Winter 12-2015

The child support "tax" : determining the effect of child support on the income growth of noncustodial parents

Jesse Snook

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THE CHILD SUPPORT "TAX": DETERMINING THE EFFECT OF CHILD SUPPORT ON
THE INCOME GROWTH OF NONCUSTODIAL PARENTS

by

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Bachelor of Science, Arizona State University, 2010

A Thesis

Submitted to the Graduate Faculty

of the

University of North Dakota

in partial fulfillment of the requirements

for the degree of

Master of Science in Applied Economics

Grand Forks, North Dakota

December

2015

This thesis, submitted by Jesse T. Snook in partial fulfillment of the requirements for the Degree of Master of Science in Applied Economics from the University of North Dakota, has been read by the Faculty Advisory Committee under whom the work has been done and is hereby approved.

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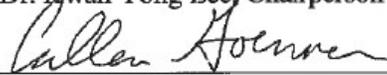
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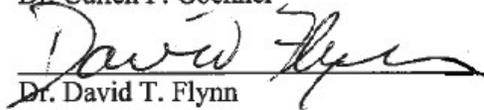
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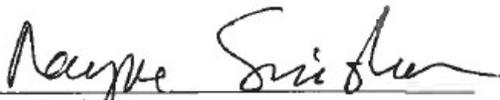
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Title	The Child Support Tax: Determining the Effect of Child Support on the Income Growth of Noncustodial Parents
Department	Economics
Degree	Master of Science in Applied Economics

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

ACKNOWLEDGMENTS

I wish to express my sincere appreciation to the members of my advisory committee for their guidance and support during my time in the master's program at the University of North Dakota.

ABSTRACT:

This study examines the role of child support in determining income growth. Using an Ordinary Least Squares (OLS) model with state-level fixed effects applied to panel data from the National Study of Families and Households (NSFH), I find that having a legal agreement to pay child support has a significant and negative effect on the income growth of the noncustodial parent. Specifically, after controlling for demographic variables and the respondent's economic circumstances in the initial time period, the OLS model with state-level fixed effects finds that having a child support obligation is associated with a 17.73 percentage point decrease in income growth over a five year period relative to a respondent without a child support obligation. For the average respondent in the study sample, this amounts to nearly an 82 percent decline in income growth attributable to having a legal agreement to provide child support over the five year study period. The results are found to be robust across alternative specifications and samples. Whereas past studies using panel data have found little to no effect of child support on income growth and labor supply, this study is unique in that it finds a large, negative effect of child support on the income growth of the noncustodial parent at the individual level. These results emphasize that policymakers should carefully consider the dynamic effect of the child support structure on the economic behavior of the noncustodial parent.

CHAPTER I

INTRODUCTION

The dramatic increases in the rates of divorce and nonmarital births at the end of the 20th

century thrust child support into the public discourse. Because the divorce rate more than

doubled over this period, increasing from 2.6 in 1950 to a peak of 5.3 divorces per 1000 people

in 1981, about 2.5 times as many children were involved in a divorce in 1984 than would have

been had the divorce rate in 1950 remained constant (Health and Human Services, 1989). Over

the same period, the percentage of all births to unmarried women in the United States increased

from just four percent in 1950 to 21 percent in 1984 (Ventura & Bachrach, 2000). These

increases naturally resulted in an increase in the number of child support agreements, prompting

a national discussion about how best to structure these arrangements in order to ensure minimal

economic harm to the child and the custodial parent. Relatively little attention has been devoted

to the welfare of the noncustodial parent and how the obligation to pay child support affects their

economic outcomes.

This study employs panel data from the National Study of Families and Households

(NSFH) to determine the effect of child support on the economic outcomes of noncustodial

parents. Using an Ordinary Least Squares (OLS) regression model of income growth that

controls for demographics, initial circumstances, and geographic location, I present evidence that

a child support order amounts to a disincentive to earn additional income for the noncustodial

parent. In particular, the model finds that having a child support obligation is associated with a

17.73 percentage point decline in income growth over the five-year study period relative to a

similar individual without an obligation. This result is robust across various samples. Additionally, the estimated effects of other control variables, particularly education, are consistent with those found by other widely-used earnings equations in the literature. This study is unique in showing a large, negative effect of child support on income growth at the individual level. While the exact mechanism by which child support acts as a detriment to income growth is not conclusively determined, the sheer magnitude of the effect should make policymakers consider restructuring their child support regimes in order to more effectively balance the need to support the child against the potential adverse impacts on the noncustodial parent.

The rest of this study is structured as follows: Chapter I continues with a brief history of child support collection and enforcement efforts and then examines related research. Chapter II discusses the noncustodial parents' incentives and the mechanism by which child support is set and modified. After an explanation of the data and methodology in Chapter III, Chapter IV presents the results and tests them under varying specifications and samples as part of the robustness test. Finally, Chapter V discusses the implications of the results and their applicability to policymakers.

Background

The history of child support enforcement is marked by the continuous challenge of establishing and enforcing a legal order to pay. Prior to the 1960s, in the relatively rare instance of divorce or non-marital birth, child support was established under the jurisdiction of the state court system, falling under the province of family law. Because of this, child support orders were delegated to local courts, with the amount being determined by a judge, often in a non-systematic manner (Garfinkel, McLanahan, Meyer, & Seltzer, 1998). The explosion in the rates of divorce and non-marital births in the 1960s contributed to a dramatic increase in welfare costs,

as both federal and state governments felt compelled to help provide for the custodial parent (usually a single mother) due to the lack of established child support procedures (Garfinkel & McLanahan, 1986).   Partly as a result of the increase in single parent households, direct income assistance payments from the federal government increased from 17.3 percent of federal budget outlays in 1955 to 49.7 percent in 1983 (Office of Management and Budget, 2015). This increase in public spending, much of which was directed to single mothers and their children, emphasized the fact that noncustodial fathers were not adequately supporting their children and brought about a renewed focus on child support enforcement at both the state and federal levels.

