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THE EFFECTS OF POTENTIAL CHILD SUPPORT TRANSFERS ON WISCONSIN AFDC COSTS, CASELOADS AND RECIPIENT WELL-BEING

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ABSTRACT

Child support is an income transfer from a noncustodial parent to his/her dependent children. It is a mechanism for the noncustodial parent to share the cost of raising his/her children. For divorced and separated parents, it is an extension of the sharing of resources that presumably took place when the family was intact. Many noncustodial parents fail to make this contribution. This is especially true for noncustodians of AFDC recipients.

The purpose of this thesis is to measure the impacts of potential child support transfers on Wisconsin's AFDC costs, caseloads, and recipient well-being. The State's CRN information management system provided the primary data source for this effort. The CRN data base provides the most complete and up-to-date information on AFDC recipient families. Its major weakness is the lack of any data on the noncustodial parents. Therefore, a major portion of this research effort is directed at developing an estimation methodology for the missing noncustodial parents' income and ability to pay child support. An indirect methodology is developed to estimate this data. The custodial mothers' characteristics are combined with the estimated relationship between wives' characteristics and husbands' income for currently married couples with children to impute the noncustodians' income. The result is that Wisconsin's AFDC noncustodial fathers have a mean 1981 income of $8765. In other words, the absent fathers of AFDC children are not, on the whole, a wealthy group.

The income estimates for the noncustodial fathers are necessary but not sufficient to determine their ability to pay. Normative standards of ability to pay or tax regimes have to be applied to their income to generate some level of support. The impacts of alternative value responses to five normative issues are assessed by simulating eight normative standards utilizing a numerical intergrative technique. The results are that the mean annual child support obligation ranges from a low of $934 to a high of $5689. The most striking finding to come out of these simulations is the sensitivity of the results to the value judgements made in assessing liability.

The last part of the analysis simulated the economic impacts of the child support transfers. The bright spot in the analysis was the finding of substantial reductions in AFDC costs under the eight standards. The average reduction across standards was 22 percent or $68 million. The overall results on the remaining three outcome measures are not as encouraging. It is clear from the static analysis that child support transfers alone cannot significantly reduce AFDC caseloads nor poverty.

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Chapter 1

Child Support: An Introduction

I. INTRODUCTION

Child support is a transfer of income from an absent parent to a child, usually through the custodial parent. It is a mechanism by which the non-custodial or absent parent shares the cost of raising his/her child(ren). This dissertation examines the potential of child support transfers to reduce Aid to Families with Dependent Children (AFDC) program costs and caseloads and improve recipient economic well-being. The analysis is restricted to those eligible families who were receiving AFDC benefits in July 1981. Child support eligible families are those with children under eighteen who have a living absent father.

An exploration of the potential impacts on AFDC costs, caseloads and recipient well-being of child support transfers is both important and timely. There is growing concern on both state and national levels that absent fathers are not assuming a fair share of the financial costs of raising their children. This concern has its impetus in several events. First is the dramatic growth in the number of families headed by women. Most of these families are child support eligible. Second is the startlingly high proportion of these families who are poor. Concomitant is the growth of public assistance programs, which aid many child support eligible families. Finally, recent evidence from two national surveys reveals that the current child support system fails to get support obligations for many eligible children and fails to collect much of what is due.

Previous child support research supports the conclusion that the current child support collection system fails to tap the resources of the absent parent, leaving many custodial families unnecessarily poor. The shortcomings of this prior research are discussed in Chapter 2.

The results of this research will add to the current debate on child support reform. This research will provide policymakers with information on the potential of child support to impact upon both the lives of AFDC recipient families and the system on which they depend for financial support. This thesis also provides, for other researchers and policy analysts, a methodology which can be applied to other state and national data to estimate potential child support. This methodology, though developed for AFDC families, is also applicable to non-AFDC families.

A major portion of this research effort is directed toward estimating absent father's income and ability to pay. The absent fathers' income, the single most important piece of data in this analysis, is not available in existing data sets. Nor are any other data on the characteristics of absent fathers available. The incomes of the absent fathers are estimated using regression analysis in which the characteristics of the custodial mother are the explanatory variables. The basis for this regression estimation is the assumption that the relationship between the custodial mothers' characteristics and the absent fathers' income is similar to the relationship between wives' characteristics and their husbands' income for currently married couples. New dependents for the absent father are estimated in a similar manner, using regression analysis and the woman's characteristics.

The impacts of potential child support transfers will be assessed using microsimulations. These simulations apply eight normative standards or tax regimes to the noncustodial fathers' income to generate some level of support liability. This liability is then transferred to the custodial families and its impacts are measured.

The analysis is restricted to AFDC families who live in Wisconsin. There are two reasons for this: First, the State of Wisconsin Department of Health and Social Services (DHSS) has supported much of this research as part of a larger research effort at the Institute for Research on Poverty. The focus of the larger endeavor has been analysis of the strengths and weaknesses of the current child support system and an agenda for reform. Second, DHSS' Computerized Reporting Network (CRN) provides the primary data source for this analysis. The CRN data system contains the most complete and up-to-date information on AFDC recipients available anywhere.

This dissertation has six chapters. The remainder of this first chapter will describe the eligible population and the present child support system and its effectiveness. In addition, several reforms will be briefly presented. The second chapter will review the available research and data on absent fathers' income and ability to pay and the economic impacts of child support on the custodial family. A discussion of the methodology for estimating the absent fathers' income and the results of the estimation process make up Chapter 3. The fourth chapter focuses on the eight normative standards and the level of absent fathers' support liability. The fifth chapter presents the simulation of the impacts of the potential child support transfers on AFDC costs, caseloads, and recipient economic well-being. The concluding chapter summarizes the results, discusses the policy implications of this research and offers some suggestions for further research.

II. FAMILIES ELIGIBLE FOR CHILD SUPPORT

In recent years a greater percentage of married couples with children are terminating their relationships in separation or divorce. In addition, more women are bearing children and remaining single. Children in these families are at high risk of poverty. Many such families turn to public assistance because no other source of money is available to them on a regular basis.

Nationally, in 1981 there were 13.5 million children living in 7.5 million families who were eligible to receive child support from an absent father.[1] This represents an increase of twenty percent over the number of eligibles in 1978.[2] These children represent one of every five children in the United States today (Garfinkel and Melli, 1982). Estimates indicate that nearly one of every two children born today will become eligible for child support before reaching the age of 18 (Moynihan, 1981).

Many of these children are living in poverty. Of all the children eligible to receive child support in 1981, 35 percent or 4.7 million were living in poverty. The incidence of poverty for those eligible children who live in female-headed households was even higher at 40 percent. Of all eligible children almost 30 percent received some assistance from the AFDC program.[3]

In Wisconsin there were approximately a quarter of a million children who were under 18 years old and potentially eligible for child support in 1980.[4] These children were living in 140,000 families. Nearly 30 percent of these children were living in poor families. This is almost three times the poverty rate of 10.4% for all Wisconsin children under eighteen. Some 40 percent of these children received AFDC benefits. Just the mere size of the population at risk and their low income status makes the quality of our child support system a social concern.

III. A DESCRIPTION OF THE CURRENT SYSTEM AND ITS EFFECTIVENESS

Child support determination and enforcement are principally functions of state and local governments. Most states have codified the right of a child to the support of both parents, although in several states this right is based in common law (Krause, 1981). Within each state the operation of the child support system is mostly a local matter.

Child support is the province of the judiciary. In order to be eligible to receive child support there must be a court order or a stipulation (i.e., a voluntary agreement approved by the court). The level of the support obligation is set by the judge and the enforcement of the support obligation is in the court's domain.

Each part of the support process is problematic and with the exception of welfare families, recipient-activated. The first part that is problematic is securing a legally enforceable court order. Nationally as well as in Wisconsin, some 40 percent of demographically eligible child support families do not have a legally enforceable order. For AFDC families the proportion without an award exceeds 50 percent. Possible reasons for this low incidence of awards is the high proportion of AFDC children born out of wedlock.

The second part of the present child support system that is problematic is setting the level of child support obligations. The methods of setting the level of child support obligations often result in inadequacies and inequities. A study of California divorce cases indicates that, even after child support awards are counted, on average the standard of living, adjusted for family size, of divorced men increased by 43% after divorce, while the standard of living of the women and children decreases by 73% (Weitzman, 1981). A study of Denver County, Colorado, showed that families of similar means and needs got widely varying award levels (YEE, 1979). Guidelines to assist the judge or family court commissioner in setting support levels are often nonexistent. Those guidelines that are available in many jurisdictions are vague and often ignored. A study of the use of the Official Wisconsin Child Support Guidelines revealed that they were infrequently used by judicial personnel (Wisconsin, 1983). Judicial discretion reigns supreme in setting obligation levels.

The enforcement of past due child support is the third problematic part of the system. It requires that the custodial parent (or the State for AFDC families) initiate court action. Once the custodian has initiated action the courts have a number of enforcement tools available. Although these tools vary from state to state, Wisconsin's include civil and criminal contempt citations, garnishments, seizure of property, wage assignments, and the ultimate sanction--jail.

The usual scenario would have the custodian bring court action; the absent parent receives a contempt citation while making a promise to pay. When the absent parent fails to pay, the custodial parent must again initiate action. The process is time consuming and costly. Not infrequently these costs outweigh the return; the absent father is no longer pursued. Of those with child support awards in 1981, only half received the full amount, while close to 30% received nothing (U.S. Census, 1983).

Federal involvement in child support, though hampered by the traditional role of the states in areas of family law, has been growing. Federal interest in child support has been sparked by rising welfare costs. Therefore, the main thrust of the federal government has been to increase child support collections from men whose former spouses (or mates) are AFDC recipients.

In 1950 Congress enacted the first federal child support legislation. This required state welfare agencies to notify law enforcement officials when a child receiving AFDC benefits had been deserted or abandoned. Further legislation, enacted in 1965 and 1967, allowed states to request addresses of absent parents from the U.S. Department of Health, Education, and Welfare (HEW) and the Internal Revenue Service (IRS), and required states to establish a single organizational unit to enforce child support and establish paternity.

The most significant legislation was enacted in 1975 when Congress added Part D to Title IV of the Social Security Act, thereby establishing the Child Support Enforcement program sometimes referred to as the IV-D program. Responsibility for running the program rests with the states which are reimbursed by the federal government for 75% of program costs. In 1980 the law was amended to provide 90% federal funding for computerizing the program. The IV-D program is supposed to serve nonwelfare as well as welfare cases. As of 1981 about 17% of the IV-D caseload was attributable to non-AFDC cases.

Use of the Internal Revenue Service (IRS) to collect child support owed to AFDC beneficiaries was authorized by the 1975 law. In 1980 use of the IRS extended to non-AFDC families. In 1981, legislation required the IRS to withhold tax refunds in cases where states certified that the individual owed child support which was past due.

The performance of these federal initiatives, although noteworthy, is not impressive. IV-D collections in 1982 showed nearly a threefold increase over 1976 child support collections; amounting to $1.7 billion in 1982 (U.S. HHS, 1982). Despite the fact that the IV-D program had an average non-AFDC caseload of 1.5 million compared to an average monthly AFDC caseload of 5.5 million, collections for the non-AFDC caseload totaled $.98 billion compared to $.79 billion for the AFDC caseload. AFDC benefit expenditures for this same period totalled more than $11 billion.

In 1982 Wisconsin had an average monthly IV-D caseload of 140.4 thousand. Total annual collections were $43.1 million. AFDC families made up 91% of the total caseload, yet they received only 74% of total collections. Yet Wisconsin has one of the better IV-D AFDC collection programs in the nation. In Wisconsin, there is a collection made in one of every six IV-D AFDC cases, placing it twelfth in the nation. The national average collection rate is about one case in ten. Wisconsin ranks sixth in its recovery of AFDC benefits through child support collections. It recovers 9.5 percent compared to the national average of 6.8 percent. Since Wisconsin is a high AFDC benefit state, its recovery rate understates its overall collection performance compared to other states. Wisconsin also ranks sixth in cost effectiveness. It collects an average of $2.29 for each administrative dollar spent. The national average is $1.64 per dollar spent administering IV-D AFDC programs.[5]

In summary, the present child support system fails. It fails to get support obligations for many who are demographically eligible. It fails to provide adequate and equitable levels of support for those with support awards. And it fails to collect much of what is due. These failures are even more poignant for AFDC families.

IV. RECENT REFORM PROPOSALS

In light of the growing awareness surrounding these problems with the present child support system, there have been many calls for change, including several proposals for reforming all or part of the present system. The most comprehensive of these reform proposals was developed by Wisconsin's Institute for Research on Poverty (Garfinkel and Melli, 1982). This proposal not only addresses the three major problems which affect the tax side of the system, but it also proposes a major change in providing benefits to child-support eligible families.

The basic goals of the proposed reform are: (1) assurance that those who parent a child share their income with that child; (2) establishment of equitable support obligations; (3) collection of those obligations effectively and efficiently; and (4) increasing the economic well-being of eligible children. It is believed that these goals would best be met by enacting legislation which would create a new system of establishing, collecting, and distributing child support payments.

The child support tax system, as proposed, would operate through the wage withholding system. The tax rate would be proportional based solely on the number of eligible children. For example, the rate would be 17 percent for one child, 25 percent for two children, 29 percent for three, 31 percent for four, and 33 percent for five or more children. The tax base is the absent parent's gross income.

The child support benefit side of the proposed system would entitle all children with a living absent parent to benefits equal to either the child support tax paid by the absent parent or a minimum benefit, whichever is higher. Should the absent parent pay less than the minimum, the custodial parent would be subject to a small surtax up to the amount of the public subsidy. Should the sum of the absent parent and custodial parent taxes be less than the minimum, the difference would be financed out of general revenues.

The proposed child support system would be administered by either the federal or state governments. Access would be gained by the custodial parent making application to the agency. The amount of child support, a percentage of the absent parent's income, would be determined administratively. The child support tax would be withheld from wages and salary by the absent parent's employer. The employer would forward the money to the designated agency. Those self-employed and persons whose chief source of income is non-employment income would be required to make the transfer to the agency themselves. Year end accounting, employing the income tax return, would be used to balance the account for unpaid child support on unearned income. The receiving agency would forward all monies collected or the minimum benefit to the custodial parent.

The State of Wisconsin has taken an initiative in implementing the IRP recommendations for the tax side of this system. In its 1982-83 Biennial Budget Act (Sec. 1773m767.395 (1), (3) and (5)), the State required the Department of Health and Human Services (DHSS) to evaluate the effectiveness of wage withholding as a collection tool. In addition, it required that DHSS adopt a standard for determining a child support obligation which is based on the income and assets of the parents. A pilot project is now getting underway to evaluate the effectiveness of a percent of income standard and wage withholding. This project is a joint effort of DHHS and IRP.

On the national level there have also been proposals for reforming the tax side of the system. In 1983 the Reagan Administration proposed requiring all states to adopt income assignment (wage withholding) laws. A bill now before Congress sponsored by Representative Rokeima (R-New Jersey) "would require states to enforce laws to collect child support payments through mandatory withholding of wages..." (Rokeima, 1983). States which did not comply would be denied Federal welfare funds.

V. THE EMPIRICAL QUESTIONS

The child support system today is in trouble. What is known is that many demographically eligible families do not get their due.

Many of these families are poor and many turn to public assistance or welfare for their financial needs. What is not known is the potential of a child support system operating at peak effectiveness, that is, 100% collection in 100% of cases, to alleviate these tragic situations. This thesis addresses this important policy question by looking directly at the group who get the least--AFDC recipients. This thesis answers the question: What can child support do for them? In other words, can child support reduce AFDC costs and caseloads and improve the economic well-being of AFDC recipients?

In order to answer this central question, four questions will be addressed:

(1) What is the income of AFDC absent fathers?

(2) What is the AFDC absent father's ability to pay child support?

(3) What is the impact of child support transfers on AFDC costs and caseloads?

(4) What is the impact of child support transfers on the economic well-being of AFDC families?

These questions are the focus of the remainder of this thesis.

VI. CAVEATS OR SHORTCOMINGS

Before moving on it would perhaps be helpful to briefly point out three major shortcomings of this analysis. These are (1) the failure to incorporate behavioral responses, (2) the assumption that all demographic eligibles can secure a support award and full payment;

(3) the lack of any cost analysis. The first of these, ignoring behavioral responses, directly affects the outcomes of the impact analyzed. The most important behavioral response is the labor supply or work effect. For the absent father, ignoring a decrease in his labor supply in response to the child support tax will lead to an overestimate of both his income and ability to pay. This in turn will lead to an overestimate of potential impacts on AFDC costs, caseloads and recipient well-being. If, on the other hand, the absent father increases his labor supply to maintain his standard of living, his income and ability to pay will be underestimated and so will the potential impacts on costs, caseloads and recipient well-being.

The labor supply response of the custodial mother is just as important. The high marginal tax rate under the AFDC program discourages work. Child support transfers are not subject to such a transfer reduction under most normative standards of ability to pay. Any increase in the mother's labor supply will bring about a concomitant increase in the impacts of potential child support transfers on AFDC costs, caseloads and recipient well-being.

Also excluded from the analysis are the effects of increased child support transfers on remarriage, procreation and reconciliation.[6] All of these responses would have some impact on the results.

The second shortcoming has two parts. One, this study assumes that all demographically eligible families can secure a support award. And two, it assumes that the absent fathers pay their total support liability. In reality neither is probable or possible. For example, paternity must be established in cases where the parents are not married. Although a new blood test makes the positive identification of the father many times more likely, there will still be cases where paternity cannot be established. In other cases the whereabouts of the absent father is unknown. Therefore, there can be no collection even if there is an award. This results in an overstatement of the impacts of child support transfers.

The last shortcoming is the lack of any cost analysis. This study provides information solely on potential benefits. It ignores the costs associated with securing support awards and collecting the support liability. The lack of cost information diminishes the usefulness of this study for policy formulation.

Notes to Chapter 1

[1]Tabulated from U.S. Census 1983, Table 1. The mean number of children in the category 4 or more is assumed to be 5.

[2]Tabulated from U.S. Census 1983, Table 1, and U.S. Census 1981, Table 2.

[3]Tabulated from the 1979 Current Population Survey-Child Support Supplement Microdata File.

[4]Tabulated from the first wave of the Wisconsin Basic Needs Survey microdata file.

