m)y_m + (1 - \alpha_f)y_f}. \quad (7)$$

It can be shown that according to the model, fathers with higher incomes transfer more and visit more, that the mother's income has an ambiguous effect on child support transfers, and that mothers with higher incomes allow fewer visitations. These comparative statics results help to understand the changes in transfers and visitations that may occur in different situations (see Del Boca and Ribero 1999). For example, perfectly-enforced child support orders, such as the ones implemented in some states, can simply be viewed as an exogenous change in the parental income in favor of the mother. In such a situation, the model predicts less visitation by the father. The empirical exercise conducted below demonstrates that the size of this effect may be substantial.

3 Data Description and Empirical Implementation

The data for this study are from the 1986 wave of the NLS-High School Class of 1972. Out of the 12,841 respondents in the survey, we selected those who had been legally married and divorced or separated at least once, had had one child from that marriage, and had the physical custody of that child assigned to the mother. We also have selected only cases with positive noncustodial parent incomes, child support transfers and positive amounts of visitation time - these restrictions are necessary given the assumptions we have made concerning the forms of parental utilities and the assumption that the entire time endowment is given to the mother.

Unfortunately, actual visitation information is not available to us, so instead we use the visitation schedule set in the ..nal divorce stipulation (see Del Boca and Ribero (1999).

Sample statistics for the relevant variables are given in Table 1. The average income of the fathers is over twice as high as the average income of the mother, which is consistent with the premise of the model that fathers have substantially greater income endowments. Child support transfers are on average $2,321 a year and fathers see their children 46 days per year on average.

Table 1

Sample Statistics

(N = 233)

Variables	Mean	Std. Dev.
Mother's income	7,155	6,102
Father's income	16,822	9,354
Child support transfers	2,321	2,028
Visitations (days per year)	46	39.5

Given the income endowments of a divorced mother and father from our sample and given our assumption that all mothers are endowed with all of the child's time, conditional on the

parameter values $\pm_m$ and $\pm_f$ we can solve for the equilibrium levels of transfers and visitation time using [6] and [7]. Conversely, given the endowments $(y_m; y_f)$ and the outcomes $(t; v)$; we can solve for the parental preference values $(\pm^{\alpha}_m; \pm^{\alpha}_f)$ that would have produced this outcome. This procedure obviously assumes that the preferences are heterogeneous in the population of divorced parents. The advantage of this technique is that no assumptions regarding the joint distribution or constancy of parental preferences are required. The main drawback is the fact that no provision is made for measurement errors or other types of data unreliability. The expressions for the parental preference parameters are:

$$\begin{aligned} \pm_m &= \frac{v(t + y_m)}{t + vy_m}; \\ \pm_f &= 1 - \frac{t}{y_f}: \end{aligned} \tag{8}$$

The means and standard deviations of the parameters obtained from these equations are given in Table 2. We see that on average mother's are taken to value much time spent with the child much more highly than our fathers. This result is in large part produced by our assumption that mothers are endowed with all of the child's time initially. Since they start with low levels of time and "sell" little of it to the father, they must highly value it relative to the fathers. Changes in the time endowment (i.e., giving the father a "right" to some of the time initially) increases mean $\pm_m$ and decreases mean $\pm_f$:

Table 2		
Values of mother's and father's preferences parameters		
	Mean	Standard deviation
$\pm_m$	.311	.249
$\pm_f$	.847	.092

4 Child support policies

The model set up above can be used to determine the effect that different child support policies may have on divorce outcomes, assuming that the parents' preference parameters are fixed. We consider the impact of income redistribution from the father to the mother before the "market" for the child's time commences. We look at the impact of ordering fathers to transfer 17 percent of their income to their ex-wives. Compliance with these orders is assumed complete, possibly through the use of mandatory withholding.

As we can see from Table 3, the 17 percent mandatory transfer results in a gain in the average consumption of mothers of about $2500 dollars. The average transfer of fathers increases from $2321 before the orders are implemented, to $4786 after they are. Transfers under the program can be distinguished by whether they are voluntary or not. Since the average mandatory transfer under the program is about $2500, there is a still sizable voluntary transfer after the program is implemented. Finally, due to the reduced income of the fathers and the reduction in the marginal utility of consumption of the wealthier mothers, a lower amount of time with the child is purchased by the fathers. The reduction in visitation time is substantial at about one-third. Thus the mandatory transfer policy clearly benefits mothers, who on average have higher consumption levels and spend more time with their child. While the child can be expected to

also bene..t from the increased consumption of the mother, with whom she spends most of her time, the increased concentration of time with one parent may have detrimental e¤ects on child characteristics and outcomes not modeled here.

Table 3		
Mother's consumption and father's time with child		
Means and (Standard Deviations)		
Outcome	No Mandatory Transfer	Mandatory 17 Percent Transfer
c_m	9,476	11,941
	(6,640)	(7,176)
t	2,321	4,786
	(2,028)	(2,774)
v	.126	.085
	(.108)	(.078)

5 Conclusion

We have developed a model that implies a positive relationship between visitation times of fathers and monetary transfers to custodial mothers. The model was estimated with cross-sectional data taken from the NLS-72, and model estimates were used to conduct a small simulation exercise. We showed that mandatory child support transfers from the father to the mother result in unambiguous welfare gains for the mother and losses for the father, as would be expected. A perhaps unintended side-e¤ect of such a program is the large reduction in time spent with the child by the father. If the child's development is enhanced by balanced exposure to both parents, such a consequence may be of concern to policymakers interested in the long-run welfare implications of laws regulating divorce involving children.

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