In 1974, as an addition to the Social Security Act, Congress established the federal Office of Child Support Enforcement as part of the larger Child Support Enforcement program, which mandated that all states establish similar offices at their respective levels. Additional federal acts strengthening enforcement were passed in 1984 and 1988 (Garfinkel et al, 1998). Of particular interest to this study, given that the data covers the period between 1987 and 1992, is the 1988 Family Support Act (FSA). This act required states to use blood and genetic testing in order to establish paternity in disputed cases (Garfinkel et al, 1998). The 1988 law had a disproportionate impact on low income men because, as a group, these men were more likely to be involved in disputed paternity cases. Additionally, the 1988 act required states to implement automatic withholding of child support from the paychecks of all noncustodial parents by 1994 (Garfinkel et al, 1998). These efforts were quite successful in increasing the percentage of cases with paternity establishment, and, as a result, the percentage of never-married mothers with child support orders nearly tripled between 1979 and 1991 (U.S. Bureau of the Census 1983, 1995).

The 1988 FSA established the income sharing model as the presumptive model for states to use in establishing order amounts. This model requires nonresident parents to share a certain

percentage of their income with their children, abandoning the traditional model that based order amounts solely on costs associated with the nonresident child. While many states already employed this logic, the 1988 FSA required judges to provide written justification for assigning any order amount not consistent with the income sharing model (Garfinkel et al, 1998). The income sharing model exposed nonresidential parents to the possibility that their child support obligations could increase with increasing income, presenting a possible disincentive to earn greater income.

Literature Review

Previous research into the link between child support payments and the incentive to work has been largely focused on the primary caregiver (in most cases the mother) and the effect that child support received has on her future earnings. The bulk of the research that is focused on the noncustodial parent (in most cases the father) has been centered on what factors contribute to whether or not the noncustodial parent pays child support and whether that parent has the ability to pay more. For example, Sorenson (1993) found that as income increases, so does child support. Other studies have come to similar conclusions. Nichols-Casebolt (1986) uses a static model to show that the higher the income of the father, the more likely he is to pay child support. As child support has become more prominent with rising divorce rates and rising welfare expenditures, more research has been dedicated to the child support's effect on the noncustodial parent.

Lerman (1992) found that unwed, noncustodial fathers had both the lowest incomes and lowest support contributions of any type of father. Lerman's study was faced with some important limitations, including the fact that it encompassed data only on fathers aged 14-21 and only between 1983 and 1988, before any effect of the 1988 Family Support Act could have

manifested itself. My study addresses these shortcomings by using a dataset that includes all demographics and data before and after the 1988 FSA. Another study by Robinson (1997) finds that young, nonresidential fathers have lower earnings than their married or non-father counterparts. However, this lack of earnings is mostly explained by the tendency of young, nonresidential fathers to have lower skills and lower education. Unlike Robinson (1997), who studies earnings differences in levels, I focus on income *growth* using a two-period model that controls for the age and marital status of the respondents.

Garfinkel, McLanahan, and Hanson (1998) surveyed 15 studies of nonresidential fathers' incomes prior to 1998 and found that none of them used the NSFH. Aside from Garfinkel, McLanahan, and Hanson (1998), who used the NSFH to study the incomes of nonresidential fathers at Wave One, I could find no other study that used the NSFH to study the income of noncustodial parents, whether it be income growth or income in levels. Thus, my study stands alone in utilizing the primary advantage of the NSFH—its ability to explicitly identify child support payers and survey their economic outcomes before and after the passage of a major child support enforcement policy, the 1988 FSA.

Among studies that have investigated the potential disincentive effect of child support on noncustodial parents, the evidence is mixed. Garfinkel, McLanahan, and Meyer (1998) found that child support payments do not reduce the nonresident fathers' labor supply. The authors' model is consistent with traditional economic theory in that the child support "tax" is applied to the labor-leisure utility model and then empirically estimated using labor supply in order to assess the dominant effect of the tax: the substitution effect or the income effect. The substitution effect of a tax decreases work effort because it makes leisure relatively less expensive by lowering the opportunity cost, which is the payoff to working. In contrast, the

income effect makes the individual feel relatively poorer, forcing them to increase work effort in order to maintain an acceptable standard of living. The observed effect of the tax will be the difference in magnitudes of these two counteracting effects. However, as I address in detail in Chapter III, labor supply likely underestimates child support's effect on the economic outcome of the noncustodial parent for several reasons, principal among them being the fact that the child support tax is levied on all types of income, not just wage earnings. Instead, I use the growth rate of the respondent's total income as my dependent variable.

Klawitter (1994) studies earnings growth among child support payers in the first few years after the paternity decision under various rate structures in Wisconsin and finds no significant effect. However, his study suffers from a small, Wisconsin-specific sample with as few as 20 observations in some specifications. Using a much richer data set collected from a national panel of 5,214 respondents over two time periods, my model compares the income *growth* of child support payers to non-payers and finds a significant, negative effect of child support on the income growth of noncustodial parents compared to the rest of the sample.

In contrast, qualitative studies have demonstrated child support payers' discouragement with the child support regime, especially at the lower end of the income distribution, with many quitting their jobs or working in the underground economy in response to wage garnishments and extremely high effective child support tax rates (Furstenberg, 1992; Johnson and Doolittle, 1996; Waller, 1996; Waller and Plotnick, 2001). While this study is in line with those qualitative studies in terms of examining the disincentive effect of child support, this study further quantifies and provides statistical evidence using survey data.

One important study by Holzer and Offner (2004) attempts to determine child support's role in the declining employment of the young, black population. Utilizing both OLS and

difference in difference models and a city-level measure of child support enforcement, the authors find that a one unit increase in child support enforcement (as determined by an index of child support enforcement activities in a given city) is associated with a 4% reduction in labor force activity for black males between ages 25 and 34. My study strengthens these results by examining the economic outcomes of a national, representative sample of individuals to determine child support's effect on individual income growth. Additionally, my study utilizes a more precise independent variable of interest (whether or not a respondent had a legal agreement to pay child support) than Holzer and Offner's constructed, city-level measure of child support enforcement.

In summary, of the literature dedicated to examining child support's effect on the earnings of the noncustodial parent, most suffers from either limited data or limited methods. Specifically, much of the prior research into this subject has used Wisconsin-specific state records that undercount the poor and disregard those that move out of state. Other studies with relatively more robust data sources have used simple "before and after" comparisons of income rather than statistical methods that control for individual variation and economic conditions, or they have focused only on labor supply without addressing income growth. Finally, other studies use city or state-level measures of child support enforcement as the main variable of interest, and relatively few incorporate child support data at the individual level. By applying a two-period model with many controls to a national panel data set, my study addresses all of these shortcomings and adds to the insufficient research related to child support's effect on the noncustodial parent.