[5]The numbers presented here were tabulated for FY 1982 by the author from tables in U.S. HHS, 1982: Child Support Enforcement 7th Annual Report to Congress.

[6]See Maurice MacDonald, "Behavioral Responses to Better Child Support: A Family Impact Analysis," in Garfinkel and Melli. 1982. Vol. III.

Chapter 2

Review of the Literature

I. INTRODUCTION

The purpose of this chapter is to review the literature pertaining to the questions addressed by this research effort. The first is the income and ability to pay of absent parents. Second and closely related to the first is the literature concerning the setting of child support levels or normative standards of ability to pay. The last area is the research on the economic impacts of child support transfers.

II. INCOME AND ABILITY TO PAY

Chapter 1 presented evidence from two national surveys that the present child support system fails to perform adequately in its three major function. Briefly these three functions are: (1) securing support awards; (2) setting award levels and (3) collecting what is due. Other studies attest to the failure of child support system. Jones, Gordon and Sawhill (1976) reported that 40 percent of absent fathers did not contribute to the support of their children. Cassetty (1978) found similar neglect on the part of absent fathers. MacDonald (1979), using the 1975 AFDC Survey, reports that of all AFDC mothers eligible to receive child support, "89 percent either had no award or received no part of whatever award they had". Sørensen and MacDonald (1981), using the 1977 AFDC Survey, show that the patterns of child support awards and recipiency had not improved for the AFDC families.

The reason or reasons for these failures are not at all clear. A central question raised by these failures is: Are these failures truly failures or merely a reflection of the inadequate resources of the noncustodial parents? In other words, do absent parents have income which they can share with their children? Or, is the child support system attempting to draw from an empty pool?

While the questions of absent parent income and ability to pay are important, there are little data or empirical research which directly address it. Recent surveys conducted by the U.S. Bureau of Census have focused their child support data gathering on the custodial family, giving little attention to the absent father. The 1979 Current Population Survey--Child Support Supplement (CPS-CSS) did ask the custodial mother what she thought her former spouse's income was, but the response rate was so low that the Census Bureau warns of the questionable reliability of these responses. In fact, in its most recent child support survey, the 1981 CPS-CSS, the absent father questions were dropped. An earlier survey, the 1976 Survey of Income and Education, an expanded March CPS Demographic Profile, permits the identification of absent fathers but the proportion of absent fathers to custodial mothers is about half, indicating serious underreporting. The mean income for the men who self-identified as absent fathers in

1981 dollars is $16,300.[1] This indicates that absent fathers do have income, although AFDC absent fathers may have substantially less income, as may those who did not so identify themselves. This data does not permit the identification of AFDC absent fathers nor does it include fathers who parented children out of wedlock.

Empirical research on the absent father's income and ability to pay has been severely hampered by the lack of reliable data. Although there is much research that points to the importance of the absent father's income in explaining child support payment levels and performance, little is available which directly addresses the absent father's income (Gordon, Jones, and Sawhill, 1976; Cassetty, 1978; Chambers, 1979; Sørensen and MacDonald, 1981). This available research utilizes either small and possibly biased samples or makes inferences about the absent fathers' human capital from the custodians' characteristics.

Four previous research projects have examined the income and/or ability to pay of absent parents. The first two, by Cassetty (1978) and by Jones, Gordon and Sawhill (1976), used samples of fewer than 600 respondents from the Michigan Panel Study of Income Dynamics (PSID). Both studies suggest that absent fathers could pay 3 to 7 times more than they do. Both had difficulty measuring the absent parent's ability to pay. Cassetty relied on pre-split income for some divorced and separated fathers, and she imputed the mean income of absent fathers to others. She found that fewer than 3 percent of all absent fathers had so little income, that is, income at or below the poverty line, that they could not afford to pay some child support. In addition, Cassetty found that for a subsample of child support eligible families who had been AFDC recipients, the absent fathers had income which could, by her standards, be made available to them. Jones, Gordon and Sawhill preferred analysis based on only the 198 cases for which they had current information on both the custodial and absent parents. Neither study reports what absent fathers earn. These two studies may have obtained biased results. In particular, it is likely that they overestimate ability to pay because those with low ability to pay are more likely to have dropped out of the sample.

A research team at the Institute for Research on Poverty (IRP) has developed independent estimates which also suggest that absent fathers can afford to pay more child support (Garfinkel et al., 1982). The methodology is to predict the race, age, and education of the absent father from the race, age, and education of the custodial mother, based on the average relationship between these variables for married couples. Then the income of the absent father is predicted, on the basis of the average relationship between male income and race, age, and education for males. The result of this method is that absent fathers had an estimated mean income of $13,510[2] in 1981 compared to $16,939 for all men. The sample used--all female heads from the 1975 Survey of Income and Education--is more representative than that employed in the previous two studies, but the lack of any direct information on the income of the absent parents leads to the possibility of biased estimates. In particular, it is possible that fathers who divorce and separate, or were never married, have less income than the average man with the same education, age, and race. Also, absent fathers of AFDC children are likely to have even less income.

The most recent study of AFDC absent fathers' income and ability to pay is the Wisconsin Ability to Pay Study (WAPS). This study was begun after much of this thesis was completed. In fact, the WAPS was partially modeled after the methodologies presented here. This study collected absent father income data from tax records. Although this study is not unique in its use of actual income data (e.g., Cassetty, 1978), it is the first to have a substantial sample of AFDC families. Preliminary results from this study indicate that there are potential absent father dollars left untapped by the present child support agency. The mean absent father income, for those where the data were available, was $11,182 in 1980. However, one weakness in this study is that income data are missing for two-thirds of the absent fathers.

The income data were missing for three reasons: (1) absent father was not identified; (2) father identified but no social security number; and (3) father with social security number but no tax return. To estimate the missing incomes they assumed it was missing randomly. They estimated the relationship, based on one-third of the sample, between fathers-income and custodians' characteristics. Income was then imputed where it was missing. This results in a mean income of $10,851 for all absent fathers. Using a different set of assumptions they assigned zero or small positive incomes to those fathers where a social security number was available but no tax record. For those families without an identified absent father they used the imputation method outlined above. This resulted in an estimated mean income of $10,104 for all absent fathers.

An alternative to the methods outlined above would be to assign a small positive income to those fathers with a social security number but no tax record. Next, combine this group with the men where income data are available. Using this sample estimate the relationship between the man's income and the custodian's characteristics. Finally use this estimated relationship to impute income for those without social security numbers. This should result in a lower average income because it combines the lower earning, non-tax filers with the higher earning tax filers.

III. NORMATIVE STANDARDS OF ABILITY TO PAY

When the family is intact there is a natural pooling of market and nonmarket resources and a mutual sharing among family members, although little is actually known about intrafamily sharing. When a family splits up, as in separation and divorce, or when the parents fail to marry and form a family in cases of out-of-wedlock births, the usual method of sharing fails. Alternative routines must be developed. The usual mechanism is child support. Determining the amount of this support is a problem. Social analysts differ on which factors should be considered in setting support levels and how high or low the resulting obligation should be. Both Cassetty and Sawhill, for example, think that absent fathers should pay as much as 2 to 3 times more out of a given income than is recommended by either the Wisconsin or New York Community Council Guidelines.

Table 2.1 displays the results of applying six normative standards to three hypothetical families. It is obvious from the Table that levels of support liability vary from standard to standard. Differences in support obligation levels stem from disagreements over what is considered adequate and equitable. Much of the controversy centers around five issues. Briefly, these five issues are:

(1) Whether to base support levels on solely the absent parents' income or both parents'.

(2) Whether there should be an exemption or set aside not subject to child support levy.

(3) Whether new dependents of the absent spouse should affect prior support obligations.

(4) Whether to base the support obligation on some notion of the cost of raising a child or on the equalization of the incomes of the two housholds.

(5) Whether to set relatively high (or low) marginal tax rates.

The resolution of these issues are value judgements. These subjective judgements form the basis for normative standards of ability to pay.

Combinations of responses to these issues are embodied in both actual and proposed normative standards. For example, the existing

Table 2.1

An Example of Support Liability Resulting from Six Normative Standards

Income		Sawhill	Cassetty	Bergmann[1]	Garfinkel	Wisconsin[2]	New York
Father	Mother						
$5,000	$5,000	984	0	750	1,250	0	0
15,000	5,000	6,968	5,000	1,125	3,750	3,840	2,392
25,000	10,000	10,944	7,500	2,143	6,250	5,537	6,004

Note: Assumes that there are two eligible children; the absent father is remarried and new spouse has zero income.

1. Assumes that the cost of raising two children is 30% of custodian's income. This estimate is based on van der Gaag (1983).

2. Both the New York and Wisconsin standards use net income. To reflect this net income, it is assumed to equal 80% of gross except for the 25,000 where net equals 75% of gross.

"Wisconsin State Child Support Guidelines," used in some jurisdictions within the State, are based on a cost-sharing approach. The incomes of both parents are considered. Each parent receives an income set aside for his/her own basic needs. The marginal tax rate is 100% up to the noncustodian's share of the child(ren)'s basic needs after which the tax is proportional and based on the number of dependents. While new dependents do not affect the basic support allowance they do impact on any supplemental support (i.e., support above the basic obligation). On the other hand, Michigan jurisdictions set support levels which are based on the absent parents' income and the number of support-eligible children (Chambers, 1979).

Proposals for new normative standards have resulted from the perception of inadequacy and inequity in present obligations. Garfinkel et al. (1982, 1983) have proposed a simple percent of total income standard. The tax base would be total absent parent income. There would be no adjustments for new dependents. The tax rates (loosely related to the relative cost of raising children) are 17% for one child, 25% for two children, 29% for three children, 31% for four children and 33% for five or more.

Cassetty (1978) and Sawhill (1983) offer similar income equalization standards. Cassetty's income equalization standard provides a poverty line exemption for the custodial and noncustodial families. Fifty percent of any excess monies is transferred to the custodian. Sawhill's formula also considers both parents' income and adjusts for new dependents by incorporating household equivalence scales. The marginal tax rate for the noncustodial parent is based on the income and needs of the custodial family and may exceed 50 percent. Another income equalizing approach was proposed by Sauber et al. (1977). The approach, often referred to as the New York Community Guidelines, gives priority to the second family by offering a large exemption for the absent parent and any new dependents. Ninety percent of income above this exemption is transferred to the custodial family until their needs are met. Any excess income is divided proportionally among all dependents and the absent parent.

Bergmann (1983) suggests that a cost-sharing approach is the way to adequacy and equity. Her proposed standard is based on the principle that the parents should share the cost of their children proportionate to their income. The cost of the children is set relative to the custodian's income. The relative cost, heretofore unknown, should be based on a survey of expenditures in single-parent homes. The resulting expenditures by income class would then be used as cost. She offers no adjustment for new dependents nor a personal exemption. The marginal tax rate will depend upon the income of the custodial family and will be much lower than that of the income equalizing approaches.

Two things are clear concerning normative standards. One, there is quite a bit of disagreement about how to best set support obligation levels. The normative standards presented above are only illustrative of the multitude of normative standards either in actual use or proposed. Each state has at least one "official standard" as required by federal regulations. Many jurisdictions within states have their own standard. In addition it has been shown that individual judges within a given jurisdiction use their own criteria (i.e., standard) when setting support obligations (White and Stone, 1976). Each standard reflects a different response to the five normative issues.

Secondly, there are obvious fiscal impacts of alternative value judgements. For example, a personal exemption for the noncustodial parent can effect the custodial family differently depending upon the noncustodian's income. If the noncustodian has income at or below the exemption there would be no support liablity, while the tax base is reduced for those noncustodians with income above the exemption, resulting in lower support liability. Higher marginal tax rates can be used to offset the impacts in the second scenario, while nothing can alter the impacts in the first. Each normative standard will result in a different level of child support, ceteris paribus.

Given both the controversy and fiscal impacts of alternative value judgements it is surprising that there is so little systematic research to help guide decisionmakers. Three studies include some analysis of the impacts of changing normative standards on levels of ability to pay. Only two of these studies contain analysis for AFDC families, while none systematically investigate the five normative issues.

The first study (Cassetty, 1978) used a small sample from the Michigan PSID. She showed that using her income equalization approach would result in support obligations close to seven times what absent fathers currently pay, on average. The average child support payment was $538 annually while the application of her standard produced an average liability of $3566. In addition, she showed that changing from her income equalizing approach to a straight percentage of excess income approach would result in a substantial reduction in average support liability. The application of the income equalization formula results in a support liability of $3566. Taking 50 percent of the noncustodian's income above a poverty line set-aside yields $2279, while taking only ten percent yields just $447. This reduction ranges from a low of 36 percent to a high of 87 percent depending upon the marginal tax rate employed.

Sawhill (1983) simulated the impacts of five normative standards using a small sample from the Michigan PSID. The application of her income equalization standard resulted in an average support liability almost three times what absent fathers now pay. The average annual payment in 1973 was $1496 while the average expected liability under her standard was $4371. Another interesting result that can be gleaned from her work is that the resolution of different normative issues can offset each other, at least on average. Even more important is the finding that child support levels for AFDC families are more sensitive to changing normative issues. This is most probably due to the noncustodians' lower income.

The WAPS (McDonald, 1983) is the third research endeavor to include some analysis of changing normative issues and support liablity. This study, using a large sample of AFDC families, simulated three normative standards. The most striking finding is the sensitivity of AFDC child support levels to the exemptions. The high personal and new dependent exemption of the New York Guidelines (Sauber, 1977) results in fewer than 40 percent of absent fathers being liable for support payments. The lower personal exemption of the existing Wisconsin Guidelines increases the number of liable absent fathers to about two-thirds. The potential increases in child support revenue from the application of either the existing Wisconsin Guidelines or the proposed Wisconsin Percent of Income Standard are astounding. Establishing support obligations in every case and collecting 100% of liability would result in collections of 5 to 6 times what absent fathers currently pay.

IV. THE ECONOMIC IMPACTS OF CHILD SUPPORT

It has been well documented that the economic status of female-headed custodial families falls precipitously from pre-separation/divorce levels. Many find themselves in poverty for the first time while others find themselves more impoverished (Jones, Gordon and Sawhill, 1976; Cassetty, 1978; Weitzman, 1981; Wallerstein and Kelly, 1983; and Hunter, 1983). In addition, about one-third of these families turn to public assistance for financial support.

Less clear is the potential of child support transfers to redress these abhorrant conditions. In other words, can child support reduce poverty and welfare dependence?

Reports based upon recent national child support data conclude there are no significant antipoverty impacts. At present support award levels the incidence of poverty for those with an award would not be substantially reduced by full payment of the obligation (U.S. Bureau of the Census, 1981, 1983). Cassetty (1978) reports that 3 percent of her PSID sample of child support eligibles were removed from poverty due to child support payments. The WAPS reveals that full payment of present child support obligations would result in less than a .2 percent reduction in the number of poor AFDC families, that is, seventy-five families out of the forty-nine thousand in poverty.

The potential reductions in welfare dependence under the present system are no less discouraging. Official government statistics indicate that present levels of child support payments account for the closing of less than 2 percent of AFDC cases (U.S. HHS, 1982). The WAPS data show that full payment of current orders alone would result in only a 2 percent reduction in AFDC cases.

The potential effects of tapping the noncustodial parents' income with alternative normative standards has been explored by Sawhill (1983), and in the WAPS. Sawhill found that using her income-sharing approach and not allowing new dependent exemptions would result in an AFDC savings of 100 percent. This is an overstatement of potential AFDC impacts. She fails to note the distribution of child support transfers. She compares total AFDC benefits and total child support transfers and concludes 100+ percent savings. In reality some families will benefit from 100 percent savings while others will get less child support than their AFDC benefit. Other standards which give priority to the needs of the noncustodian were less effective in reducing welfare dependence. Those standards which give priority to the needs of new dependents would result in even lower reductions. These results are limited by the exclusion of never marrieds.

The WAPS examined the impacts of three alternative normative standards on poverty and welfare dependence. The antipoverty effects of none of the three standards exceeded two percent, or 950 families. The AFDC impacts were somewhat more impressive but still meager. Reductions in the caseload of almost 60,000 families ranged from a low of about 3,000 families or 5 percent to a high of about 8,500 or 14 percent.

V. SUMMARY

The evidence from these studies support the notion that the present system is not collecting the full absent parent potential. They also support the rejection of the notion that absent parents cannot afford to pay support. The results from the recent Wisconsin study in particular, provide direct evidence of AFDC absent fathers' income which could be made available to support their dependent children.

Research into the areas of noncustodial parents' income and ability to pay and the potential economic impacts of both the present and alternative child support systems has been severely hampered by the lack of reliable data. The pioneering studies by Jones, Gordon and Sawhill (1976), Cassetty (1978) and Sawhill (1983) were hampered by small and possibly biased samples from the Michigan PSID. These studies used samples of fewer than 600 respondents; the latter two based much of their analyses on less than 200. Further, their samples excluded never married child support eligibles. The Wisconsin Ability to Pay Study, when completed, should provide answers to the major child support questions superior to any study heretofore available. Yet even this study has considerable problems with missing data for the noncustodial parents.

This thesis helps to fill the gaps in present child support research, particularly as it relates to AFDC families. It does this by first developing a methodology for estimating noncustodial parent missing data. The estimation method for the critical income data was first suggested in its crudest form by Garfinkel (1980). Danziger (1980) suggested a modification to this crude method which forms the basis for the current methodology. Second, this thesis will systematically examine the impacts of alternative responses to the five normative issues. By simulating eight normative standards the impacts of these alternative responses will be assessed in terms of (1) levels of ability to pay and (2) potential economic impacts. The measurement of economic impacts is restricted to changes in poverty status and reductions in welfare dependence for the custodial families. Missing from this analysis is any consideration of the impacts on the non-custodians.

Notes to Chapter 2

[1]Tabulated from the 1976 Survey of Income and Education micro data file.

[2]The estimate of mean noncustodial parent income was derived from aggregate results reported in Garfinkel (1982). Total revenue from the noncustodial parent tax is $23.495 billion. By assuming the average number of dependent children is two, the average tax rate is then equal to 30 percent. Dividing total revenue by the average tax rate yields an estimate of aggregate noncustodian's income $78.317 billion. This aggregate income divided by the total number of non-custodians (5.8 million) yields an average income of $13,510.