CHAPTER II

CHILD SUPPORT RATES AND MODIFICATION

Unlike traditional taxes on wages that are directly linked to reported income and automatically adjusted, child support can only be modified by a new legal agreement. Thus, a child support payer can effectively lower his obligated "tax rate" by earning more money after the initial order is set because that initial amount will not change without a new order, regardless of the amount of income. Figure 1 shows a typical child support rate schedule as a percentage of income, in this case using data from the state of Washington. Note that for low income parents with multiple nonresidential children, legally-required child support can exceed half of the noncustodial parent's income.
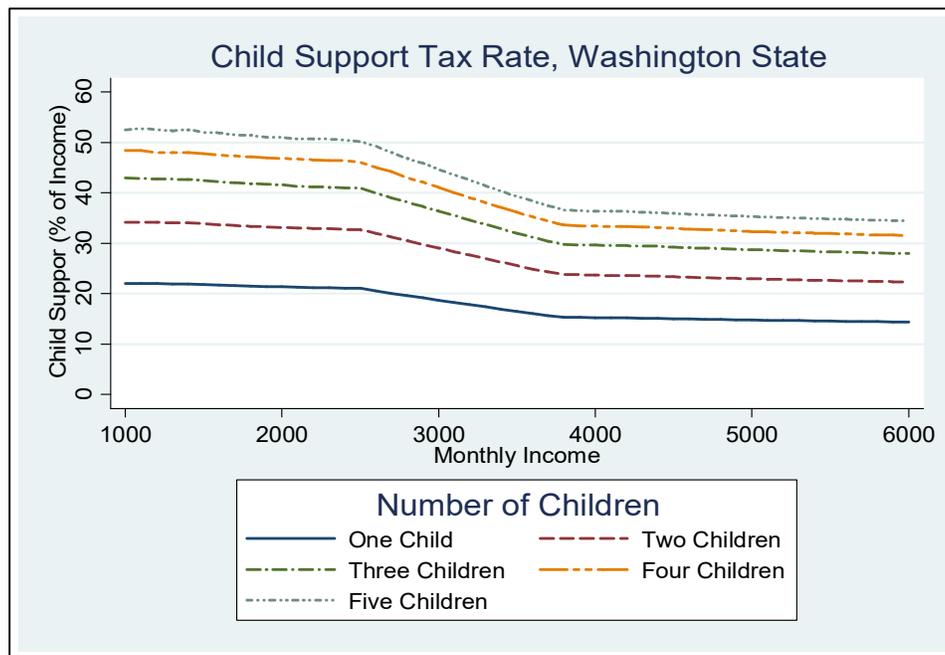
Figure 1. Current Washington State child support contribution schedule
as % of monthly income.

The rate schedule in Figure 1 is only accurate at the time of the initial order. If the payer earns significantly more income than he did during the period in which his order was set, he is subject to a modification *if* the receiving party is willing and able to initiate a new hearing. Aside from the receiving party's willingness to modify the order, states have also enacted a number of barriers to child support modification. First, states typically require a significant potential change in the new order before a modification hearing is legally allowed to occur in order to avoid wasting administrative and legal resources on a miniscule potential change. Typically, this minimum change is a 10 to 20 percent change in the potential award. For example, Oklahoma uses a 10 percent change requirement (ODHS, 2014), New York uses 15 percent (Yadegari, 2015), and Texas uses 20 percent (Attorney General of Texas, 2015). Add to this the substantial administrative costs and legal fees associated with changing a court order as well as the potential damage that changing an order can inflict on a delicate custodial-noncustodial relationship, and it is clear that it is only beneficial for a receiver to change an order if their potential gain is large. In reality, the payer is able to lower his "tax rate" by significantly more than what is shown in Figure 1, because the minimum change requirement and the other fixed costs allow him to earn far more income than the rate schedule depicts with little concern for the possibility of an order change.

Figure 2 shows the actual child support "tax rates" as reported by the respondents in the study sample, adjusted for the number of nonresident children under the age of 18, along with fitted lines for each wave. Note that in Wave One, the percentage of income devoted to child support declined sharply as monthly income increased, consistent with the cost-centered model that many states used to set rates in 1987. In Wave Two, however, there is much less of a discernable pattern in the observations and the line of best fit is much flatter. This makes

9

intuitive sense considering the 1988 FSA mandated that states move to a structure with rates consistent with those of the income-sharing model that tied the order amount to the incomes of both parents. In total, the mean adjusted child support tax rate of obligated respondents in the study sample increased by 42.7 percent between Wave One and Wave Two, and the median by 39 percent.
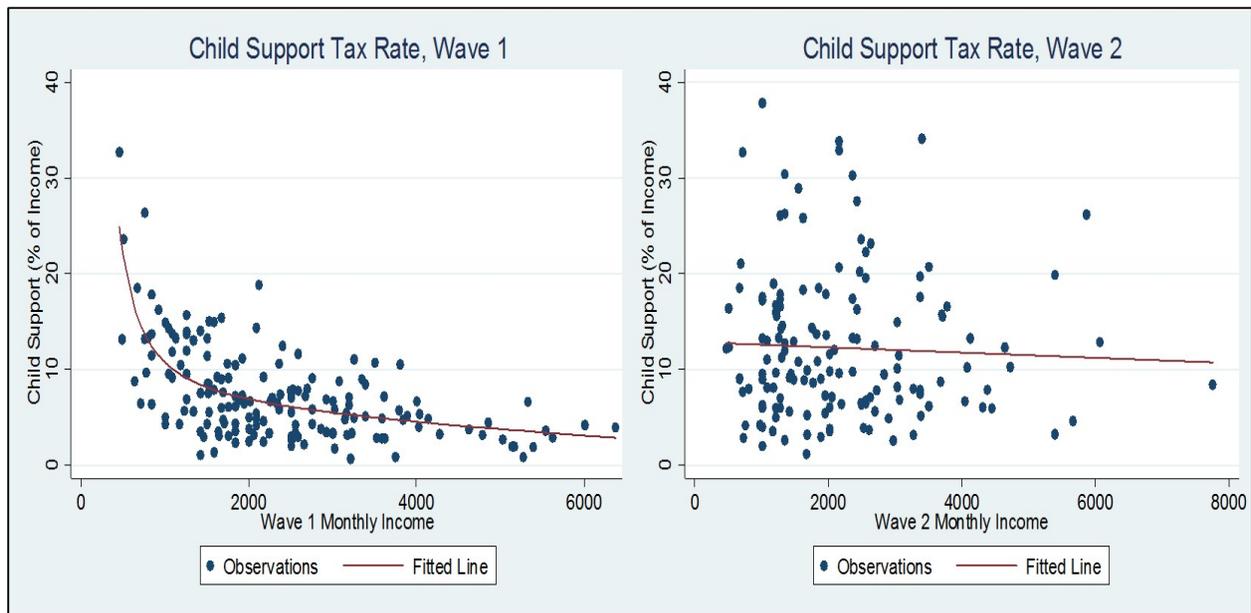
Figure 2. Child Support Tax Rate, Wave 1 and Wave 2

For many low income individuals, child support can represent a 20-35 percent tax on income (Pirog et al. 1998) by itself. Furthermore, if the father falls behind in payments, states can garnish up to 65% of his wages until the debt is paid in full (Mincy and Sorensen 1998; Sorensen and Oliver 2002). At incomes below the poverty line, states typically impose a small, flat child support obligation on the noncustodial parent. Once that parent reaches a certain percentage greater than the poverty line (which varies by state), he joins the standard child support schedule, whether it be fixed amount or fixed percentage.

Under current law in Washington State, for example, a noncustodial parent earning below the poverty line must pay a minimum of $50 per month in child support. However, once that same parent reaches 115% of the federal poverty line (currently set at $1000/month), he/she joins the standard child support schedule and is required to pay a minimum of $220 per month for a single child (Washington State Legislature RCW 26.19.020). In terms of "tax" rates of child support obligations, that individual's effective tax rate of child support jumps from 5% at an income of $999 to 22% at an income of $1000, a 340% increase. However, if the child support payer is at the lower end of the income distribution, the receiver likely is as well. Receivers at the lower end of the income distribution are less likely to have the means to initiate an order change.

Empirical research has demonstrated that child support orders are not often changed. Kost et al (1995) and Meyer (1995) found that less than 15 percent of orders were revised over two years in Wisconsin. More recently, modification rates have been increasing. Rothe (2004) and Ha et. al (2010) both found modification rates exceeding 25 percent[1].

Incentives Related to Child Support

Economic theory can help illuminate some of the incentives involved in a child support case. We will assume that the noncustodial parent's goal, like all individuals, is to maximize his leisure time and consumption, subject to the constraint of his post-tax income— in the case of a noncustodial parent, child support obligations can be thought of as an additional tax on his income that reduces his consumption level.

1. Kost et al (1995) examined Wisconsin child support order data and found that only 14 percent of orders were revised over a three year period; of those revised, only 3 percent were revised downward, 6 percent had no change in dollar amount, and 91 percent were revised upward. Meyer (1995) found that only 7 percent of child support cases in Wisconsin were significantly modified within two years of paternity. Also using data from Wisconsin, Rothe (2004) found that 25 percent of orders were modified between 1997 and 2000, while Ha et al (2010) found that 32 percent of cases were modified between 2000 and 2005.

In the months prior to the establishment of a child support order, the noncustodial parent's incentive is to temporarily reduce labor hours and other income-generating activities that increase his non-labor income, if able, in order to report a lower income because that income is used to set the initial order amount. However, after the initial order is set, the threat of child support modification presents competing incentives similar to any other tax. First, there is the income effect of the tax. Because the noncustodial parent is made relatively poorer as a result of his child support contribution, he may feel compelled to work and earn more income in order to maintain his standard of living, or consumption.

The substitution effect, in contrast, acknowledges that the tax on income makes all efforts to earn income relatively more "expensive." Because the child support tax is levied on all forms of income, the tax decreases the payoff to labor, investment, and all forms of income-generating activity, decreasing the opportunity cost of leisure. The relative magnitudes of the income and substitution effects determine the observed effect of the tax. If the income effect is larger, the noncustodial parent will devote more effort to income-generating activities and be much more likely to achieve higher incomes over time. In contrast, if the substitution effect of the child support tax is larger, the noncustodial parent will be less eager to engage in these income-generating activities and will instead choose to devote more time to leisure activities.

CHAPTER III

DATA AND METHODOLOGY

Perhaps the primary reason that the economic outcomes of noncustodial parents have not

been sufficiently researched is because of a relative dearth of reliable data. As Waller and

Plotnick (2001) noted, noncustodial fathers are systematically underrepresented in most surveys.

This underrepresentation leads to small sample sizes of noncustodial parents in most panel

surveys. Other surveys that do include large numbers of noncustodial fathers, such as the Panel

Study of Income Dynamics, do not collect the necessary data to positively confirm that a

respondent is a noncustodial parent, nor do they include variables for amount of child support

paid or owed. The National Survey of Families and Households (NSFH), while limited in many

ways, is the best longitudinal survey available to study noncustodial parents.

The National Survey of Families and Households was a national, longitudinal study

designed by researchers at the University of Wisconsin that included three interview periods

between 1987 and 2002. As the name implies, the survey focused on issues related to the family,

with particular attention paid to marital experiences. The primary goal of the NSFH, and the

purpose for which it was funded by the Center for Population Research, was to provide detailed

data related to family experiences in an effort to understand the rapidly changing family structure

during the 1980s.

Wave One, completed in 1987, included interviews and supplementary questionnaires of

13,017 randomly-selected respondents within 9,643 households, with an oversampling of certain

minority populations (Sweet et al., 1988). Wave Two, the five-year follow-up, included 10,007 respondents from Wave One, an impressive response rate given the elapsed time. New spouses of respondents from Wave One were also interviewed, becoming respondents in Wave Two. Wave Three was completed in 2002; due to budgetary constraints it included only telephone interviews of a relatively small percentage of original survey participants (Wright, 2003). For this reason, this study only analyzes data from Wave One and Wave Two.