Chapter 3

Absent Father's Income

I. INTRODUCTION

This chapter deals with the estimation of absent fathers' income. An indirect methodology utilizing the women's characteristics as proxies for the men's is developed. This is necessary because information is not available for absent fathers. Several potential biases to the income estimates are examined and steps are taken to reduce these. The methodology is then applied to a sample of Wisconsin AFDC child support eligible families. The results of this application are presented. Prior to developing the indirect method the data sources will be discussed.

Table 3.1 presents a summary of the regression equations which will be estimated in this chapter. The columns of the table contain the regression equations. The rows present information on the estimation procedure, data source, sample, dependent and explanatory variables used in each regression. Each regression equation is performed separately for white and nonwhite samples.

Table 3.1

Regression Equations

Equation Number	1	2	3	4	5
Type	Income Function	Selectivity Bias	Income Function with Selection	Marital Status Adjustment	Public Assistance Adjustment
Procedure	OLS	Probit	OLS	OLS	OLS
Data Source	1979 CPS	1979 CPS	1979 CPS	1976 SIE Northcentral Region	1979 CPS-CSS
Dependent Variable	Husband Income	Presence of Husband	Husband Income	Male Income	Ex-Husband Income
Sample	All Married Couples with Children	All Women with Children	All Married Couples with Children	All Men with Children and Never-Married Men	All Women Who Responded to Income Question
Explanatory Variables	Woman's Characteristics			Man's Character-istics	Woman's Character-istics
Age	X	X	X	X	X
Age^2	X	X	X	X	X
Age*Education	X	X	X	X	X
Education Dummies	X	X	X	X	X
Region Dummies	X	X	X	-	X
City	X	X	X	X	X
SMSA	X	X	X	X	X
Children Dummies	X	X	X	X	X
Lambda	-	-	X	-	-
Marital Status Dummies	-	-	-	X	-
AFDC Dummy	-	-	-	-	X

II. THE DATA

The primary data source for this analysis is the Wisconsin State Department of Health and Social Services, Computerized Reporting Network (CRN). The CRN is the State's automated on-line eligibility determination and case management system for the AFDC, Medical Assistance, and Food Stamp programs. All 72 counties in the state have a computer terminal connected with the Data Center in Madison, Wisconsin.

The CRN master data file contains demographic, work, and income information on each AFDC case for the custodial parent and other members of the household. The custodial parent's age, education, race, marital status, residence, and number of AFDC eligible children are the critical variables for estimating the absent father's income.

The September 1981 CRN master file provides the sampling universe for this study. Of the 82,027 active AFDC cases, 66,565 were found to be demographically eligible for child support. A family deemed demographically eligible is defined as a family with children under age 18 who have a living absent father who is not in the household, in jail, or institutionalized; paternity need not be established. A 7% systematic random sample of the universe yields 4,659 eligible cases. This sample size ensures adequate representation of the small rural Wisconsin counties in the analysis.

Table 3.2 displays a summary of the characteristics of the population of Wisconsin AFDC child support eligibles and the 7% sample. The

Table 3.2

Wisconsin AFDC Child Support Eligibles Population and 7% Sample for Selected Characteristics, July, 1981

	Population 66,565 Cases	7% Sample 4,659 Cases
Percent Milwaukee County	39.25	39.26 (.7)
Percent Living in Cities	61.21	61.52 (.7)
Percent Living in SMSA	68.49	68.82 (.7)
Percent White	63.01	62.59 (.7)
Percent Nonwhite	36.99	37.41 (.7)
Female-headed Families	84.08	85.08 (.5)
Percent who Report Some Earnings	24.84	25.45 (.6)
Mean Earnings for Those Who Report	$534	$553 (12.3)
Mean Number of AFDC Children per Case	1.8	1.87 .02
Average Time in AFDC (current spell)	32.37 months	32.25 months (.56)
Average Grant	$381.37/month	$384.00/month (2.12)
Percent Never-married	34.3	35.2 (.7)
Percent Divorced	26.37	25.79 (.6)
Percent Separated	19.08	18.82 (.6)
Percent Legally Separated	4.48	5.22 (.3)
Percent Anulled/Widowed	.71	.87 (.1)
Percent Married	15.06	14.02 (.15)

*Numbers in parentheses are standard errors.

distribution of characteristics between the population (col. 1) and the sample (col. 2) are almost identical as well as the distribution of cases among the large, medium, and small counties.

The strength of using the CRN data base is that it offers the most complete and up-to-date micro-level data on Wisconsin AFDC recipients. The weakness of this data is that neither income nor demographic data on absent fathers are available. Therefore, the CRN data needs to be supplemented with some estimate of absent fathers' income. An additional weakness is that the CRN data is monthly. This requires the assumption that the sample month is representative of the year.

An additional data source must be utilized to develop the income estimates. The 1979 Current Population Survey March/April Match File is utilized. This data source combines the March annual demographic file with the April child support supplement. The March demographic file contains micro-level data on income and person characteristics for some 63,000 nationally representative households. The April child support supplement contains micro-level data collected from all women in the March sample who had children who were child support eligible. The advantage of the combined data file is that it permits the most complete identification of women with children. In other survey years some women with children are classified as "child of head" rather than "sub-family" and are not identified as parents. An examination of the March/April Match file shows that approximately 10% of child support eligible women could not be identified in the March demographic file as parents because they were classified as "child of head."

Three different subsamples are drawn from the March/April Match file. The first subsample of all 12,164 presently-married women with children under 18 years of age is used in estimating the ordinary least squares income regression (equation 1). The second subsample of all 15,885 women with children under 18 is employed in the selectivity bias probit regression (equation 2).

The last subsample of all 666 women is restricted to those child support eligible women who reported their ex-husbands' income in the child support supplement. The strength of this subsample is that it is the only available data that will permit the estimation of income differences between ex-husbands of AFDC and non-AFDC women. The questionable reliability of this subsample is its major weakness. This is due to the large number of nonresponses and small sample size.

A third data source is utilized to estimate the income differences between men of the same characteristics but with different marital statuses. The 1976 Survey of Income and Education (SIE) is employed. The SIE used as its base the CPS Annual Demographic Survey but added additional questions and an expanded sample. Oversampling of poor and multilingual households ensure adequate representation of these groups in the sample. The uniqueness of this data source and the reason for its utilization here is that it permits the identification of men who were previously married and had children under 18 at the time of their separation or divorce; this is not possible with other Current Population Surveys. These 8589 absent fathers are combined with presently-married men with children under 18 and never-married men. The total subsample is all 23,114 men.

III. THE METHODOLOGY

This section details the estimation methodology and its underlying assumptions. As stated earlier, the lack of any information about the absent fathers is the major weakness of the CRN data base. Because of this an indirect methodology is developed and employed to estimate absent fathers' income. The procedure involves using the woman's characteristics as proxies for the characteristics of the absent father.

The estimation procedure has three main components:

(1) Estimate the relationship between a husband's income and his wife's characteristics.

(2) Adjust this estimated relationship for two potential biases.

(3) Use the corrected estimated relationship to impute income estimates for AFDC absent fathers.

The first component, the relationship between a husband's income and his wife's characteristics, is based on the assumption that there is a relationship between the demographic characteristics of husband and wife. The second component corrects for bias in the income estimates which arise when the estimated relationship is used to impute income for absent fathers. The third component imputes income for absent fathers, using the corrected income characteristic relationship.

A. Income Function

The first step of the income methodology is to estimate the relationship between a husband's income and his wife's characteristics. That a relationship between the two is assumed to exist rests on knowledge from economics and demography. First, from economics it is known that there is a relationship between a man's income and his characteristics. Second, from demography it is known that those of like characteristics tend to marry. This is called marital endogamy or marital homogamy. Using these known relationships and a simple if-then logical argument of the form: if A is related to B, and B is related to C, then A is related to C, it can be shown that logically a woman's characteristics are related to her husband's income.

The relationship between a man's income and his characteristics is supported by the human capital approach to analyzing earnings differences (Mincer, 1974). This approach specifies that a person's earnings is a function of his/her human capital. This human capital is measured by education and training, labor market experience, and the interaction of these characteristics plus other labor market variables, such as race, sex, and region of the country. This analytical approach has been utilized in modeling earnings capacity by Garfinkel, Haveman, and Betson (1977).

The relationship between the characteristics of a husband and wife supports the utilization of the woman's characteristics as proxies for the man's in the income function. Support for this relationship is found in theories of mate selection as well as empirical work in this area. Theories of mate selection "emphasize the role of homogamy as a structural mechanism for the identification of potential mates with similar values and expectations" (Bumpass and Sweet, 1972, p. 760). In other words, on average, persons of like characteristics tend to meet/marry.

Since the wife's characteristics are used as proxies for the husband's characteristics, it makes sense to model income using theory and empirical evidence on men's earning functions and then simply substitute. Separate models are developed for whites and nonwhites because of labor market discrimination against nonwhites. In addition, separate race models control for the interaction of other explanatory variables with race. Utilizing human capital theory (Mincer, 1974) and earnings capacity research (Garfinkel et al., 1977), the following model emerges:

$$\begin{aligned} \text{Income} = {} & a_0 + a_1\text{age} + a_2\text{age}^2 + a\ \text{age*education} \\ & + a_4\text{education} < 9 + a_5\text{education } 9\text{–}11 \\ & + a_6\text{education} > 12 + a_7\text{NE Region} \\ & + a_8\text{South Region} + a_9\text{West Region} \\ & + a_{10}\text{Non-City} + a_{11}\text{Non-SMSA} \\ & + a_{12}\text{two children} + a_{13}\text{more than two children} \\ & + a_{14}\text{income dummy} + e \end{aligned}$$

1. Dependent Variable

The dependent variable is a composite of a man's earned and unearned income. This includes income from wages, salary, farm, self-employment, pensions, OADI benefits, unemployment insurance, workman's compensation, interest, dividends, and rents. Cash and in-kind welfare transfers are excluded from the composite variable. The normative assumption or value judgement asserted by the definition of the income variable is that income available to the absent father from the included sources has the potential of being used for child support transfers.

Income is assumed to be distributed log normal.[1] Therefore, the natural log transformation of income is used. This transformed dependent variable, log dollars, is approximately normally distributed and permits the use of the usual normal statistics.

The use of the log transformation constrains income to be nonnegative. Therefore, those observations where the man's income is reported as zero or negative (but not missing) are assigned a small positive income ($50) rather than excluding them from the sample.[2] This occurred for about 1 percent of whites and 2.5 percent of nonwhites.

2. Explanatory Variables[3]

The use of economic theory and previous empirical research to develop the income model leads to *a priori* expectations for the effects of the explanatory variables. These variables and *a priori* expectations are as follows:

(1) Age - a continuous variable is used as a proxy for labor force experience. It is expected to have a positive relationship with income.

(2) Age^2 - a continuous variable included in the model because of an assumed curvilinear relationship between age and income. It is expected that as age increases past some point, income will begin to decline. This declination is probably due to the obsolescence of skills and possibly the failing of mental and physical capacities. It is expected to be negatively related to income.

(3) Education - a set of dummy variables is included in the model for education. These are grammar school, some high school, and college. A high school graduate is the missing category or comparison group. A positive relationship between education and income is expected. Dummy variables are used because this relationship is assumed to be nonlinear--income increases are expected from blocks of education.

(4) Age*Education - an interaction term which is included because education and training impacts on income are expected to vary with respect to age. It is expected that the combination of experience (age) and training will have a positive relationship with income.

(5) Non-SMSA (SMSA) - a dummy variable designed to capture the effect of living outside of metropolitan areas. Those who live outside of metropolitan areas are expected to have lower incomes (thus a negative coefficient) than those who live in such areas. This may be due to restricted job opportunities outside of metropolitan areas or the higher cost of living in metro areas as well as greater demand.

(6) Non-Central City (Central City) - a dummy variable designed to capture the effect of living outside of the nation's central cities. It is expected that those who live outside of central cities in the urban/suburban sprawl will have higher incomes than those who remain in the city. Thus, a positive coefficient is expected.

(7) Number of Children - a set of two dummy variables to capture the effect of children on income. The dummy variables are for two children and three or more children. One child is the comparison group. The expected impact of the number of children is ambiguous. It may be that the number has a positive effect on income. This could be due to either an increase in labor supply in response to a birth or the additional birth due to an increase in income. The effect may be negative, especially for three or more children, because poor families are generally large.

(8) Regional Dummy Variables - a set of three dummy variables constructed to capture the regional variation in income due to

different job markets and economic climates. The three dummy variables are for the Northeast, South, and West regions while the North Central region is the comparison group. It is expected that the industrialized Northeast region will have similar incomes to the North Central region while the southern region will have lower incomes and the high tech mineral-rich western region will have higher incomes.

(9) Income Dummy - a constructed variable to capture the effect of assigning $50 as income to all those with zero or negative income.

3. Sample

The samples used to estimate the two income functions, white and nonwhite, are from the 1979 Current Population Survey. The selected samples are made up of married women with husband present and children under 18. The sample size for whites is 10,939 married couples with children and the sample size for nonwhites is 1,214 couples with children.

4. Statistical Method

Ordinary Least Squares regression (OLS) is used to estimate the income functions. Because of the complex sampling design of the Current Population Survey, the regression samples are weighted using the Census Bureau's weight factors. For statistical testing purposes (i.e. t tests and F tests) the relevant sample sizes are maintained by dividing the weight factor of each observation by the mean weight for the sample. This same weighting technique is utilized in all subsequent regressions.

5. Results

The results of the Step 1 income regressions appear in Table 3.3. The two columns of this table contain the white and nonwhite results, respectively. The rows contain the independent variables and other pertinent information. The standard error of the regression coefficients are in parentheses below each estimate.

There are several results which are worth noting. First, both the white and nonwhite regressions are statistically significant at the 5% level. Second, the proportion of income variation explained in both equations is quite large. The R^2 measure of explained variation for the whites is 44% while for the nonwhites, 57% of income variation is explained. This is important because the sole interest here is in forecasting income rather than exploring the impact of individual characteristics on income. For example, if the amount of explained income variation was very low, say 3%, the imputed or forecasted income for all observations would be quite similar (close to the population mean). At the same time, one or more individual coefficients may be significant, allowing an analyst to posit a relationship.

Briefly, the results for the individual parameter estimates are in line with the *a priori* expectations and are statistically significant

Table 3.3

Step 1 Income Regression

Dependent Variable: Log of Annual Income of Husband		
	Whites	Nonwhites
Mean of Dependent Variables	9.543	9.212
Explanatory Variables		
Age	.0621 (.0006)	.08476 (.01829)
Age^2	-.0008707 (.0000808)	-.00111 (.00022)
Age*Education	.00116 (.00015)	.00563 (.00038)
Education < 9	-.1799 (.0438)	-.09772 (.1147)
Education 9-11	-.08367 (.0236)	-.12788 (.0647)
Education > 12	.10191 (.02285)	.16861 (.0669)
Non-Central City	.09671 (.01961)	.05817 (.05162)
Non-SMSA	-.22725 (.0159)	-.16827 (.0592)
2 Children	.05064 (.01693)	.03103 (.05175)
3+ Children	.06684 (.01943)	-.04254 (.05567)
Northeast Region	-.01481 (.0201)	-.17811 (.0705)
South Region	-.03063 (.01846)	-.20191 (.06094)
West Region	-.00087 (.0212)	-.00297 (.07271)
Income Dummy	-5.5793 (.06811)	-5.533261 (.1444)
Intercept	8.04844	7.71464
R^2	.4362	.5759
F test	605.83	116.41
Number of Observations	10590	1214
Standard Error	.54216	.54369

[1]Standard errors are in parentheses.

at the 5% level. There are a few exceptions. For the white subsample, there is little between-region income variation. This is not true for the nonwhite subsample where those who live in the northeastern and southern regions of the country have significantly lower incomes than those who live in the North Central region (16% and 19% respectively). In addition, for nonwhites the relationship between the number of children and income is not significant. Also, the sign or direction is counter to expectation. Those with three or more children have lower incomes than those families with one child.

In summary, the overall fit of the income regressions, as measured by proportion of income variation explained, is good. Therefore, they will provide useful income estimates.

B. Bias Correction

The second step of the income estimation methodology is to identify, test, and correct potential bias in the results of the income function. This is done before the estimated relationship between women's characteristics and men's income is applied to the CRN AFDC sample.

There are two sources of bias which will be dealt with in this section. First, divorced, separated and never-married men have lower incomes than married men, ceteris paribus. On average, not controlling for characteristics, divorced and separated men have 21 percent less income than married men. Never married men have 53 percent less income than married (U.S. Census, 1979). The income estimates developed thus far are for married men; therefore they are too high. This source of bias will be referred to as "marital status bias." Second, AFDC absent fathers have lower incomes than their non-AFDC counterparts. On average, using custodial mothers reports of absent fathers' income, AFDC absent fathers had about $7700 less income than non-AFDC absent fathers in 1978.[4]

1. Marital Status Bias

The income estimates developed are for married men with children. An upward bias in these estimates arises because divorced, separated, and never-married men have lower incomes than married men of the same characteristics. Income differences associated with marital disruption have two possible origins. First, men from disrupted marriages may be poor earners. Empirical research on the earnings of men and marital disruption lend support to this notion (Hoffman and Holmes, 1976; and Wolfe and MacDonald, 1978). Second, men who separate or divorce may decrease their labor supply and subsequent income following marital disruption. One possible explanation for this decrease in income is the man's negative labor supply response to the high tax rates imposed on him for alimony and/or child support. There is no direct empirical research to support this second notion.

There is empirical evidence that men have positive labor supply responses to both marriage and children (Cramer, 1980). Therefore, it is reasonable to assume that never-married men have lower incomes than married men with children, ceteris paribus.

The marital status bias issue can be viewed as an omitted variable or sample selection problem. This is often referred to as selectivity bias. Selectivity bias results when subpopulations are excluded from the analysis and then the results of such analyses are used to make inferences about the excluded population and/or the total population. The most frequently cited example of selectivity bias is the estimation of women's wage rates. This bias occurs when a wage function is estimated for a population of working women and the results are used to estimate wage rates for women not in the labor force. Such a procedure ignores the fact that the two groups of women, those in and those not in the labor force, may differ on some unmeasured qualities. Selection bias is an issue if these qualities affect both the decision to enter the paid labor force and the prospective wage rate.

The wage rate analysis is analogous to the absent father income estimation in this analysis. The sample used to estimate the parameters in the income function is made up of all married women with children. Nonmarried women with children are excluded from the regression sample because information on the dependent variable--father's income--is missing. The income information is missing because the father is absent due to separation, divorce, or never marrying the child's mother. The results of the Step 1 income function are to be used to impute income for the absent men using the characteristics of those women in the excluded sample. Selection bias may exist if the two groups of women differ on some unmeasured qualities which are related to the women's characteristics and the income of these men.

Heckman (1976, 1979) has developed a two-stage procedure to test for selection bias. If selection bias is present, this procedure will produce unbiased estimates of the population parameters. These unbiased parameters can then be used to impute income for absent fathers.

The first stage of the procedure is to estimate a probit equation to predict the probability that the father is absent or present in the home. The sample for this stage is made up of all women with children. The predicted value from the probit equation is used to construct a new term, lambda, which is then used as a regressor in the stage two income function. The income function is estimated using OLS regression. The sample for this second stage is only those women with children who have data on the dependent variable because the fathers are present. The resulting parameter estimates are unbiased.

Let Y_1 = income of the father and X = characteristics of the mother. In the population, the regression function for income is:

$$E(Y_1 | X) = X\beta. \tag{A}$$

That is, the expected value of income is some linear combination of the women's characteristics. A problem may arise when the entire population or a representative sample of the entire population is not used because information on the dependent variable is nonrandomly missing. In this thesis, the subsample of mothers whose spouses are absent are excluded from the income regression. Therefore, the income estimated in the previous section is the income for married men:

$$E(Y \mid X, \text{ sample selection rule}) = X\beta + E(U \text{ sample selection rule}). \tag{B}$$

The sample selection rule requires that the man be present in the home; if not, the observation is excluded from the sample. If the object was to estimate the relationship between husbands' income and wives' characteristics with no intention of relating this result to excluded families, there would be no selection problem.

For each observation the income regression is

$$Y_1 = X_1\beta_1 + U_1; \tag{1}$$

but Y_1 is not observed for all observations. Y_1 is observed only when the man is present in the home. Therefore, a second equation is the regression on whether a man is present or not. Let Y_2 be a variable denoting the presence or absence of the father. The father is in the home if $Y_2 > 0$ and not in the home if $Y_2 \leq 0$. Then,

$$Y_2 = X_2\beta_2 + U_2. \tag{2}$$

The income regression for those where the man is present is a combination of equations (1) and (2):

$$E(Y_1 \mid X_1, Y_2 > 0) = X_1\beta_1 + E(U_1 \mid U_2 > -X_2\beta_2). \tag{3}$$

The selection bias is due to the conditional expectation of U_1 in equation (3). If the conditional expectation of U_1 is equal to zero, then there is no selection bias and the income function estimated in Step 1 can be used.

The Heckman procedure is a two-stage methodology to determine if the conditional expectation is zero. If it is not zero, the method produces unbiased results.

The errors or disturbance terms U_1 and U_2 are assumed to be normally distributed with expected values of:

$$E(U_1 | Y_2 > 0) = E(U_1 | U_2 > -X_2\beta_2) = \frac{\sigma_{12}}{\sigma_{22}^{1/2}} \lambda \qquad (4a)$$

$$E(U_2 | Y_2 > 0) = E(U_2 | U_2 > -X_2\beta_2) = \frac{\sigma_{22}}{\sigma_{22}^{1/2}} \lambda \qquad (4b)$$

where

$$\lambda = \frac{f(-X_2\beta_2)}{1-F(-X_2\beta_2)}$$

and f and F are the probability density and cumulative distribution function of the standard normal distribution.

With this information, equation (3) can be rewritten:

$$E(Y_1 | X_1, Y_2 > 0) = X_1\beta_1 + \frac{\sigma_{12}}{\sigma_{22}^{1/2}} \lambda.$$

Neither lambda nor the covariance of U_1 and $U_2(\sigma_{12})$ are known. The variance of $U_2(\sigma_{22})$ is assumed to be unity. Heckman (1979, p. 157) shows that in the first stage of his methodology unbiased estimates of lambda can be produced using the following method. First, estimate the parameters of the probability that $Y_2 > 0$ (income data is available, i.e., the father is in the home) using probit analysis for the full sample. Second, using the estimates of β_2 one can construct an estimate of λ.

The estimates of lambda are then used in the second stage ordinary least squares regression as an explanatory variable. The coefficient for the lambda term is a measure of the covariance of U_1 and U_2 (σ_{12}). To affirm the null hypothesis that there is no selection bias, this coefficient must be statistically nonsignificant.

This two-stage procedure is utilized to test whether or not the Step 1 income function is biased due to selectivity bias. The first stage of the Heckman procedure is to estimate the probability that an observation is included in the sample. This stage uses probit analysis. The regression equation is:

$$D \left\{\begin{matrix}1\\0\end{matrix}\right\} = b_0 + b_1 age + b_2 age^2 + b_3 age{*}education$$

$$+ b_4 ed1 + b_5 ed11 + b_6 ed14 + b_7 Reg1$$

$$+ b_8 Reg3 + b_9 Reg4 + b_{10} city + b_{11} SMSA$$

$$+ b_{12} 2kids + b_{13} 3{>}kids + U_2.$$

where $D = 1$ iff $Y_2 > 0$

$D = 0$, otherwise

The dependent variable (D) is a dichotomous variable coded 1 if the father is present and 0 if the father is absent from the home.

The explanatory variables are the characteristics of the women. Some a priori expectations follow the variables.

(1) Age - a continuous variable may be viewed as a proxy for length of marriage. Therefore, it is expected to have a positive relationship with the husband being present.

(2) Age^2 - a continuous variable included because the relationship between age and marital intactness is assumed to be nonlinear.

(3) Education - a set of three dummy variables. Ed1 is education less than 9 years; ed11 is some high school; ed14 is college education. The high school graduate category is the reference group. High school dropouts are expected to have the lowest probability of maintaining or attaining the marital union while those with at least some college are expected to have the highest probability.

(4) Age*Education - a continuous variable which is an interaction term. This variable is included because the combination of age and education is expected to have a positive impact on the probability net of the individual effects of age and education.

(5) Non-SMSA (SMSA) - a dummy variable coded 1 if the woman lives outside an SMSA, zero if she lives in an SMSA. There is no *a priori* expectation.

(6) Non-Central City (Central City) - a dummy variable coded 1 if she lives outside of a central city, zero otherwise. There are no *a priori* expectations.

(7) Region - a set of dummy variables designed to capture the effect of living in different parts of the country on the probability of the man being present. Although regional differences are assumed to be present, there are no *a priori* expectations. Reg 1 is the Northeast region; Reg 3 is the South region; Reg 4 is the West region. Reg 2, the North Central region, is the reference category.

(8) Number of Children - a set of dummy variables designed to capture the effect of children on the probability. It is expected that the number of children will have a positive relationship with the man being present in the home. 2 kids is a dummy variable for two children; 3 > kids is a dummy variable for 3 or more children. One child is the excluded or reference category.

The samples used to estimate the two probit regressions, white and nonwhite, are from the 1979 CPS. The samples are made up of all women with children under 18 regardless of the status of the man. The sample size for whites is 13,540. The sample size for nonwhites is 2,345.

Probit analysis is used to estimate the dichotomous dependent variable.

The results of the probit analysis predicting whether a woman with children has a husband in the home appears in Table 3.4, column 1. Using the results from stage 1 of the procedure, the lambda term is constructed.

$$\lambda = \frac{f(-X_2\beta_2)}{1-F(-X_2\beta_2)}$$

$$= \frac{\sqrt{2\pi}^{-1/2} \exp -1/2 \ (X_2\beta_2)^2}{1 - \int_{-\infty}^{z} \sqrt{2\pi}^{-1/2} \ \exp -1/2 \ (X_2\beta_2)^2 \ dz}$$

Lambda is the inverse of Mill's ratio and a monotonically decreasing function of the probability of being included in the selected sub-sample. In other words, as the probability of being in the selected sample increases, lambda decreases. If the values of lambda are very small, then the selected subsample is not very different from the larger sample. The reverse is also true. If the values of lambda are

Table 3.4

Selectivity Bias Results

Method	Probit		OLS		Uncorrected OLS	
Dependent Variable	Husband's Presence		Log Income		Log Income (Step 1)	
	Whites	Nonwhites	Whites	Nonwhites	Whites	Nonwhites
<u>Explanatory Variables</u>						
Age	.04596*	.08832	.0605*	.08791	.0621*	.08476*
	(.00983)**	(.01869)	(.015)	(.05094)	(.000634)	(.01829)
Age^2	-.000649*	-.001128	-.000848*	-.00119*	-.0008707*	-.00111*
	(.000122)	(.000223)	(.000207)	(.00065)	(.0000808)	(.0002)
Age*Education	.0003317*	.001449	.00114*	.001206	.00116*	.000563*
	(.00264)	(.00052)	(.00026)	(.00101)	(.00015)	(.00038)
Education < 9	-.10737	.1210	-.17613*	-.5352*	-.1799*	-.9772*
	(.0766)	(.1461)	(.05429)	(.1315)	(.0438)	(.1147)
Education 9-11	-.1428*	-.2793	-.07919*	-.1902	-.08367*	-.12788*
	(.0414)	(.0769)	(.0448)	(.1673)	(.0236)	(.0647)
Education > 12	-.05737	.07494	.10376*	.1640*	.10191*	.16861*
	(.04044)	(.0863)	(.02774)	(.07616)	(.02285)	(.0669)
Non-Central City	.2446*	.4428	.08888	.1777	.09671*	.05817
	(.0364)	(.06839)	(.0694)	(.2817)	(.01961)	(.05162)
Non-SMSA	-.00255	-.06205	-.22722*	-.1678*	-.22725*	-.16827*
	(.0295)	(.0807)	(.0159)	(.06767)	(.0159)	(.0592)
2 Children	.16150*	.03716	.04563	.04181	.05064*	.03103
	(.03015)	(.06681)	(.04585)	(.05105)	(.01693)	(.05175)
3+ Children	.31248*	-.09883	.05783	-.06274	.06684*	-.04254
	(.03652)	(.06904)	(.07907)	(.07383)	(.01943)	(.05567)

Table 3.4, continued

Method	Probit		OLS		Uncorrected OLS	
Dependent Variable	Husband's Presence		Log Income		Log Income (Step 1)	
	Whites	Nonwhites	Whites	Nonwhites	Whites	Nonwhites
Northeast Region	-.08006* (.03849)	-.0506 (.0885)	-.01247 (.02828)	-.1622* (-.06617)	-.01481 (.0201)	-.17811* (.0705)
South Region	-.011622 (.03057)	-.08806 (.07772)	-.03034* (.01861)	.2550* (.07558)	-.03063* (.01846)	-.20191* (.06094)
West Region	-.1844* (.03607)	-.03691 (.0943)	.00476 (.05232)	-.005574 (.06471)	-.000871 (.0212)	.00297 (.07271)
Income Dummy	---	---	-5.57941* (.06812)	-5.360* (.1322)	-5.57931* (.06811)	-5.533261* (.1444)
λ	---	---	-.08121 (.69051)	-.4877 (.9316)	---	---
Intercept	-.34053	-2.158	8.1171	7.890	8.04844	7.71464
R^2	---	---	.4368	.5768	.4362	.5759
F test	---	---	565.395	116.81	605.83	116.41
Number of Observations	13540	2346	10950	1214	10950	1214
Measure of Dependent Variable	.833	.542	9.543	9.212	9.543	9.212

*Coefficients with an asterisk are significant at the 10% level.

**Standard errors are in parentheses.

very large, then the selected subsample is very different from the larger sample and selection bias is likely to be present.

The second stage of the Heckman procedure is to estimate the income function utilizing the selected subsample and ordinary least squares regression. The estimated lambda term is included as a regression. The regression equation for this stage is:

$$Y_1 = a_0 + a_1\text{age} + a_2\text{age}^2 + a_3\text{age*education}$$

$$+ a_4\text{ed1} + a_5\text{ed11} + a_6\text{ed14} + a_7\text{Reg1}$$

$$+ a_8\text{Reg3} + a_9\text{Reg4} + a_{10}\text{city} + a_{11}\text{SMSA}$$

$$+ a_{12}\text{2kids} + a_{13}\text{3>kids} + a_{14}\text{lambda} + e.$$

The dependent and explanatory variables are exactly the same as those utilized in the Step 1 income function with the exception that lambda is included as a regressor. The a priori expectation for the relationship between lambda and income is positive. That is, the woman's unmeasured tastes for a marriage are positively related to his income.

The results of the second-stage OLS regression appear in Table 3.4, column 2. This regression tests for selection bias in the Step 1 income function. The results of the Step 1 income function appear in column 3 of the table for comparison purposes.

The test for selectivity bias lies in the coefficient for the lambda term. For both the white and nonwhite samples, this coefficient is not statistically different from zero at the 10% confidence level. This means that the error term from the first stage marital status regression is not related to the error term of the income function. In other words, there is zero covariance and thus independence. Therefore, there is no selection bias in the results of the Step 1 income function.

The selectivity bias procedure fails to detect the marital status bias. Because empirical evidence of the bias existence is available, a second test was done. This second test for marital status bias goes outside of the CPS-CSS data source to the 1976 SIE. The SIE provides data on a sample of self-identified absent fathers. By combining these absent fathers with a sample of "present" fathers and never-married men, dummy variable regression analysis can be utilized to estimate this bias.

Dummy variable regression analysis is used to test for income differences associated with marital status. The regression equations, white and nonwhite, are the same:

$$\begin{aligned}\text{Income} = {} & a_0 + a_1\text{age} + a_2\text{age}^2 + a_3\text{age*education} \\ & + a_4\text{ed1} + a_5\text{ed11} + a_6\text{ed14} + a_7\text{city} \\ & + a_8\text{SMSA} + a_9\text{divorced} + a_{10}\text{separated} \\ & + a_{11}\text{never-married} + e.\end{aligned}$$

Income is a composite dependent variable made up of all income, earned and unearned, excluding welfare income. It is the same as the dependent variable in the Step 1 income function. Again, the log transformation is utilized because of the assumption that income is distributed log normally.

The explanatory variables and their a priori expectations are the same as in the Step 1 income function. But there are a few notable exceptions. First, the characteristics are those of the man rather than the woman. With the exception of the married men in the sample, there is no information on the women in these men's lives. Second, the dummy variables for region of residence are excluded. Only those men who live in the North Central region--Region 2--are included in the sample.[5] Third, the dummy variables for children are excluded. This is due to the lack of information about the number of children for divorced and separated men. Last, the regression includes a set of dummy variables for marital status. The reference or excluded category is "married." These dummy variables are designed to capture the relationship between marital status and income.[6]

This analysis utilizes a sample from the 1976 Survey of Income and Education. The 1979 CPS could not be used because it does not contain needed data to identify absent fathers. The sample is made up of all married men with children, all divorced or separated men who had children under 18 at the time of their divorce, and all never-married men. Only those men who reside in Region 2, the North Central region, are included. This is done because of the extremely large national sample. The resulting sample sizes are 21,570 for whites and 1,545 for nonwhites.

Ordinary least squares regression, incorporating dummy variable analysis, is employed to estimate income differences by marital status.

The results of the marital status bias regression appear in Table 3.5, column 1. These results are as expected and lend empirical support to the notion that divorced, separated, and never-married men have lower income than married men, *ceteris paribus*. The income differences for all three marital status dummy variables in both white and nonwhite regressions are significantly negative, statistically and substantively.

The substantive difference in income between the married state and other marital statuses is apparent in Table 3.6. Table 3.6 displays the percentage of married men's income that men of different marital statuses are expected to have. For example, if the predicted income for a married man is $10,000, the expected income for a white divorced man with the same characteristics would be $7,660 and $5,030 for a never-married white male.

2. AFDC Bias

The income estimates corrected for marital status bias are for all absent fathers. These income estimates may still be too high or upwardly biased for AFDC absent parents. Divorced and separated AFDC

Table 3.5

Marital Status and AFDC Status Regressions

Dependent Variable: Log of Annual Income of Man	Marital Status		AFDC Status	
	White	Nonwhite	White	Nonwhite
	(1976 SIE)		(1979 CPS-CSS)	
Explanatory Variables				
Age	.07972*	.04872*	.02619	-.0632
	(.00308)**	(.01041)	(.0208)	(.07441)
Age^2	-.0009982*	-.0006179*	-.00034476	.000459
	(.0000312)	(.000115)	(.000222)	(.000659)
Age*Education	.00148*	.00112*	.00101*	.00259
	(.00009)	(.000314)	(.000595)	(.00265)
Education < 9	-.10232*	.02918	-.32782*	1.06146
	(.02951)	(.1000)	(.18151)	(1.0534)
Education 9-11	-.15142*	-.10701*	-.11419	.32022
	(.01917)	(.06295)	(.08927)	(.34252)
Education > 12	-.05271*	.11863*	.08559	.09431
	(.01645)	(.06583)	(.08485)	(.39639)
Non-Central City	-.16936*	-.23008*	.06346)	-.14493
	(.01665)	(.0800)	(.07574)	(.27316)
Non-SMSA	-.03644*	.10943*	-.06212	-.33731
	(.01722)	(.06341)	(.06212)	(.32569)
2 Children	---	---	.01231	-.11549
			(.06294)	(.25498)
3+ Children	---	---	.06232	.18084
			(.07393)	(.2925)
Northeast Region	---	---	-.02421	.35425
			(.08485)	(.37441)

Table 3.5, continued

Dependent Variable:	Log of Annual Income of Man Marital Status		AFDC Status	
	White	Nonwhite	White	Nonwhite
	(1976 SIE)		(1979 CPS-CSS)	
Explanatory Variables				
South Region	---	---	.03443 (.07147)	-.3532 (.2839)
West Region	---	---	.01854 (.07681)	.5486* (.30954)
Income Dummy	-4.70438* (.03961)	-3.92412* (.09033)	---	---
Divorced	-.26646* (.03146)	-.37883* (.0997)	---	---
Separated	-.23966* (.06915)	-.51656* (.1182)	---	---
Never-Married	-.68797* (.01606)	-.91063* (.06175)	---	---
AFDC Recipient	---	---	-.43357* (.08537)	-.44746 (.28329)
Intercept	7.3776	7.78489	8.69303	10.00843
R^2	.5720	.7486	.1779	.2973
F test	2216.38	350.38	9.169	1.299
Number of Observations	21570	1544	608	58
Mean of Dependent Variable	9.516	9.2119	9.581	9.385

Table 3.6

Marital Status Bias
Regression Controlled Mean Differences[1]

	Whites	Nonwhites
Married Men	100%	100%
Divorced Men	76.6%	68.5%
Separated Men	78.7%	59.7%
Never-Married Men	50.3%	40.2%

[1]The percentages are computed by taking the antilog of the dummy variable regression coefficient.

absent fathers may have lower incomes than their non-AFDC counterparts.