The study sample includes all respondents in the survey that stated that they achieved total incomes above the federal poverty rate in Wave One and Wave Two. This restriction was put in place based on the fact that nonresidential parents are not subject to their state's child support rate schedule unless their total income exceeds the federal poverty rate. In most states, noncustodial parents earning below the federal poverty line are assigned a small, flat child support fee. In addition, since the primary model is an income growth model, small incomes in Wave One or Wave Two cause implausibly large absolute growth rates between waves, because many respondents became employed or unemployed between waves but still had small amounts of non-labor income. We relax these restrictions as part of the robustness test.

The primary independent variable of interest is a binary variable, or dummy variable, indicating whether the respondent incurred and maintained a legal obligation to pay child support prior to Wave Two. This includes those respondents that answered in the affirmative that they had a legal agreement to provide child support in Wave One *and* Wave Two as well as those that incurred a child support obligation between Wave One and Wave Two, as determined by the respondent stating they had a legal obligation in Wave Two and a nonresidential child born between 1987 and 1991 (I chose 1991 instead of 1992 to allow a minimum of one year for the respondent to adapt to his new obligation). I do not include in this group those respondents that

had a legal agreement in Wave One but whose youngest nonresidential child in reached the age of 18 between waves, because at that age the respondent would no longer be legally responsible to pay child support under normal circumstances. In total, 201 respondents, or 3.86 percent, of the 5,214 respondents in the study sample have a child support obligation and meet the requisite income requirements. Table 1 shows mean summary statistics of the obligated and non-obligated groups within the study sample.

Table 1. Summary statistics of study sample, separated by whether respondent has a child support obligation

VARIABLES	(1) Non-Obligated mean	(2) Obligated mean
% Male	47.9	100
Age (years)	40.78	36.14
% White	80.5	81.1
% HS Degree	54.1	58.2
% Bachelors	17.0	15.4
% w/ addiction	1.26	.995
job_tenure (years)	1.867	1.662
% in metro	75.7	73.1
% married	55.4	46.3
# Children	1.879	2.572
Observations	5,013	201

Unsurprisingly, all of those with child support obligations in the sample are males. Among those males, both mean and median income in Wave One is significantly higher than that of male respondents without child support obligations. Despite that initial advantage, real income in Wave Two is lower for those same respondents relative to the non-obligated respondents. In other words, after adjusting for inflation, child support-obligated male

respondents in the sample experienced a 5.47 percent decrease in mean income and a 1.93

percent decrease in median income between Waves One and Two, while non-obligated male

respondents experienced a 5.57 percent increase in mean income and a .89 percent increase in

median income.   See Table 2 below:

Table 2. Mean and median real incomes of males in Wave 1 and Wave 2 and percentage change between waves, Obligated vs
Non-obligated group

Wave	Group	Mean Income	Median Income	% Change (mean)	% Change (Med)
1	Obligated	30553.42	24770		
2	Obligated	28879.67	24291.50	-5.47	-1.93
1	Non-Obligated	29493.82	24880		
2	Non-Obligated	31138.06	25101.21	+5.57	+.89
			Obligated N= 201 Non-Obligated N=2397 (Males Only)		

Figure 3 shows the sample distribution of real income growth along with separate kernel

densities for the obligated group (solid red line) and non-obligated group (dashed blue line) in

the study sample. Recall that the study sample includes only those respondents earning more
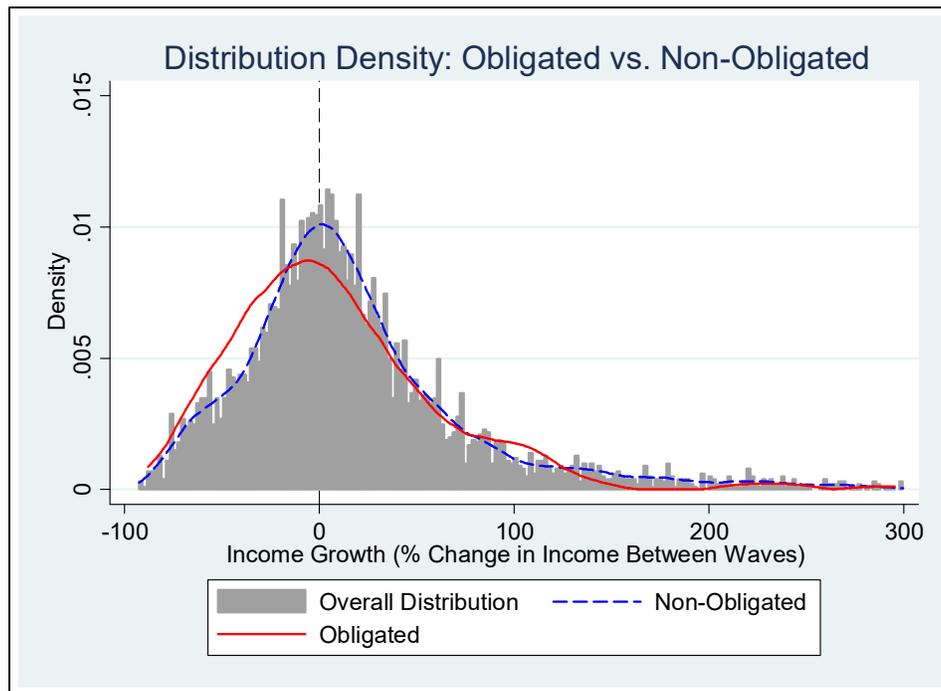
Figure 3. Distribution of Real Income Growth; Obligated, Non-Obligated, Overall.

than the federal poverty line in both time periods, eliminating many of the extreme income growth observations. As the distributions illustrate, the density of the income growth for the child support payers is shifted to left, indicating lower average growth values. Of course, a simple comparison does not control for the variation in the two groups that might have an impact on their differing outcomes. For that, we turn to our OLS regression models.