Since reliable data is sorely lacking on absent fathers, there is no way to accurately measure the extent and direction of this bias and take corrective action. The best available data with which to measure the bias is the 1979 CPS-CSS. In this survey, divorced and separated women who had a court order or other agreement for child support, and who were supposed to receive child support in 1978, were asked to give their former spouse's income. Some 57% of those asked were unable or unwilling to answer the question. The mean difference in reported absent father income was $7,684 between AFDC and non-AFDC respondents. This figure is misleading because it does not control for demographic differences between the two groups of respondents. A more accurate mean difference is obtained by employing dummy variable regression analysis. This method produces a "regression controlled mean" and is similar to the second method for testing and correcting for the marital status bias.

The income model for whites and nonwhites is the same as the first income function but with the addition of a dummy variable for AFDC recipiency. The equation is:

$$\text{Income} = a_0 + a_1\text{age} + a_2\text{age}^2 + a_3\text{age*education}$$
$$+ a_4\text{ed1} + a_5\text{ed11} + a_6\text{ed14} + a_7\text{city}$$

$$+ a_8 SMSA + a_9 Reg1 + a_{10} Reg3 + a_{11} Reg4$$

$$+ a_{12} 2kids + a_{13} 3{+}kids + a_{14} AFDC + e.$$

Income as reported in the 1979 Survey is categorical. That is, women were asked to specify their ex-husbands' income within a range. This resulted in six income categories or ranges. The dependent variable is the log transformation of the midpoint of each range.

The explanatory variables are the characteristics of the women. The variables and the expected relationship with the man's income are the same as the Step 1 income function. In addition, a dummy variable is included to capture the relationship between income and AFDC recipiency. It is expected that this relationship will be negative.

This analysis employs a sample of women from the 1979 CPS-Child Support Supplement. The white subsample has 608 observations while the nonwhite subsample contains 58 observations.

OLS dummy variable regression is utilized to estimate this potential bias.

The results of the AFDC regression appear in Table 3.5. The relationship between the absent fathers' income and AFDC recipiency is as expected--negative. For the white subsample, the regression corrected mean difference is statistically significant at better than the 5% level. The statistical significance for the nonwhite subsample falls to about the 12% level. The magnitude of the coefficients for both whites and nonwhites is approximately the same. Substantively, these mean differences amount to a 36% difference in income between the non-AFDC and AFDC absent fathers.

IV. IMPUTING INCOME ESTIMATES

The last step of the income estimation methodology is to compute AFDC absent fathers' income. The CRN data base is the data source for this step. A sample of 4,659 child support eligible AFDC families is utilized. The critical variables for estimating absent fathers' income are the AFDC mothers' age, education, race, residence (city vs. non-city; SMSA vs. non-SMSA), number of children, and the marital status of the children's parents as given by the State's "deprivation code." The deprivation code is used instead of the mothers' marital status because these may differ. For example, a woman may be divorced but receiving AFDC benefits for a child born out of wedlock. The mother's marital status would be coded "divorced" while the deprivation factor would be coded "parents never married." The parameter estimates from the Step 1 income function, the marital status dummy variables, and the AFDC dummy variable are added to the CRN data.

The computation of the income estimates using the parameter estimates from Step 1 is straightforward arithmetic. For example, the uncorrected estimated income of the absent father for a white custodial mother who is 25 years old with 12 years of education, lives in a central city and an SMSA, and has two children would be:

$$\text{Log Income} = 8.04844 + \underset{(age)}{.0621*25} - \underset{(age^2)}{.0008707*25}$$

$$+ \underset{(age*educ)}{.00116*300} + \underset{(ed1)}{.1799*0} - \underset{(ed11)}{.08367*0}$$

$$+ \underset{(ed14)}{.10191*0} + \underset{(non\text{-}city)}{.09671*0} - \underset{(non\text{-}SMSA)}{.22725*0}$$

$$+ \underset{(2kids)}{.05064*1} + \underset{(3+kids)}{.06684*0} = 9.4553.$$

The antilog of log income produces the geometric mean of income in dollars. This is the median income and is equal to $12,775. To find the arithmetic mean of income, the following formula is utilized:

$$E(Y|X) = \exp(\log Y + \sigma^2/2)$$

or

Income = antilog of (log income + variance/2) (Acthinson and Brown, 1957).

The variance of income is unknown. An estimate of the variance is the mean square error of the income regression or the standard error of the regression squared. Using this estimate of the variance and the formula, the mean of income equals $16,750. This means that on average it is expected that this woman and all women like her would have husbands with a mean income of $16,750.

The computed income still needs to be adjusted for differences due to marital status and AFDC recipiency. To reduce income for differences due to marital status, the marital status of the absent father should be available. Since this information is not available, the absent father is assumed to have the marital status indicated by the deprivation factor of his children. This assumption will cause the underestimation of the absent father's income for the following reason. In cases where the child's parents never married, the father will be assumed to be single and never-married. These men have the lowest income of any marital status male. The extent to which unmarried women mate with married or ever-married men is unknown, but is believed to be a nontrivial number; it is to this extent that income will be underestimated. Also, remarried men have higher average income than divorced men. The method does not account for this, thus further underestimating income.

The application of the marital status adjustment to the previous examples produces the following results. If the deprivation factor of the children indicates that their parents are divorced, then the father is assumed to be divorced. The result of applying the appropriate adjustment factor is to reduce the income estimate to $12,830. The deprivation factor of the children of never-married fathers would indicate that the father is single and results in an income estimate of $8,425.

To adjust the income estimates for differences due to AFDC recipiency is a simpler matter. All observations are AFDC recipients. Therefore, the income for divorced and separated absent fathers is reduced by the race appropriate adjustment factor. Applying this adjustment in the divorced example above results in an income estimate of $8,316.

The application of both the marital status and AFDC status correction factors in this manner leads to an underestimate of income. The underestimate is due to double counting. In other words, the methodology as presented treats the two biases as independent, but they are not. Because of data limitations the interaction of these two statuses cannot be measured. Therefore, to some unknown but presumably nontrivial amount, the incomes of divorced and separated AFDC absent parents are underestimated.

Thus far, the methodology has produced a point estimate of absent father income for each AFDC woman in the CRN sample. Each woman in the sample represents many women in the AFDC population. Not all of the absent fathers have the same income but rather they make up a distribution of income. This distribution of income is summarized by the point estimate. To further define these distributions of income the mean square error of the regression is used as an estimate of the variance for each observation.[7] The income distributions can now be defined by two parameters: the mean estimated by the point estimate and the variance. Defining the income distributions with these two parameters is important for two reasons. First, the distributions allow for later simulations of nonlinear normative standards which incorporate an income exemption or a set aside.

Consider the following example. Suppose that an absent father's ability to pay is equal to 20% of his gross income in excess of

$4,800. Suppose further that there are 100 absent fathers who belong to an income distribution with a point estimate or mean of $12,000. If only the point estimate is used to define the distribution, each man is assumed to have income equal to the mean. In this case, the child support revenue generated by the normative standard is equal to $144,000 [($12,000 - $4,800) * .20 * 100 fathers]. If the distribution is defined by two parameters, mean and variance, the result is $185,100 in child support revenue or $41,100 more than estimated using the one parameter distribution.[8]

The second reason for defining the income distribution by two parameters rather than one is that micro-simulation of child support impacts on costs, caseloads, and economic well-being will require this extra detail. The rationale for the second reason is very similar to the first. Utilizing the above example, suppose further that the 100 AFDC mothers received $3,000 each in AFDC benefits. Defining income by a single parameter results in child support defined by a single parameter. In this case the average child support transfer is equal to $1,440 (12,000 - 4,800 * .2). This results in none of these families being removed from the welfare rolls and total AFDC savings of $144,000 (1,440 per family * 100 families). If the distribution of income is defined by two parameters, the resulting child support distribution will have two parameters. Utilizing these parameters it is estimated that 9% of these women would be eliminated from the AFDC rolls and the total AFDC savings would be $142,388.

The impacts of defining the distribution by one parameter versus two parameters is the same when measuring the economic well-being of AFDC families. For these reasons income will be summarized by a two parameter distribution which is assumed to be log normal in dollars (or normal in log dollars).

V. RESULTS

The results of computing income estimates for the CRN sample of AFDC families appear in Table 3.7. The three rows of the first panel of the Table contain the three phases of income computation: (1) married men's income, (2) marital status adjusted income, and (3) AFDC adjusted income. Both the median and mean income are reported. The results are in 1981 dollars. The nonagricultural wage index is used to inflate income. The three columns contain the results for the total combined sample and the white and nonwhite subsample, respectively. The second panel of the Table contains the distribution of absent father's estimated income.

The mean income for all AFDC absent fathers stands at \$8,700, while the median income for these men is about \$2,000 less or \$6,700. Looking at the distribution of income (Panel 2) it can be seen that 70% of AFDC absent fathers have an income less than \$10,000, while just 25% have more than \$20,000 in income.

The most striking result that can be gleaned from Table 3.7 is that the expected income for AFDC absent fathers (row 3) is just half

Table 3.7

Absent Fathers' Estimated Median and Mean Income

	Total	White	Nonwhite
Phase 1			
Unadjusted Estimates			
Median	14380*	15198	13365
Mean	18855	19930	17540
Phase 2			
Adjusted for Marital Status			
Median	9470	11180	6480
Mean	12420	14662	8505
Phase 3			
Adjusted for Both Marital and AFDC			
Median	6685	7620	5385
Mean	8765	9990	7070

Distribution of Absent Fathers' Income

Income	Number of Absent Fathers	Percent of Absent Fathers
< 5000	24,048	36.1
5000-10,000	22,482	33.8
10,000-20,000	14,658	22.0
20,000-30,000	3,528	5.3
30,000-40,000	1,096	1.6
40,000-50,000	407	.6
> 50,000	345	.5
TOTAL	66,564	99.9

*1981 Dollars--wage index inflated.

that of married men (row 1). Although this result is not surprising given the assumptions underlying the income estimation methodology and the empirical evidence of regression equations (4) and (5), the magnitude of this difference is surprising.

Since nonwhites are expected to have lower income than whites, the total sample is disaggregated into whites and nonwhites (columns 2 and 3 respectively). For the Phase 1 married men's income estimates, nonwhites have an $1,800 deficit at the median while at the mean the difference between nonwhites and whites is $1,400. The income gap between these two groups broadens in Phase 2. The difference between nonwhite and white income adjusted for marital status is $4,700 at the median or $6,100 at the mean. The explanation for this widening of the income gap is due to differing demographics. More than twice as many nonwhites as whites are never-married (53% vs. 24%); never-married men have the lowest incomes, all other things being equal.

The income gap between nonwhites and whites narrows again after the AFDC adjustment is performed (Phase 3). Since the AFDC reduction factor is very similar for both groups (approximately 64% of marital status adjusted income), there must be some other explanation for this result. The answer for this phenomenon most likely lies in the percentage of never-married AFDC recipients and the assumption employed in the correction process which holds that never-married men do not differ in income with respect to parenting of children and whether or not these children become AFDC recipients. Since more than half of the nonwhite AFDC recipients are never-married, the AFDC adjustment factor is applied to less than half of the nonwhite recipients. On the other hand, since less than one quarter of the white AFDC recipients are never-married, the AFDC adjustment factor is applied to more than 75% of the white recipients.

It is difficult to ascertain the accuracy of the income estimates developed using the indirect methodology because there is no data on AFDC absent fathers' income. There are two data sources which may provide some benchmarks for comparison purposes although each has its drawbacks. The first yardstick against which to judge the income estimates is the 1979 CPS data on the income of men by marital status. The second source of comparative data is the income reported by divorced and separated fathers who self-identified in the 1976 Survey of Income and Education. These two data sources provide the best available comparative or control data.

The major shortcoming of both these data sources is that AFDC absent fathers cannot be identified for comparison purposes. Since AFDC absent fathers are believed to be lower earners than other absent fathers, the comparative figures from the CPS and SIE will be too high. To overcome this shortcoming, the absent father income estimates are compared prior to the AFDC adjustment. In addition, AFDC women are, on average, younger (four years) and less educated (1.4 grade levels) vis a vis their non-AFDC counterparts. Therefore, the comparative or control incomes from the 1979 CPS and 1976 SIE may be too high since both age and education are positively related to income.

The major shortcoming of the 1979 CPS income data is that a breakdown by marital status will combine men with children and men without children. Since it has been shown empirically in Regression 1 that children are positively related to income for whites, the comparison CPS data will be too low for whites. The extent to which incomes are too low is unknown.

The SIE does not suffer from the shortcoming of the CPS; the SIE permits the identification of 8,589 men who were previously married and had children under 18 at the time of their separation or divorce. The drawback of the SIE is that its sample is probably biased due to self-selection. That is, men were asked to identify themselves as parents. Only half as many men as women identified themselves as parents of children from a previous marriage. Therefore, the sample is suspect. In addition, never-married men were not asked the paternity questions.

The comparison of the CRN Phase 2 marital status adjusted income estimates and the 1979 CPS and 1976 SIE income data appears in Table 3.8. The table is divided into three panels. The first panel contains the total sample while the second and third panels contain the data for whites and nonwhites, respectively. Each panel contains three rows which report the data by marital status. The three columns of the table contain the CRN, CPS, and SIE income data, respectively.

The CRN income estimates in panel 1 are remarkably close to both the CPS and SIE data. In all but one cell the median and mean CRN incomes are $1,500 to $3,000 less than the control data. The median

Table 3.8

Income Comparisons: CRN Estimates, 1979 CPS, 1976 SIE by Marital Status and Race[1]

	CRN Marital Adjusted Income			
	Not adjusted for AFDC Status	Adjusted for AFDC Status	All Divorced/ Separated/ Never/Married Men	1976 SIE Divorced/ Separated Men with Children
TOTAL				
Divorced				
Median	12045	7765	13515	16490
Mean	15795	10185	16375	18660
Separated				
Median	10400	6725	10145	11800
Mean	13640	8820	14310	13980
Never-Married				
Median	5605	5605	7214	---
Mean	7350	7350	9370	---
WHITES				
Divorced				
Median	12580	8130	14230	16855
Mean	16500	10660	17200	19225
Separated				
Median	11900	7710	11760	14245
Mean	15600	10110	16205	16945
Never-Married				
Median	6340	6340	7590	---
Mean	8320	8320	9710	---
NONWHITES				
Divorced				
Median	9900	6360	9115	13040
Mean	12995	8350	11650	14160
Separated				
Median	8310	5310	7420	7835
Mean	10910	6970	9805	9250
Never-Married				
Median	4900	4900	4845	---
Mean	6425	6425	6955	---

[1]All income is in 1981 dollars; wage index inflated.

income for separated men is just $250 more than the CPS median but it is $1,400 less than the SIE median. The disaggregation of the total samples into whites and nonwhites produces panels 2 and 3 of the table. For both the subsamples, the CRN income estimates are relatively close to the control values.

In sum, the results of the income estimation process are consistent with available data on divorced, separated, and never-married men's income (1979 CPS) and absent fathers' income (1976 SIE).

VI. SUMMARY

In this chapter an indirect methodology using the women's characteristics was developed and utilized to estimate the men's income. This method was developed because there is no data available on absent fathers. The indirect method has three steps. The first step (Regression 1) estimated the relationship between the women's characteristics and their spouses' income. This was done for a sample of married women with children under 18. The second step (Regressions 2-5) sought to measure and correct for bias in the estimated relationship related to sample selection or marital status of the men, and AFDC status of the women. Sample selection or selectivity bias was not found to be an issue while both the marital status and AFDC status bias were found to be substantively significant. If these latter two sources of bias were left uncorrected, the income estimates for AFDC absent fathers would have been severely upwardly biased.

The third step consisted of utilizing the corrected estimated relationship between women's characteristics and men's income, and the characteristics of Wisconsin child support eligible AFDC women to compute estimated income distributions for absent fathers. The results of this computation were presented. In addition, the estimated incomes were compared to two external data sources.

Overall the estimated incomes for Wisconsin AFDC absent fathers are too low. This is due to the fact that each time there was a question of whether to under or overcorrect the decision was made to overcorrect. Thus, underestimation was the chosen route. In this way the income estimates provide a lower bound estimate. These decisions included assuming that absent fathers of out-of-wedlock children are never-married, single men; assuming all divorced absent fathers are not remarried and overcorrecting the combined marital status/AFDC bias.

Notes to Chapter 3

[1]It is generally accepted that income conditional on the characteristics of the population member is distributed approximately log normal. However, not conditioning on the characteristics, it has been shown that income is distributed displaced log normal (Metcalf, 1972).

[2]The selection of $50 was arbitrary. Sensitivity analysis using regressions using $25 or $100 instead produced no impact on the coefficients except for the income dummy variable.

[3]Two explanatory variables are excluded from the income equation. The excluded variables are the school and work status of the woman. Although these variables could assist in explaining income variation, their suitability as substitutes for the man's characteristics is not clear theoretically nor empirically. In addition, both of these characteristics of the woman are endogenous to the AFDC program. The AFDC program has incentives for women to return to school while at the same time creating severe disincentives to work. Therefore, these two variables are more associated with participation in the AFDC program than the income of the former husband.

[4]Tabulated from the 1979 CPS-CSS.

[5]A Wisconsin dummy variable was not employed in this step because the income estimates are for the North Central Region.

[6]Marital status interaction terms with age and education, though theoretically warranted, are not incorporated in this regression because of data limitation. The age and education in this regression is the man's while the woman's age and education is used to impute income; the two are not necessarily equal.

[7]Methods of defining the distribution by two parameters have been used previously. Garfinkel and Haveman (1977) used a random number generator to randomly distribute observations within a cell over a normal distribution defined by the mean and standard deviation. This was done to avoid the "artificial compression of the earnings capacity distribution." Schwartz (1981) also used the mean and standard deviation to construct population income distributions. He utilized a numerical integrative technique to calculate the probability that income was within some specified interval. These probabilities were then applied to the sample weight for each observation to build the distributions. The methodology used in this thesis, explained in detail in Chapters 4 and 5, is similar to the integrative technique of Schwartz.

[8]A detailed explanation and example of the use of distributions is given in Chapter 4.

Chapter 4

The Normative Standards: How Much Child Support Can Absent Fathers Afford to Pay?

I. INTRODUCTION

The estimates of absent father income developed in Chapter 3 are necessary but not sufficient for answering the primary question of this thesis: To what extent can child support transfers from absent fathers of AFDC children reduce AFDC costs and caseloads and the poverty of AFDC families? In order to address this question fully some level of child support must be generated by applying a normative standard to the absent fathers' income. Normative standards (discussed in Chapter 2) are a set of value judgments pertaining to whose responsibility the support of the child/ren is and what factors are to be considered in setting child support obligation levels.

In this chapter eight normative standards will be applied to the absent fathers' income. These eight normative standards reflect the key issues which effect the tax side of child support which were discussed in Chapter 2. Again, these five issues are:

1. Whose income should be considered?
2. Should there be a set aside or exemption?
3. Should new dependents effect prior obligations?

4. Should some notion of income sharing or cost sharing be used?

5. How high (or low) should marginal tax rates be set?

The fiscal impacts of changing normative standards will be assessed by comparing the total child support revenue generated, average support obligation and the percent of absent fathers who would owe nothing for each normative standard.

In addition, the supplementary information necessary to implement the various normative standards will be developed in this chapter. This supplemental data includes estimating new dependents for divorced absent fathers; producing income estimates net of federal, state and FICA taxes; and accounting for multiple absent fathers per AFDC family.

In the next section the eight normative standards will be described. The third section describes the methodologies and presents the results for the supplemental data. The fourth section will present the methodology for applying the eight normative standards to the absent fathers' estimated incomes. The last section will present the results of these applications.

II. NORMATIVE STANDARDS

There are eight normative standards that will be described in this section. Table 4.1 contains a summary of the characteristics of each standard. The first two normative standards are simply percent of total income standards. Each standard taxes the first through the

Table 4.1

Normative Standards

Standard	Income	Exemptions	Tax Rate	Need Standard
Total Income: IRP Tax Rate	Gross	None	17% one child 25% two children 29% three children 33% four or more children	Implied in Tax Rates
Total Income: Lower Tax Rate	Gross	None	13% one child 20% two children 24% three children 26% four or more children	"
Personal Exemption: IRP Tax Rate	Gross Gross	Poverty level for single person	17% one child 25% two children 29% three children 33% four or more children	"
Personal Exemption: Lower Tax Rate	Gross	Poverty level for single person	13% one child 20% two children 24% three children 26% four or more children	"
Personal and New Dependent Exemptions: IRP Tax Rate	Gross	Poverty level for new family size	17% one child 25% two children 29% three children 33% four or more children	"

Table 4.1, continued

Standard	Income	Exemptions	Tax Rate	Need Standard
Personal and New Dependent Exemptions: Lower Tax Rate	Gross	Poverty level for new family size	13% one child 20% two children 24% three children 26% four or more children	Implied in Tax Rates
Wisconsin State Child Support Guidelines	Net of Federal, State, and FICA taxes	1. Need for one Person based on BLS medium budget 2. Need for new dependent based on BLS budget	1. 100% of margin up to need 2. 15% one child, 10% each additional child	40% of Wisconsin Need Standard for one child (30% if custodian remarried) plus 30% for each additional child minus custodian's share of cost
New York Council Guidelines	Net of Federal, State, and FICA taxes	BLS lower budget for new family size + 10% of excess above BLS budget	1. 100% of margin up to BLS need for children and mother 2. Income above exemptions and need is divided evenly amongst dependents and absent father	BLS lower Budget for custodial family size

last dollar of income using a different tax rate per child. The second two normative standards are similar to the first two in that they use the same tax rates but the tax is applied only to income which is in excess of a personal, poverty level exemption. The fifth and sixth standards build upon the prior two by adding an exemption for the absent fathers' dependents. The seventh normative standard is an approximation of Wisconsin State Child Guidelines while the last standard is an approximation of the New York Community Council Guidelines.

A. Total Income Standards

The first two normative standards provide the simplest of standards to implement. They are a flat percent of total, gross absent father income for each eligible child. Therefore, the level of the support tax is effected solely by the number of eligible children. Of course the level of revenue generated by such a proportional tax is directly related to the level of absent fathers' income (e.g., a 20% tax on $10,000 generates $2,000 in support while a 20% tax on $50,000 generates $10,000).

The tax rates for the first normative standard come from an Institute for Research on Poverty proposal to modify the Wisconsin Child Support System (Garfinkel, 1983). The absent fathers' liability under this first standard is 17% of gross income for the first eligible child, an additional 8% for the second child and 4% additional for each of the third and fourth children. The maximum tax on the absent fathers is set at 33% of gross income. This is for four or more children. This tax rate schedule will be referred to as the "IRP tax rate."

The tax rates for the second normative standard are set lower then the first standard. The tax rate schedule for this second standard is 13% of gross income for the first child, 20% for two children, 24% for three children and 26% for four or more children. As in the first normative standard there is a cap on the tax rate. This tax rate schedule will be referred to as the "Lower Tax Rate." These two normative standards will be designated "Total Income Standards."

B. Personal Exemptions Standards

The second two normative standards incorporate the notion that the absent father should be liable for child support only out of income in excess of his own personal needs. To reflect this belief the second two standards embody a poverty level set aside or exemption for the absent parent. Only income in excess of this set aside, which was $4730 in 1981, is subject to a child support tax. The tax rates for the third and fourth normative standards will be the same as the first and second standards, respectively the IRP tax rate and the lower tax rate. These second two normative standards will be referred to as "Income Above a Personal Exemption Standard."

C. Personal and New Dependent Exemption Standards

The fifth and sixth normative standards add to the personal exemption an additional exemption or set aside for any new dependents. This new exemption is equal to the U.S. Official Poverty Line for the appropriate family size.[1] The tax rates, to be applied only to income in excess of the exemptions, are the same as the tax rates in standards one and two. The fifth and sixth normative standards will be referred to as "Income above Personal and New Dependent Exemption Standards."

D. Wisconsin State Guidelines

The State of Wisconsin Bureau of Child Support Guidelines provides the seventh normative standard. Because of data limitations only an approximation of this normative standard is possible. There are four major components used in determining the level of the support obligation: net incomes of both parents, self-support set asides, basic needs of the children, and new dependent exemptions. Each presents some problems.

1. Net income: the guidelines state that the incomes of both parents be considered when setting support obligation levels. The definition of income includes income from all sources (earned and unearned) excluding welfare income. Net income is the gross income from all sources minus allowable deductions for federal and state taxes, FICA, business expenses and health insurance premiums. In

addition to the parents' personal income, the income of a new mate (whether married or cohabitating) may also be included in the calculation of net income.

The absent fathers' income estimates developed in Chapter 3 include income from all nonwelfare sources. Income estimates net of federal, state and FICA taxes are developed later in this chapter. Deductions for business expenses and insurance premiums are not possible for the absent father. Although the absent fathers' new dependents are estimated the income of the new wife is not. Therefore, the new wives' income is assumed to be zero. This will lead to an underestimate of child support liability.

The AFDC custodial mothers' net nonwelfare income data are available from the CRN file. In addition, work expense data are available which could be deducted. This will not be done in order to offset the lack of this data for the absent fathers. As with the fathers, the new spouse income data is not available and is assumed to be zero. This will lead to an overestimate of the absent fathers' support liability. This overestimate is more serious then the underestimate due to the lack of absent fathers' wives' income data because the new husbands will have higher incomes then the new wives.

If either parent has insufficient income to meet his/her share of their children's basic needs any property or assets which are not directly related to earning a livelihood may be liquidated and the proceeds used to meet their liability. Asset data is not available which leads to the possibility of underestimating absent fathers' liability if the assets are the absent fathers or overestimating his liability if the assets belong to the custodial mother.

2. Self-support set asides: the Guidelines direct "the court to allow the parents to provide themselves no more than the bare necessities until they have provided the bare necessities for their children." In accordance with this each parent deducts a basic needs allowance from their net income, the result is their income available for support. This basic allowance is based on the Bureau of Labor Statistics annual intermediate family budget for a single person and is set at $4800.[2] If the parent is nonworking and remarried or cohabitating the basic need allowance is set at 40 percent of single person budget. If the new mate of either the absent or custodial parent is working then the basic allowance is reallocated to reflect this situation. This can not be implemented in this simulation because new spouses (mates) are assumed to have zero income.

3. Basic needs of the children: the bare necessities or basic needs are computed based on the basic needs of the parents. The first child has needs equalling 40 percent of single person basic allowance of $4800. Each additional child has a basic need equal to 30 percent of the basic allowance. In addition, "special needs such as health care expenses and child care to permit the custodian to work must be added." There are no measures of the AFDC children's special needs. Therefore this cannot be added leading to some underestimate of support liability. Child care costs or day care expenses are available from the CRN file and will be added to the children's needs. Income

of the children must be deducted from the need. This too is unavailable and will lead to some overestimate.

4. New dependent exemptions: after the absent father has met his share of the basic support needs of the eligible children his remaining income less deductions for new dependents is made available for supplemental support of his eligible children. The new dependent exemptions are equal to a 40 percent of the basic allowance ($4800) for the first new dependent and 30 percent for each additional dependent. If a new spouse earns more than $325 per month the computation for the first dependent changes. Because there are no estimates of new spouse earnings exemptions will be overestimated and support liability will be underestimated.

Once these four major components are determined the child support liability of the absent father is computed. This support liability has two parts:

a. Basic Child Support Allowance (BCS) and

b. Support Above the Basic Allowance (SABA).

The BCS is the absent fathers' share of the basic needs of the children. His share is equal to the basic needs of the children times the ratio of his income available for support to the combined absent and custodial parents' available income. The marginal tax rate on his available income is 100 percent until his BCS obligation is met.

The SABA is computed on the absent fathers' excess available income after adjustments for the BCS obligation and allowances for new dependents. The tax rate on this excess income is based upon the number of eligible children. It is equal to 15% for the first child and 10% for each additional child. The total child support liability is equal to the sum of the BCS and the SABA.

E. New York Council Guidelines

The final normative standard is the guideline prepared by the Community Council of Greater New York under contract with the U.S. Office of Child Support Enforcement (Sauber et al., 1977). This standard is similar to the Wisconsin Standard in that it uses both absent and custodial parents' income, allows for personal and new dependent deductions and uses a standard of need. It also has both a basic allowance and a supplemental benefit which make up the parents liability. Similarly it suffers from the same problems in measuring the three (rather then four) major components which are used to compute the support liability. Therefore, only an approximation of this standard is possible.

1. Net income: the defintion of net income is similar to that in the Wisconsin Standard. It is gross income minus allowable deductions. The deductions for the New York standard are more extensive. They include federal, state and FICA taxes, union dues, retirement contributions which are a condition of employment, medical expenses in excess of a standard, educational or special child care expenses, day care costs and car payments (if used for employment). Although data is not available for most of these deductions the net income estimates

do reflect a major deduction, federal, state and FICA taxes. As a consequence net incomes are overestimated.

2. Self-support set asides:[3] the New York standard allows a large initial set aside for the absent father and his new dependents. This family exemption is equal to the Bureau of Labor Statistics lower level living standard. If there is a new spouse whose income is not included in the absent fathers' income this spouse is not included in the calculation of the exemption. Due to data limitations spouses are assumed to have zero income and thus will be included in the exemption. This will lead to some underestimate of support liability.

3. Basic needs of the custodial family: this differs from the Wisconsin Standard. The New York Standard uses a measure of family need rather then only the children's need. The custodial family's basic need is equal to the Bureau of Labor Satistics lower level living standard, for family size, minus the net income of the custodial mother. Again, new spouses' income data are not available thus an overestimate of family need will result. Concomitantly there will be an overestimate of child support liability.

Using these three major components, net income, self-support set aside, and family need, the two parts of the child support liability can be computed. First, the BCS is computed on the absent fathers' available income. His available income is equal to his net income minus the self-support set aside multiplied by 90 percent. That is, 90 percent of the absent fathers income above the self-support set aside is available for child support. The tax rate on this available income is 100 percent until the basic needs of the custodial family are met. Second, the SABA is computed on available income which remains after the BCS has been met. The tax rate for the SABA is equal to the ratio of the number of eligible children to the total of the eligible children, new dependents and himself. The total child support liability is equal to the sum of the BCS and the SABA, if any.

III. SUPPLEMENTARY INFORMATION

In this section the supplemental data necessary to implement the normative standards will be developed. This supplemental information includes estimating the number of new dependents for the divorced absent fathers; producing income estimates net of federal, state and FICA taxes; and accounting for multiple absent fathers per AFDC family.

A. New Dependents

Four of the eight normative standards that will be simulated incorporate some income exemption for the absent fathers' new dependents (new spouses and/or children). Again, information is not available for AFDC absent fathers. Therefore, it is necessary to estimate the number of new dependents using an indirect method similar to the income estimation methodology presented in the previous chapter. The estimation of absent fathers' new dependents is a two step process. First, an additional data source, the 1976 SIE, is used to estimate the relationship between formerly married men's characteristics and the number of new dependents. The estimated parameters from step 1 are added to the CRN data and combined with the AFDC mothers' characteristics to impute the number of new dependents for the absent fathers.

The methodology for estimating the number of new dependents for divorced absent fathers is indirect and has two parts. The first step estimates the relationship between a man's characteristics and the number of new dependents. The second step uses this estimated relationship, substitutes the woman's characteristics for the man's and imputes the number of new dependents for absent fathers. Since it is not valid to posit a perfect matching or a one to one matching on characteristics such as age and education, ranges of these variables will be used to construct dummy explanatory variables. In this way men and women are assumed to mate within defined ranges (e.g., men with grammar school education mate with women who have grammar school education or 25-34 year old men mate with 25-34 year old women).

1. Estimation

The first step of the new dependent methodology is to estimate the relationship between a man's characteristics and the number of new dependents. The estimation employs the following data for each man: present marital status, number of children, age, education, race, region of residence, and whether or not he lives in an SMSA or central city. The following model is used to estimate this relationship:

$$\text{New Dependent}_i = a_{0i} + a_{1i}\text{Age25-34} + a_{2i}\text{Age35-44}$$
$$+ a_{3i}\text{Age}\geq 45 + a_{4i}\text{educ9-11} + a_{5i}\text{educ=12}$$
$$+ a_{6i}\text{educ>12} + a_{7i}\text{NE Region}$$
$$+ a_{8i}\text{South Region} + a_{9i}\text{West Region}$$
$$+ a_{10i}\text{NonCity} + a_{12i}\text{NonSMSA}.$$

There are four regressions to be estimated (i=1, 4), one each for the number of dependents.[4] In addition, separate sets of regressions will be performed for whites and nonwhites.

The four categorical or discrete dependent variables are constructed from the marital status and children data and are simply a count of dependents which are then converted to dummy variables. If the man is currently married with no children then he has one dependent while a currently married man with three children has four dependents. The dummy dependent variable of the first regression is coded 1 if the man has one or more new dependents; 0 otherwise. The second regression has a dummy dependent variable coded 1 if the man has two or more new dependents and 0 otherwise. The third regression has a dummy dependent variable coded 1 if the man has three or more new dependents and 0 otherwise. Finally the fourth regression's dependent variable is coded 1 if the man has four or more new dependents and 0 otherwise.

The explanatory variables[5] include:

a) Age--a set of three dummy variables (coded 1/0) is included in the model for age. These are (1) age greater than 24 and less than 35; (2) age greater than 34 and less than 45; (3) age greater than 44. Age less than 25 is the missing category or comparison group.

b) Education--a set of three dummy variables. These are some high school, high school graduate, and college. Education less than 9 years (grammar school) is the comparison category.

c) Region--a set of three dummy variables are constructed to capture regional variations associated with remarriage and parenting. The three dummy variables are for the Northeast, South, and West regions, while the North Central region is the comparison group.

d) non-SMSA (vs. SMSA)--a dummy variable designed to capture the effect of living outside of metropolitan areas.

e) Non-Central City (vs. Central City)--a dummy variable designed to capture the effect of living outside of the nation's central cities.

The samples used to estimate the two sets of new dependent regressions, white and nonwhite, are from the 1976 SIE. The selected samples are made up of men who were previously married, had children under 18 at the time of their divorce and were divorced after 1958. The sample sizes are 5352 for whites and 543 for nonwhites.

Logit regression is utilized to estimate the relationship between the men's characteristics and the dichotomous dependent variables. The use of logit regression produces the log odds that a man has some number of new dependents (i.e., one or more new dependents vis-à-vis no new dependents). The regression samples are weighted by the Census Bureau's weight factor divided by the mean population weight.

The results of the Step 1 logit regressions appear in Table 4.2. The two panels of the table contain the results for the white and non-white subsamples, respectively. The columns of each panel contain the results of the four logit regressions while the rows contain the explanatory variables and other pertinent information.

The coefficients as well as the predicted values of the logit regressions are the log of the odds (or log odds) of an event occurring. The interpretation of these results is not straight-forward. This is because the relationship between the dependent and explanatory variables is log-linear or S-shaped rather than the more familiar linear or straight line relationships estimated with OLS regressions.