The primary model is a dynamic partial equilibrium model in which income growth is determined by initial economic circumstances, time-invariant demographic characteristics, geographic location, and whether the respondent is subject to the child support tax. Specifically, using Ordinary Least Squares (OLS), I estimate the following function of income growth between Wave One and Wave Two:

$$dY_{it} = \beta_0 + \beta_1 * CS\_oblig_{it} + \beta_2 X_{it} + \beta_3 Z_{it} + \gamma S_1 \ldots \gamma S_{50} + \varepsilon_{it}$$

where *CS_oblig* is a binary variable indicating whether the respondent, *i*, has a legal agreement to pay child support at time *t* (Wave One), X is a vector of individual and demographic characteristics (some time-invariant and others specific to Wave One), Z is a vector of variables related to the individual's economic circumstance in Wave One including occupation/industry characteristics and relative income, S_{1-50} are state level fixed effects common across all households, and ε is a stochastic error term. We cluster the standard errors by individual in order to account for possible serial correlation of ε between the two time periods.

The primary dependent variable, dY, is defined as the percentage change in total, pre-tax and pre-deduction income that the respondent achieved between Wave One and Wave Two. It is important to remember that the income variables in both waves are defined to be pre-tax and pre-deduction; otherwise, any negative effect of child support on income growth could be partially attributed to the additional income deducted from the payers' paychecks for child support. Wave

Two income was deflated using the Consumer Price Index in order to achieve parity with Wave One (Bureau of Labor Statistics (BLS), 2015). Income in both waves was defined to include all forms of income, including labor, investment, retirement, and other public assistance income but excluding child support *received*. Most states use a similar income definition when determining child support awards.

Traditionally, when analyzing the disincentive effect of a tax, economists develop a labor-leisure model and then empirically estimate the effect of the tax on labor supply. I have chosen to use total income rather than labor hours as my dependent variable for two reasons. First, child support is typically levied on all forms of income; restricting the dependent variable to labor hours would underestimate child support's effect because it would not account for non-labor income, would not account for child support payers potentially seeking lower paying jobs (but maintaining the same hours worked), and would not account for any shift of labor to the underground economy. Secondly, the labor hours variables in the NSFH are lacking; using labor hours would eliminate 3,763 respondents that reported some sort of income but no labor hours or refused to answer the question. NSFH employed a procedure for extracting income data from reluctant respondents, but they did not employ the same procedure for other variables.

Wave One economic circumstance variables (z_{it}) include relative income in Wave One, calculated as the ratio of the respondent's actual income to his/her expected income based on a simple earnings regression (see Table A.2 in Appendix). Following the example of Gentry and Hubbard (2002), the use of relative income rather than raw income in Wave One was based on the assumption that an individual already earning significantly more income than a similarly situated individual (based on race, gender, education, etc.) would be more satisfied with his/her current income and less likely to actively seek new employment opportunities or investment

opportunities. Spouses' income, job satisfaction, and job tenure in Wave One were also included

to control for the same effect. In addition, dummy variables indicating the industry in which the

respondent worked during Wave One were added to control for macroeconomic conditions

beyond the respondent's control.

Demographic variables (x_{it}) include time-invariant variables such as age (invariant

relative to the rest of the sample), race and sex, as well as variables specific to the respondent's

circumstance at Wave One, including marital status, whether or not the respondent lives in a

metropolitan area, number of children, health status, and whether the respondent admitted to a

drug or alcohol addiction. Other explanatory variables include education dummy variables

indicating varying levels of educational attainment, including high school, associates, bachelors,

and graduate degrees. Finally, state level fixed effects (S_1-S_{50}) were added to account for

differing economic climates across states as well as varying degrees of child support

enforcement at the state level.

CHAPTER IV

RESULTS AND ROBUSTNESS

Column (6) in Table 3 shows the results from the primary model specification. *CS_oblig* is negatively associated with income growth and is significant at the one percent level. Specifically, the estimated coefficient of -17.73 indicates that having a child support obligation is associated with a 17.73 percentage point decrease in income growth between waves relative to the rest of the sample, controlling for the variables describes above. Because *CS_oblig* is a dichotomous variable (or "dummy" variable), it can be interpreted as a downward shift in the intercept of the regression line for those affected individuals.

In context, the model finds that the mean respondent in the sample[2], a 40 year old married, white father of two in good health with a high school degree and just under two years of job tenure working in the retail industry in a metropolitan area in Washington State at Wave One could expect his total income to increase by 21.74 percent between waves. However, if that same individual incurred and maintained a legal agreement to pay child support prior to Wave Two, the model finds that his income would only increase by an average of four percent, implying that having a child support obligation is associated with an incredible 81.59 percent decline in income growth relative to a similar non-obligated individual.

The signs and magnitudes of the other control variables make intuitive sense. Being a male (*male*) is negatively associated with income growth, consistent with the national trend

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2. Note that the "mean respondent of the sample" only applies to certain variables in this example—age, number of children, job tenure, relative income, and educational attainment. Since there is no "mean" industry, marital status (defined as married or unmarried), or state of residence, these were selected arbitrarily for the sake of the example.

Table 3. OLS Regression Results under varying specifications.

VARIABLES	(1) Unconditional per_change	(2) Industry_FE per_change	(3) State_FE per_change	(4) No_industry per_change	(5) No_state per_change	(6) All per_change
CS_oblig	-13.72***	-11.37**	-14.98***	-18.40***	-16.66***	-17.73***
	(5.060)	(5.062)	(5.278)	(5.438)	(5.202)	(5.341)
male				-12.85***	-7.111*	-7.262*
				(3.086)	(4.164)	(4.197)
age1				-1.178***	-1.272***	-1.272***
				(0.0980)	(0.108)	(0.108)
white				-25.96	-26.00	-22.77
				(19.96)	(17.49)	(20.05)
black				-29.24	-30.86*	-28.32
				(20.08)	(17.24)	(19.89)
latino				-23.09	-27.69	-24.27
				(20.34)	(17.59)	(20.04)
highschool1				5.748	4.517	4.937
				(3.579)	(3.377)	(3.562)
associates1				9.864	6.832	6.964
				(6.009)	(6.112)	(6.148)
bachelors1				17.73***	14.62***	13.90***
				(5.042)	(5.178)	(5.214)
graduate1				30.17***	23.44***	22.79***
				(5.572)	(6.453)	(6.523)
addiction1				-14.45**	-14.44**	-15.03**
				(6.937)	(6.743)	(6.925)
job_satisfaction1				0.201	0.204	0.244
				(0.922)	(0.869)	(0.889)
good_health1				1.402	1.076	1.035
				(4.235)	(4.200)	(4.199)
job_tenure1				-1.970***	-1.321***	-1.332***
				(0.162)	(0.149)	(0.156)
exp_income1				-19.62***	-16.23***	-16.14***
				(2.412)	(4.448)	(4.525)
spouse_income1				7.24e-06	1.02e-05	1.26e-05
				(4.56e-05)	(4.59e-05)	(4.58e-05)
metro				5.425	3.837	4.193
				(3.390)	(3.557)	(3.557)
married1				-10.06**	-10.57**	-10.16**
				(4.425)	(4.308)	(4.371)
children				1.008	0.630	0.798
				(0.733)	(0.728)	(0.745)
Constant	25.73***	24.81***	-2.305	114.6***	129.6***	110.1***
	(1.417)	(2.290)	(8.452)	(23.81)	(20.01)	(25.70)
Industry FE:	N	Y	N	N	Y	Y
State FE:	N	N	Y	Y	N	Y
Observations	5,214	5,214	5,214	5,214	5,214	5,214
R-squared	0.001	0.007	0.012	0.101	0.089	0.098

Clustered standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

during the same period; as a fraction of men's earnings, women's earnings grew from 69.8 percent in 1987 to 75.8 percent in 1992 (BLS, 2012) . Age (*age1*), expected income (*exp_income1*), and being married (*married1*) are also significant and negatively associated with income growth between waves. Job tenure (*job_tenure1*) is negatively related to income growth, a logical result given the fact that job tenure is likely correlated with both an unwillingness to change jobs and the decision to retire and a subsequent drop in income. Race is not significantly associated with income growth, although *white*, *black*, and *latino* are all negatively associated with income growth relative to all other excluded races, the majority of which are Asian. Having a drug or alcohol addiction (*addiction1*) in Wave One is also negatively associated with income growth between waves.

Unsurprisingly, having a high school, bachelors, or graduate degree is positively associated with income growth relative to those without a high school degree, but only *bachelors1* and *graduate1* are significantly greater than zero[3]. Not displayed, but of note, working in the healthcare industry in Wave One is positive and significantly related to income growth, while working in the wholesale, retail, or utilities industries was negatively associated with income growth.

Column (1) through Column (5) in Table 3 show the results of alternative specifications of the OLS income growth model. Column (1) is the unconditional effect of *CS_oblig* on income growth, without controlling for any other factors. Column (2) and Column (3) show the results when only industry dummies and state fixed effects are included along with *CS_oblig*, respectively. Finally, Column (4) includes all controls except for the industry dummies, while Column (5) includes all controls except for the state fixed effects. Interestingly, the model performs best in terms of goodness-of-fit, and the effect of *CS_oblig* is the strongest, in Column

(4), where only the industry dummies are excluded. However, the similarities in the estimated coefficients indicate that the results are not sensitive to the model specification. The estimated coefficients range from -11.37 to -18.40 and are significant at the one percent level in five of six specifications.

Table 4 shows the results when individuals with child support obligations are separated by the amount of time they have been subject to a child support obligation. The variable *both_waves* is a binary variable indicating the respondent stated that they had a legal agreement to pay child support in both waves, while the variable *between_waves* includes those individuals that incurred a new child support obligation between waves. These two dummy variables replace *CS_oblig* in the primary model specification, meaning they are included with the same set of demographic, economic, and geographic control variables shown in Column (6) of Table 3 (other controls not displayed). Notice the starkly different estimated coefficients; the respondents with obligations in both waves had income growth rates an average of 27.65 percentage points less than those without obligations in both waves, significant at the one percent level. In contrast, incurring an obligation between waves is positively associated with income growth, but the result is not significant. An F-test reveals that the two coefficients are significantly different from each other at the one percent level. These results indicate that the effect of child support on income growth may be greater the longer the respondent maintains a legal agreement to provide child support.

Table 4. Difference between Incurring
Obligation at Both Waves and Between
Waves

VARIABLES	(1) difference per_change
both_waves	-27.65***
	(8.136)
between_waves	11.97
	(17.64)
Constant	58.61**
	(24.39)
Observations	5,214
R-squared	0.074

Clustered standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Robustness

Because this is an empirical study, it is important to demonstrate that the results are not the result of the model selection, control variables, or sample selection. Table 5 shows the estimated coefficients of *CS_oblig* under varying samples and specifications. All of the control variables in Table 4 are the same as in the primary model specification, but only the coefficient of *CS_oblig* and the constant is displayed. Column (1) shows the results when only those respondents with valid state-level location data are included. In the primary model specification above, I assume for the sake of observations that respondents are still living in the state in which they lived at age 16 (or they are at least living in a similar or nearby state), even though that is only strictly true for 72.4 percent of the sample. Column (1) demonstrates that the negative effect of having a child support obligation on income growth is actually stronger when this admittedly dubious assumption is eliminated. In Column (2), occupational dummy variables are utilized instead of the industry dummies—the results illustrate that the effect of child support is not sensitive to the respondent's initial occupation. Column (3) includes only males in the

24

sample, while Column (4) shows the results when those that fell into poverty in Wave Two are allowed in the sample.

In all cases, the coefficient of *CS_oblig* is negative and significantly different than zero. Column (5) warrants additional discussion. This model includes only the fathers in the sample, mirroring the sample selection of Phillips and Garfinkel (1993) and others who have compared the economic outcomes of different kinds of fathers (resident vs. non-resident, marital vs. nonmarital, etc.). In a sample of only fathers, the magnitude of -10.78 is significantly smaller than in the other samples, which range from -15.73 in the all-male sample to -22.14 when the poverty restriction is removed. Because I am not only interested in fathers, and because child support is increasingly being paid by mothers (although my sample of payers does not include any), I chose to include all types of respondents in my primary specification while controlling for sex and number of children within the model. Additionally, restricting the sample to include only fathers may underestimate the true effect of child support on income growth as it applies to the general population. Still, even in the sample of only fathers, fathers with a child support obligation had an annualized income growth more than two percentage points lower than their non-obligated counterparts.