In general there are a few things worth noting from Table 4.2. First, for the white subsample "age" is the most significant predictor of new dependents while for the non-white "education" is the significant variable. In both subsamples whether or not one lives in a central city has no significant impact while whether or not one lives in an SMSA is significant only when differentiating between no dependents and new dependents. In addition, there are only slight

Table 4.2

New Dependent Logit Regression Results

Dependent Variable	One or more VS None	Two or more VS one or none	Three or more VS two or less	Four or more VS three or less
Explanatory Variable				
		Panel 1 White Subsample		
Age 25-34	1.038 (.1616)*	.9892 (.2214)	1.964 (.4915)	4.330 (1.936)
Age 35-44	1.624 (.1645)	1.280 (.2215)	2.619 (.4899)	5.455 (1.933)
Age > 44	1.258 (.1649)	.3975 (.2263)	1.800 (.4941)	4.327 (1.937)
Educ 9-11	.1005 (.1179)	-.1145 (.1213)	.0742 (.1475)	.0892 (.2044)
Educ = 12	.1101 (.1043)	-.3153 (.1078)	-.2927 (.1341)	-.5521 (.1926)
Educ > 12	-.2184 (.1058)	-.6452 (.1137)	-.6736 (.1452)	-1.082 (.2225)
NE Region	-.0109 (.0939)	-.0288 (.1033)	-.0044 (.1291)	-.0568 (.2037)
South Region	.1770 (.0784)	.0848 (.0841)	-.0496 (.1082)	.1128 (.1644)
West Region	.0897 (.0838)	.0012 (.0971)	-.1877 (.1208)	-.1922 (.1930)
Non-SMSA	.3420 (.0828)	.1256 (.0872)	.1265 (.1142)	.1168 (.1806)
Non-City	-.2158 (.8914)	.01256(.0919)	.0511 (.1186)	.1502 (.1821)
Intercept	-.8001	-1.678	-3.741	-7.346
Number of Observations	5352	5352	5352	5352
Mean of Dependent Variable	.676	.28	.14	.05

Table 4.2, continued

Dependent Variable	One or more VS None	Two or more VS one or none	Three or more VS two or less	Four or more VS three or less
		Panel 2 Non-White Subsample		
Age 25-34	.6745 (.5770)	.9509 (.8275)	2.887 (2.554)	4.816 (6.631)
Age 35-44	1.130 (.5799)	1.181 (.8296)	2.806 (2.556)	4.740 (6.632)
Age > 44	.9406 (.5834)	.7311 (.8365)	2.523 (2.560)	4.378 (6.635)
Educ 9-11	-.5722 (.2952)	-.8901 (.3365)	-.7237 (.4464)	-1.033 (.5577)
Educ = 12	-.1656 (.2712)	-.2317 (.2808)	-.1602 (.3583)	-.8733 (.4407)
Educ > 12	-.3693 (.2991)	-.4383 (.3202)	-.2981 (.4128)	-.2014 (.4746)
NE Region	-.0686 (.2748)	-.3511 (.3679)	-.2114 (.5329)	-1.067 (.8947)
South Region	.3519 (.2146)	.5714 (.2480)	.5529 (.3478)	.5393 (.4187)
West Region	-.0281 (.2435)	.3969 (.2841)	.7689 (.3765)	.2680 (.5432)
Non-SMSA	.5209 (.2492)	.3930 (.2559)	.3158 (.3368)	.3835 (.4298)
Non-City	-.2024 (.3073)	.0698 (.3069)	.2537 (.3862)	.3409 (.4757)
Intercept	-.6626	-2.023	-4.950	-7.002
Number of Observations	543	543	543	543
Mean of Dependent Variable	.582	.28	.155	.085

*Numbers in parentheses are standard errors.

regional differences. Therefore, age for whites and education for nonwhites are the significant factors in examining new dependents.

2. Imputing New Dependent Estimates

The second step of the estimation procedure is to impute new dependents for the AFDC absent fathers. This step uses the estimated parameters from Step 1 and the characteristics of formerly married AFDC mothers. The variables used include the mothers' age, education, race, and residence.

Straightforward arithmetic is used to compute the "log-odds" of each absent father having some number of new dependents. The log odds are then converted into a simple probability using the formula

$$\text{Prob(New Dependent}_i) = \frac{e^{\alpha_i + \beta_{ji}X_{ji}}}{1 + e^{\alpha_i + \beta_{ji}X_{ji}}} \tag{4.31}$$

where i goes from 1 to 4 representing each logit regression and j goes from 1 to 8 for the explanatory variables and their respective coefficients. The result of this computation is the probability that each absent father has:

1 or more new dependents,
2 or more new dependents,
3 or more new dependents,
4 or more new dependents.

Next these four probabilities are used to calculate five discrete probabilities that a distribution of absent fathers has discrete number of new dependents--none to four plus. The calculations are as follows:

Prob (no dependents) = 1 - Prob (1 or more)
Prob (1 dependent) = Prob (1 or more) - Prob (2 or more)
Prob (2 dependents) = Prob (2 or more) - Prob (3 or more)
Prob (3 dependents) = Prob (3 or more) - Prob (4 or more)
Prob (4+ dependents) - Prob (4 or more).

For example, a white custodial mother who is 25 years old with 12 years of education does not live in a central city nor an SMSA would have an absent ex-husband with the following log odds of having new dependents:

$$\text{log odds (1 or more)} = -.8001 + \underset{\text{(age 25=34)}}{1.038*1} + \underset{\text{(educ=12)}}{.1101*1}$$

$$+ \underset{\text{(non-SMSA)}}{.3420*1} - \underset{\text{(non-city)}}{.2158*1} = .4742$$

$$\text{log odds (2 or more)} = -1.678 + \underset{\text{(age 25-34)}}{.9892*1} - \underset{\text{(educ=12)}}{.3153*1}$$

$$\text{log odds (3 or more)} = -3.741 + \underset{\text{(25-34)}}{1.964*1} - \underset{\text{(educ=12)}}{.2927*1}$$

$$+ \underset{\text{(non-SMSA)}}{.1265*1} + \underset{\text{(non-city)}}{.0511*1} = -1.8921$$

$$\text{log odds (4 or more)} = -7.346 + \underset{\text{(age 25-34)}}{4.330*1} - \underset{\text{(educ=12)}}{.5221*1}$$

$$+ \underset{\text{(non-SMSA)}}{.1168*1} + \underset{\text{(non-city)}}{.1502*1} = -3.3011$$

The probabilities computed using formula (A) are:

Prob (1 or more) = .616
Prob (2 or more) = .296
Prob (3 or more) = .131
Prob (4 or more) = .037.

The probability that a man has a discrete number of new dependents is calculated using these four predicted probabilities.

Prob (0 dependent) = 1 - .616 = .384
Prob (1 dependent) = .616 - .296 = .320
Prob (2 dependents) = .296 - .131 = .165
Prob (3 dependents) = .131 - .037 = .094
Prob (4+ dependents) = .037

The application of the new dependent probabilities utilizes the weight factor. For example assume that the woman in the above example represented 100 women in the AFDC population (i.e., weight factor equal to 100). Each of these 100 women have an absent husband. Using the five probabilities computed above results in 38 of the absent men having no new dependents; 32 would have one dependent; 17 men would have two dependents; 9 would have three and 4 would have four or more dependents. Applying this same method to the CRN sample produces a distribution of new dependents for the AFDC population of divorced absent fathers.

The results of the application of this method are displayed in Table 4.3. The five rows of the table contain the number of dependents while the three columns contain results for the total population and the white and non-white subsamples. Just over one-half of all divorced absent fathers have one or more dependents. For the white population, close to 55 percent have one or more dependents

Table 4.3

Estimates of New Dependents for Divorced Absent Fathers

New Dependents	Total		Whites		Nonwhites	
	Count	Percent	Count	Percent	Count	Percent
0	11,169	49.5	8,187	46.0	2,982	62.6
1	7,100	31.5	5,791	32.5	1,309	27.5
2	2,507	11.1	2,159	12.1	348	7.2
3	1,205	5.3	1,193	6.7	12	.3
4+	581	2.6	465	2.6	116	2.4

while for the non-whites less than 40 percent have one or more dependents. This seemingly low incidence of dependents may be related to two factors. First, AFDC divorced mothers are relatively young and by assumption their mates are young. Second and more important is the proximity to the divorce event as indicated by the length of time on AFDC.[6]

The incidence of dependents for all AFDC absent fathers utilizing this methodology and its assumptions is just 17 percent. This is most certainly an underestimate of the incidence of dependents for absent fathers. The underestimate is due to the assumption used in imputing new dependents; that is, the marital status of the children's parents is the marital status of each parent. In other words the parents of an out-of-wedlock child (parents never married) are assumed to be never married or single people. Single men by assumption do not have new dependents. The same is true for separated men. Only divorced men can possibly have new dependents. In reality this is not the case. Although the parents of a child may not be married to each other this does not preclude them from being married to another or divorced or separated for that matter. The methodology fails to account for these events due to data limitations; it assumes no dependents where some may exist.

The impact of this underestimation is that child support liability will be overestimated when new dependents are a factor in the normative standard. Therefore, the fifth and sixth normative standards will overestimate revenue or liability. The same is true for both the

Wisconsin and New York standards although the overestimate is reduced by the use of net income rather than gross income. Net income is underestimated if the number of dependents and thus deductions are underestimated. In addition the assumption that absent parents of out-of-wedlock children are single men further offsets the overestimates. Never married or single absent fathers have the lowest incomes.

B. Net Income Estimates

Two of the eight normative standards, the Wisconsin and New York Guidelines, use net or after-tax income rather than gross income. Therefore, it is necessary to simulate Federal, Wisconsin State and FICA tax regimes.

1. The FICA or Social Security tax is the simplest regimen to simulate. The 1981 tax rate of 6.65% is applied to all incomes up to a ceiling of $29,700. The maximum tax liability is $1975. This procedure will overestimate taxes and thus will underestimate net income. The income estimates from Chapter 3 combine earned and unearned income while Social Security taxes apply to earned income only.

2. Federal and State tax liability is calculated by subtracting the standard deduction for family size from the estimated gross income and applying a tax rate for the appropriate income bracket. This requires the incorporation of new dependents as defined in the previous section. This results in five net income distributions for each sample observation (i.e., one income distribution for each number of

possible new dependents). For example, assume that the predicted gross income for absent ex-husbands in the previous new dependent example (25-year-old white mother) is $12,000. The distribution of new dependents for the 100 absent fathers in the population is the same as in the previous example: 38 have none, 32 have one, 17 have two, and so on. The application of the three tax regimes results in 38 absent fathers having net income of $9500, 32 fathers with net income of $9740, 17 fathers with $9950 in net income, 9 absent fathers with net incomes of $10,150, and 4 fathers with $10,355 in net income.

Federal and State taxes will be overestimated, thus downwardly biasing the net income estimates. This will occur for several reasons. First, the income estimates developed in Chapter 3 combine earned and unearned income which includes both taxable and nontaxable income sources. There is no way to separate out the nontaxable income of the absent parent. Therefore taxes computed on total income will be too high. Second, the standard deduction is used in all cases; itemization of deductions is not possible because of data limitations. To the extent that itemizing deductions would reduce taxes and increase net income, the income estimates will be underestimated. Third, the size of the standard deduction is based upon the number of dependents. Thus, to the extent that the dependents are underestimated, taxes will be overestimated. The result is the net income estimates are downwardly biased. The results of applying the three tax regimes to the estimated gross income is that the median net income is $6020 and the mean net income is $7900 compared to $6685 and $8675 before taxes.

C. Number of Absent Fathers

The number of absent fathers per family is necessary to compute an accurate estimate of child support liability. Absent fathers should not be taxed for children they did not parent. Consider the following example. An AFDC family has four child support eligible children. The estimated absent father's income is $10,000. If the Percent of Total Income IRP Tax Standard is applied to this father (assuming that he parented all four children), the annual child support obligation would be $3300. But if there were two absent fathers (one with three children and the other with one child), the total child support obligation would be $4600 or $2900 for the father of three and $1700 for the father of one. A misestimation of child support will occur each time there are uncounted absent fathers.

The CRN data base does not contain the number of absent fathers. A method incorporating the children's last names is utilized to account for multiple fathers. The last names of the eligible children within a family unit are matched and a count is obtained for each match and mismatch. This results in a count of different last names and number of children with each last name. Assuming that each last name represents a different absent father, the results are interpreted as a count of absent fathers for each family unit and the number of children each father is responsible for. The result of this procedure is that 88% of AFDC families had one absent father, 11% had two and 1% had three or more.

This method for correcting the potential bias by identifying and counting different last names has a shortcoming which may lead to either under or over counts of multiple absent fathers. This shortcoming arises from the assumption implied by the procedure, namely that children with the same last name have the same absent father. Conversely, children with different last names have different absent fathers. Some examples may help to clarify this problem. An example of the undercount would be a never-married woman with three children, who all have the same last name. The procedure produces one absent father responsible for three children. The problem arises when the three children have different fathers, but the mother chooses to give all her children her last name. An example of the overcount would be if a divorced woman has two children with two different last names but the same father. It is possible that the younger child was born after the divorce and the mother decided to give that child her last name while not changing the older child's name. The extent of either of these situations, and others like them, are unknown.

IV. SIMULATION METHODOLOGY

A. Normative Standards

The absent fathers' income must be taxed using a normative standard to generate some level of child support. The simulation or application of the eight normative standards requires some or all of the following data: the estimated distribution of absent fathers' net and gross incomes, the custodial mothers' earned and nonwelfare unearned income, the number of child support eligible children per father, and the estimated number of absent fathers' dependents. In addition, the Official U.S. Bureau of Census Poverty Lines and Bureau of Labor Statistics Family Budgets are used as exemptions or set-asides where appropriate.[7]

If it were not for the distribution of income, multiple absent fathers and new dependent and personal exemptions, the normative standard simulations would be relatively straightforward. The formula for computing child support levels with these standards is not simply income minus the exemption times a tax rate. Such a formula has been shown to have the potential of estimating zero child support from entire distributions of absent fathers. In dollars, negative taxes are a possibility.[8] To avoid these potential problems the two-parameter (mean and variance) distribution of log income is utilized. This permits the estimation of child support liability for those absent fathers with income above the exemption while those with low incomes may pay nothing.

All computations are done in log dollars rather than dollars. This permits the use of normal probability distributions in computing support liabilities. The use of log dollars results in proportional taxes being converted to linear taxes. One nice property of linear taxation is that the variance of the taxes (child support) is equal to the variance of income. Also it should be noted that the exponential of mean log dollar income is equal to the geometric mean or median in dollars. The mean of dollar income is equal to the exponential of the mean log dollar income plus one-half its variance ($e^{y+\sigma^2/2}$). For example if the mean log dollar income is 9.159 and its variance is .54216 then the median dollar income is $9500 and the mean $12,460.

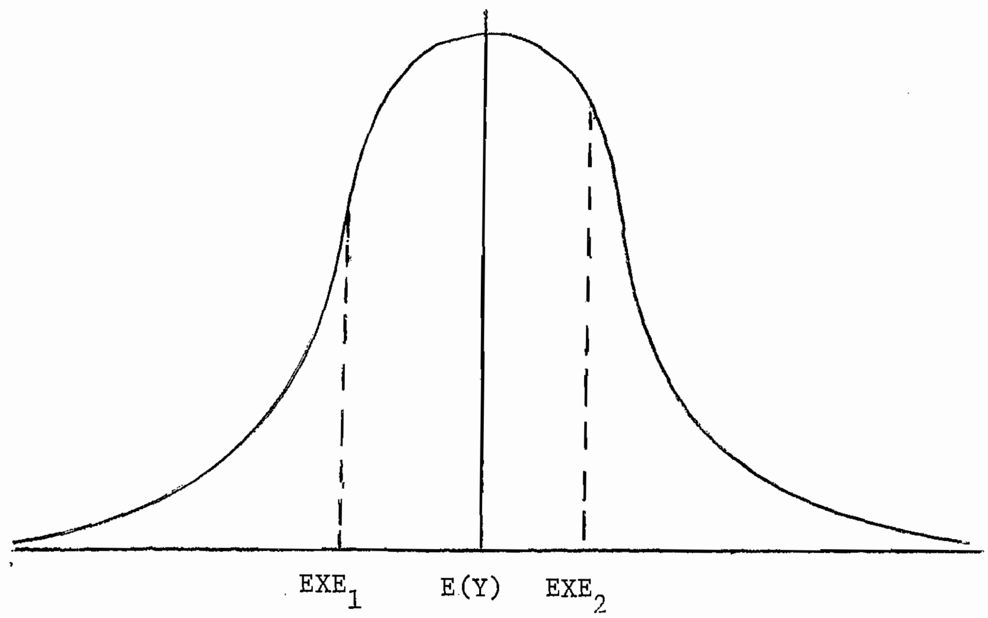
Two of the eight normative standards are linear. That is, they apply a linear tax to the first dollar of income through the last dollar. The remaining six standards employ an exemption or exemptions above which income is taxed. The results of these six standards will combine those absent fathers with income below the exemption who will pay zero child support and those fathers above the exemptions who will pay child support.

Diagram 4.1 shows a bell-shaped curve representing a normal distribution of absent fathers' income in log dollars. The distribution is defined by its mean estimated (in Chapter 3) by the predicted value of log income and the variance estimated by the mean square error of the regression.

If the distribution is defined by the mean only and the exemption is somewhere below the mean of income as shown by EXE_1 then all the absent fathers in that particular distribution would pay some level of child support equal to the mean income minus the exemption (EXE_1) times the tax rate. On the other hand if exemption is somewhere above the mean income <u>none</u> of the absent fathers would be expected to pay support. The reality is that in both of these cases some men will be

Diagram 4.4.1

Absent Father Income Distribution



expected to pay child support (i.e., those to the right of the exemption), while some will not be expected to pay (i.e., those to the left of the exemption). To find the number of absent fathers to the left or right (below or above) of the exemption the mean and variance, combined with the assumption that log income is normally distributed, are used to find the probability that income is above or below the exemption. This is the essence of the method for simulating the normative standards.

The methodology has four basic steps. First, find the probability that income in a particular distribution is in a specified range or interval. Second, compute the mean of income for the interval or truncated distribution. Third, calculate the variance for the truncated distribution. Finally, tax the truncated distribution of income to create a distribution of child support.

In the following discussion of methodology let:

Y = the expected value of log income. This is the predicted income from Chapter 3.

C = the custodial mother's non-welfare income

σ^2 = variance of income from the mean square error of the regression

TR = log tax rate for the appropriate normative standard and number of children

a = the lower truncation point

b = the upper truncation point

X = an exemption or set aside

Z_N = a standardized variable

The methodology utilizes four general formulae or equations to simulate the normative standards.[9] The first equation is used to compute the probability that income is within an interval.

$$\text{Prob } (a < Y < b) = \int_a^b f(x)dx \qquad (4.4.1)$$

The second equation calculates the mean of income within the interval:

$$E(\hat{Y} \mid a < y < b) = Y + \sqrt{\sigma^2} * \frac{f(Z_a) - f(Z_b)}{F(Z_b) - F(Z_a)} \qquad (4.4.2)$$

where the f(•) and the F(•) are the probability distribution (pdf) and cumulative density (cdf) functions of a standard normal variable.