Table 5. OLS Regression Results: varying samples and specifications (only CS_oblig displayed)

VARIABLES	(1) Valid State per_change	(2) Occupation per_change	(3) Males Only per_change	(4) Poverty per_change	(5) Fathers per_change
CS_oblig	-21.69***	-18.79***	-15.73***	-22.14***	-10.78*
	(5.847)	(6.445)	(5.739)	(5.252)	(6.411)
Constant	108.8***	133.4***	95.60***	59.99***	142.7
	(24.69)	(25.71)	(32.77)	(22.44)	(89.41)
Observations	3,776	5,214	2,603	6,086	1,786
R-squared	0.090	0.188	0.143	0.088	0.117

Cluster standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

CHAPTER V

CONCLUSION AND IMPLICATIONS FOR POLICY

This study's main contribution has been to add to the relatively scarce evidence showing the negative effect of child support enforcement on the economic outcomes of noncustodial parents. Using panel data from the National Survey of Families and Households between 1987 and 1992, I found that respondents with a legal agreement to pay child support achieve significantly lower income growth between the two periods. The result is significant across varying samples and model specifications.

Several questions must be asked in order to determine what, if anything, policymakers can or should do in response. First, are these results generalizable to other time periods? In other words, did the passing of the 1988 Family Support Act and the renewed focus on child support enforcement have some additional effect on the behavior of child support payers that is not applicable to today? While the data to investigate such a claim is lacking, child support enforcement has been significantly strengthened since the period of relevance to this sample. For example, as part of the 1996 Personal Responsibility and Work Opportunity Reconciliation Act (more commonly known as Welfare Reform), Congress mandated that all states develop the capacity to administer automatic withholding of child support from payers' paychecks, establish a directory of child support orders to be matched to a national directory of new hires, more

efficiently establish inter-state collection efforts, and increase the penalties for nonpayment (Garfinkel et al, 1998). These steps, along with the relatively streamlined processes to increase child support obligation available in many states (to include online forms and automatic reviews in welfare cases) likely make child support payers even more aware and responsive to their obligations.

Secondly, does another explanation exist for why the income growth of child support payers is lower than their nonpaying counterparts? One possible explanation is that child support payers seek more stable jobs with flatter pay scales and fewer opportunities for income growth, in order ensure that they have some baseline level of income in order to pay their required child support amount and avoid harsh penalties for nonpayment. While a thorough investigation of this hypothesis is beyond the scope of this study, one would expect that if this were the case and child support payers were successful in their quest for job security at the expense of income growth, they would have achieved longer job tenure in Wave Two relative to their peers, all else equal. A simple regression of job tenure on the same set of control variables (without the industry dummies) reveals that having a child support obligation is associated with a small increase in job tenure at Wave Two, but the result is not significant (see Table A.1 in the Appendix). Thus, I cannot conclude with certainty that the respondents were motivated to earn less by the threat of an increasing child support "tax" on their income. It is possible that they were responding to this threat, or that they sought relatively safer jobs with lower growth, or that general discouragement was the primary impetus for their lower income growth. Regardless of the exact motive, all three of these possibilities represent a disincentive to earn associated with child support.

Finally, even if we accept these results and their applicability to today, is there anything that policymakers can or should do to alleviate the disincentive to earn associated with the current child support regime? Certainly, policymakers do not want to ease enforcement. Increased enforcement reduces welfare costs to the state and may even reduce the probability of divorce (Nixon, 1997). If policymakers are concerned with reducing the disincentive to earn associated with child support, they may want to reconsider the income-sharing model in determining child support obligations and return the focus to only those costs associated with raising the child. The concern with the cost-centered approach is that if the noncustodial parent is only required to contribute to the baseline costs associated with the child, total spending on the child would likely decrease, a result less palatable to most policymakers than a decrease in the noncustodial parent's income growth. However, given these results, noncustodial parents will likely spend less on their children than they would have otherwise (outside of their legally-mandated child support order) due to their declining incomes relative to the rest of the population.

One tangible step with no effect on the custodial parent or child would be to treat child support like other state taxes and allow noncustodial parents to deduct the amount of child support paid from their incomes. Additionally, the eight states that currently use the *Percentage of Income Model*, in which the child support order is based *solely* on the income of the noncustodial parent (NCSL, 2013), should at least move to an income sharing model that considers the incomes of both parents in setting and modifying a child support order. Finally, states should consider the *household* incomes of custodial parents in setting and modifying child support rates, reducing (but not eliminating) the obligations of noncustodial parents in cases where the custodial parent remarries following a split with the noncustodial parent.

APPENDIX

Table A.1. OLS regression of job tenure in Wave 2 on control variables.

VARIABLES	job_tenure job_tenure2
CS_oblig	0.115
	(0.109)
male	-0.0853**
	(0.0412)
age1	-0.0254***
	(0.00133)
white	0.114
	(0.246)
black	-0.0393
	(0.251)
latino	-0.250
	(0.263)
highschool1	-0.0280
	(0.0579)
associates1	0.0170
	(0.0971)
bachelors1	0.0404
	(0.0742)
graduate1	-0.0907
	(0.0856)
addiction1	0.232
	(0.180)
job_satisfaction1	0.0722***
	(0.0131)
good_health1	-0.0304
	(0.0531)
job_tenure1	1.191***
	(0.00550)
exp_income1	-0.0170***
	(0.00468)
spouse_income1	-6.35e-07
	(4.78e-07)
metro	0.0170
	(0.0519)
married1	-0.140***
	(0.0527)
Constant	1.471***
	(0.370)
Observations	5,214
R-squared	0.954

Clustered Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A.2. OLS results for expected income (used to compute relative income)

VARIABLES	expected_income income1
age1	134.5***
	(10.47)
male	11,878***
	(417.9)
white	3,560***
	(1,165)
black	1,524
	(1,172)
latino	1,272
	(1,231)
highschool1	6,402***
	(328.7)
associates1	10,170***
	(653.5)
bachelors1	15,921***
	(761.4)
graduate1	28,171***
	(1,729)
goodhealth1	812.6*
	(430.5)
job_tenure1	505.8***
	(62.48)
spouse_income1	0.00930
	(0.00611)
Constant	-5,165***
	(1,312)
Observations	8,939
R-squared	0.258

Clustered standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

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