The variance of the truncated income distribution is calculated using equation 4.4.3

$$V(Y \mid a < y < b) = \sigma^2 * \left[1 + \frac{Z_a f(Z_a) - Z_b f(Z_b)}{F(Z_b) - F(Z_a)} - \left(\frac{f(Z_a) - f(Z_b)}{F(Z_b) - F(Z_a)}\right)^2\right] \qquad (4.4.3)$$

Finally, child support is calculated for income within the interval:

$$CS = \hat{Y} + TR + \log(1 - e^{x-\hat{y}}) \qquad (4.4.4)$$

1. Total Income Standards

The first two normative standards are the Percent of Total Income Standards using the IRP and Lower tax rate, respectively. Since there is no exemption nor caps on the amount of income to be taxed, a and b are set to negative and positive infinity, respectively. Therefore, equation 4.4.1 reduces to unity and equations 4.4.2 and 4.4.3 reduce to identities.

$$\text{Prob}(a < y < b) = \int_{-\infty}^{\infty} f(x)dx = 1 \qquad (4.4.5)$$

$$E(\hat{Y} \mid a < Y < b) = Y \qquad (4.4.6)$$

$$V(\hat{Y} \mid a < Y < b) = \sigma^2 \qquad (4.4.7)$$

Further equation 4.4.4 used to compute child support becomes simply:

$$CS = Y + TR \qquad (4.4.8)$$

These two standards are simply linear transformations of income.

Consider an example in which the predicted income is 9.159 log dollars ($9500) and the absent fathers who make up the distribution are responsible for two children. Using the Lower Tax Plan (Standard 2) the log tax rate is -1.6094 (20%). Child support is computed by substituting in equation 4.4.8.

$$\begin{aligned} CS &= 9.159 + -1.6094 \\ &= 7.5496 \end{aligned}$$

The variance of child support is equal to the variance of income. If the absent fathers are white then the variance is equal to .54216. So, in other words, the Lower Tax Plan generates a distribution of log dollar child support with a mean value of 7.5496 ($1900) and a variance of .54216.

2. Personal Exemption Standards

The second two normative standards are the Percent of Income Above a Personal Exemption Standards. These two standards apply a linear tax (in logs) to excess income or income above the exemption. The personal exemption for both standards is set at $4730; poverty level income for a single person.

These two standards are implemented by first determining the probability that income in a specific distribution (an observation) is below or above the exemption. Using equation 4.4.1 and substituting the exemption for a and positive infinity for b produces:

$$\text{Prob}(x < Y < \infty) = \int_{x}^{\infty} f(Z)dz \tag{4.4.9}$$

which is equivalent to 1-Prob (y < x) or

$$1 - \int_{-\infty}^{x} f(z)dz. \tag{4.4.9a}$$

The portion of the income distribution which is above the exemption given by equation 4.4.9 is liable for some level of child support. This can be seen in Diagram 4.4.2. The portion of curve depicted in the diagram to the right of the exemption (X) will be liable for support while to the left no child support is due.

The next step is to determine how much income is available for the portion that are liable for support. This is found by substituting in equation 4.4.2 for a and b. The result is that

$$E(Y \mid Y > X) = Y + \sqrt{\sigma^2} * \frac{f(Z_x)}{1 - F(Z_x)} \qquad (4.4.10)$$

The expected value of income is the mean of the truncated distribution. The variance of the truncated income distribution is found by substituting for a and b in equation 4.4.3:

$$V(Y \mid Y > X) = \sigma^2 * \left[1 + \frac{Z_x f(Z_x)}{1 - F(Z_x)} - \left(\frac{f(Z_x)}{1 - F(Z_x)}\right)^2\right] \qquad (4.4.11)$$

Finally child support is computed for that portion of the distribution above the exemption using equation 4.4.4. The result is a distribution of child support which is summarized by three parameters: (1) the probability that child support is due; (2) the mean; and (3) the variance.

Again, consider the example of a distribution of white absent fathers with two children and a mean income of 9.159 and a variance of .54216. Assume further that there are 100 absent fathers who make up this distribution. The standardized Z values of this distribution equals -.9470 while $f(Z_x)$ equals .25477. The probability that income is greater than the exemption is .826 (equation 4.4.9). Therefore, the portion of the distribution expected to pay some child support contains 82.6 absent fathers.

The expected value of income for these absent fathers is computed using equation 4.4.10.

$$E(\hat{Y} \mid Y > x) = 9.159 + .7363* \frac{.25477}{1 - .1737} = 9.3861$$

The variance of the truncated distribution calculated using equation 4.4.11 equals .3322. Child support for this group of absent fathers is found using equation 4.4.4

$$E(CS \mid Y > x) = 9.3861 + -1.6094 + \log(e - e^{8.4616 - 9.3862})$$
$$= 7.2712 \ (\$1440).$$

To summarize, the distribution of child support for these 100 absent fathers is defined by the probability that income is above the exemption, .826, the mean value of child support, 7.2712 and the variance of the truncated distribution .3322.

3. Personal and New Dependent Exemption Standards

The next two normative standards are the Percent of Income Above Personal and New Dependent Exemption Standards. The methodology for these two standards is, with one exception, the same as the method for the third and fourth standards. The difference between the fifth and sixth standards, and the previous two standards is that the exemption will vary with the number of new dependents. To implement this difference a fourth parameter is added to the definition of the child support distributions. This fourth parameter is the estimated probability of new dependents.

The incorporation of the new dependent exemptions into equations 4.4.9, 4.4.10 and 4.4.4 produces the following equations. First, the probability of income being above the exemptions produces five probabilities for each distribution (one for each exemption category).

$$\text{Prob } (Y > X_j) = 1 - \int_{-\infty}^{X_j} f_j(Z)dZ \qquad (4.4.12)$$

where j goes from 1 to 5 and corresponds to the number of exemptions.

Concomitant to the five probabilities and truncation points (exemptions) there will be five mean incomes for each distribution.

$$E(\hat{Y}_j \mid Y > X_j) = Y + \sqrt{\sigma^2 *}\ \frac{f_j(Z)}{1 - F_j(Z)} \qquad (4.4.13)$$

Of course taxing five different mean incomes will produce five different expected child support levels.

$$E(CS_j \mid Y > X_j) = \hat{Y}_j + TR + \log\left(1 - e^{X_j - \hat{Y}_j}\right) \qquad (4.4.14)$$

Finally,the expected value of child support for each observation (distribution) is the weighted average of the five child support levels (CS_j). The weights are the probabilities of new dependents.

$$CS = \sum_{J=1}^{5} \text{Prob(New Dependents}_{j-1})* E(CS_j \mid Y > X_j) \qquad (4.4.15)$$

Again, consider the example of 100 white absent fathers who make up an income distribution. Assume further that the probabilities that these absent fathers have some number of new dependents are those probabilities computed in the previous section. The results of applying the simulation method to the distribution of fathers appears in Table 4.4. The five rows of the table correspond to the number of exemptions, both personal and new dependent. The four columns contain the results for each step of the simulation. Column 1 contains the probability of new dependents; if these were multiplied by 100 the result would be the number of absent fathers in each exemption category. The second column is the probability that income is greater than the exemption. This is computed using equation 4.4.12. As expected, the probability declines as the amount of the exemption increases. The next column contains the expected value of income above the exemption found using equation 4.4.13. The level of income increases as the exemption increases. Finally, the expected values of child support, computed using equation 4.4.15, is in the last column. This is the amount of support liability for those in the cell who have income above the exemption. The expected value of child support for the distribution of absent fathers who are liable is equal to 7.2697 log dollars ($1435). In this example 72 absent fathers are liable for some level of child support (Col 1*Col 2*100 and sum). The mean of child support for the distribution of 100 absent fathers is 6.9392 log dollars. (This is found: $E(CS \mid Y > x) + \log(72) - \log(100)$.)

Table 4.4

Personal and New Dependent Exemption Standard: An Example

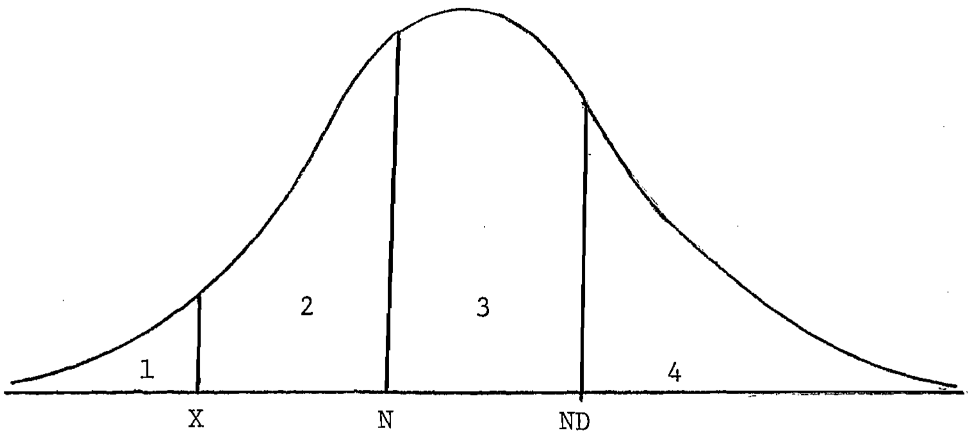
Number of Exemptions	Probability of Exemptions	Probability that Income > Exemption	Expected Value of Income	Child Support
1	.384	.8264	9.3660 (11685)	7.2376 ($1330)
2	.320	.7257	9.497 (13320)	7.2737 ($1440)
3	.165	.6425	9.586 (14560)	7.2874 ($1460)
4	.094	.5120	9.735 (16899)	7.3220 ($1513)
5	.037	.4208	9.843 (18826)	7.3557 ($1565)
Total	1.0	.7192	9.483 (13141)	7.2697 ($1435)

4. Wisconsin State Guidelines

The Wisconsin Guidelines provide the seventh normative standard. This standard is simulated by partitioning each income distribution of absent fathers and computing the level of child support for each grouping. The distributions are partitioned into four groupings of absent fathers; each group corresponds to a particular level of support.

Diagram 4.2 displays the partitioning of an income distribution. The first group is made up of absent fathers whose income is so low that they do not pay any support (their income is below the personal exemption). The second group is made up of those absent fathers whose level of income permits them to pay some child support but their limited resources do not permit them to pay their full share of the children's need. The third group is made up of absent fathers whose resources are adequate to pay their full share of the children's needs but whose income does not exceed the additional exemptions provided for new dependents. The fourth and last group consists of absent needs. Need is the ratio of the absent fathers' income to the combined income of the absent and custodial parents multipled by the Need Standard plus child care costs. The Wisconsin Need Standard is $1920 for the first child ($1440 if custodian is remarried) and $1440 for each additional child. This basic liability is computed using equation 4.4.16.

Diagram 4.4.2
Wisconsin Child Support Guideline
Partitioned Income Distribution



X = personal exemption
N = absent fathers' share of need
ND = new dependent exemptions

Group 1 pays nothing
Group 2 pays less than need
Group 3 pays need
Group 4 pays need plus supplement

$$\text{Need}_i = \text{Need Standard}^* \frac{Y_i}{Y_i + C_i} + CC \qquad (4.4.16)$$

where C_i is the custodians' nonwelfare income and CC is child care costs.

The next step is to find the size and the expected value of child support for each group. The size of each group is equal to the area under the normal curve between two points. This area is the probability that income falls within a specified range. The probability is found by integrating over the area of the normal curve using equation 4.4.1 and substituting for a and b.

The first group of absent fathers are those who pay nothing. The personal exemption set by the Wisconsin Need Standard is $4800 or 8.4764 log dollars. The probability of absent fathers having income lower than the exemption is

$$\text{Prob}(Y_i < X) = \int_{-\infty}^{X} f(Z)dZ \qquad (4.4.17)$$

Consider an example where an income distribution represents 100 absent fathers with a mean income of 9.159 log dollars and a variance of .54216. Solving equation 4.4.17, the probability that income is less than the exemption is .176. Therefore, 17.6 absent fathers are expected to have income below the exemption and thus pay nothing.

The next group of absent fathers are those who have sufficient income for their own basic needs and can afford some child support, though the level of child support is not adequate to meet his share of the children's basic needs.

The size of this second group of absent fathers is equal to the probability that their income falls in the interval between the exemption and Need (N).

$$\text{Prob}(X < Y < N) = \int_X^N f(z)dz \tag{4.4.18}$$

$$= \int_{-\infty}^{N+X} f(z)dz) - \int_{-\infty}^{x} f(z)dz$$

The amount of child support that these men will pay is the mean of a doubly truncated distribution minus the exemption. Remember that the marginal tax rate is 100% up to the Need.

$$E(Y \mid X < Y < N) = Y_i + \sqrt{\sigma^2} * \frac{f(Z_x) - f(Z_n)}{F(Z_N) - F(Z_x)} \tag{4.4.19}$$

and

$$V(Y \mid X < Y < N) = \sigma^2 * [1 + \frac{Z_x f(Z_x) - Z_N f(Z_N)}{F(Z_N) - F(Z_x)} -$$

$$(\frac{f(Z_x) - f(Z_N)}{F(Z_N) - F(Z_x)})^2]. \tag{4.4.20}$$

Child support (BCS) is found using equation 4.4.4.

In the example of 100 absent fathers assume that they are responsible for three children and the father's liability (N) equals 8.294

($4,000). The probability that a father's income falls in the range of the exemption to Need is found using equation 4.4.18. The result is .284 or 28.4 absent fathers are expected to fall in this range. The mean income computed using equation 4.4.18 is 8.8033 (6650), while the variance is .34932. Child support for this group is equal to 7.5263 (or a median of $1856).

The third group of absent fathers is comprised of those who pay their full share of the children's basic needs (Need), but due to new dependents and insufficient income cannot afford to pay any supplement (SABA). The exemption for each new dependent is 30 percent of the Wisconsin Need standard for the absent parent. New spouses are assumed to be dependent in all cases, that is, they do not have sufficient income to meet their own needs. This assumption will lead to a slight underestimate of child support.

The size of this group is determined by the probability that income falls in the interval between Need and the new dependent exemption (ND).

$$\text{Prob}(N < Y < ND) = \sum_{J=1}^{4} \text{PROB}(ND)* \int_{N}^{ND} f_j(Z)dz \qquad (4.4.21)$$

Formula 4.4.21 incorporates the estimated probabilities of new dependents. Note that for those absent fathers where the probability of new dependents equals zero (i.e., no new dependents) the probability of being in the interval is zero. The level of child support for this group is equal to their share of the children to basic need.

If all 100 fathers have two new dependents, then substituting in equation 4.4.21 produces a probability of .15. Therefore, 15 absent fathers are in the interval. The mean child support obligation is equal to the Need or 8.294 log dollars ($4,000). The mean income for these men is 9.2239 or a median dollar income of $10,135.

The last group of absent fathers is made up of those men who have sufficient income to pay not only their full share of the children's basic needs but also a supplement (SABA). The SABA is figured on the excess income above the personal exemption, basic child support obligation and new dependent exemption, if any. The tax rate is proportional (linear in log dollars) and equals 15% for the first child and 10% for each additional child.

The size of this last group is found by computing the probability that there is excess income. The formula is

$$\text{Prob}(Y_i > ND_i) = \sum_{j=1}^{5} \text{Prob}(ND) * \int_{ND_{ij}}^{\infty} f_j(Z)dZ \qquad (4.4.22)$$

where ND_{ij} equals Need_i for those absent fathers without new dependents.

The expected or mean value of child support for this group is equal to the tax on the excess income plus the basic needs.

$$E(Y_{ij} \mid Y_i > ND_{ij}) = Y_i + \sqrt{\sigma^2} * \frac{f_j(Z_{ND})}{1 - F_j(Z_{ND})} \,. \qquad (4.4.23)$$

$$V(Y_{ij} \mid Y_i > ND_{ij}) = \sigma^2 * [1 = \frac{Z_{N_{ij}} f_j(Z_{N_{ij}})}{1 - F_j(Z_{ND_{ij}})} -$$

$$(\frac{f_j(Z_{ND_{ij}})}{1 - F_j(Z_{ND_{ij}})})^2] \qquad (4.4.24)$$

In summary, the expected value of child support for the i^{th} observation utilizing the Wisconsin Normative Standard is computed by combining equations 4.4.16 to 4.4.24:

$$E(CS_i) = \int_{X_i}^{N} f(Z)dZ[E(Y_i \mid X_i < Y_i < N_i) + \log(1 - e^{X_i - E(Y_i \mid \ldots)}]$$

$$+ \sum_{J=1}^{4} PROB(ND) * \int_{N_i}^{ND_{ij}} f_j(Z)dZ*NEED$$

$$+ \sum_{J=1}^{5} Prob(ND) * \int_{ND_{ij}}^{\infty} f(Z)dZ *$$

$$\log [_e E(Y_i \mid Y_i > ND_{ij}) + TR_i + \log(1 - e^{ND_{ij} - E(Y_i \mid Y_i > ND_{ij})})$$

$$+ e^{Need}] \qquad (4.4.25)$$

5. New York Council Guidelines

The New York Guidelines provide the last normative standard to be simulated. The simulation of this Standard is very similar to that of the Wisconsin Standard. Each income distribution is partitioned into three rather than four parts. The first part consists of income below the exemption. The New York Standard provides a large exemption for the absent father and his dependents. Because this exemption includes new dependents it is necessary to incorporate the probability estimates of new dependents throughout the simulation. The second group contains income which is above the exemption but is less than that required to pay the full need of the custodial family. The third group is made up of that part of the income distribution which is sufficient to pay the custodial family needs plus a Supplement (SABA).

The complexity of incorporating new dependent exemptions will be illustrated in this Standard by again using the example of an income distribution of 100 absent fathers. The results of each step of the computation of child support are displayed in Table 4.5. The six rows of this table contain the results for absent fathers with a number of new dependents and the combined result for the whole income distribution. The columns contain the results for each step.

The first step in implementing this Standard is calculating the absent father's liability for the basic child support obligation. This is the custodial family need (Need) which is equal to the BLS Lower Living Budget for appropriate custodial family size plus work-related child care expenses minus the custodial mothers' net non-welfare income.

$$\text{Need} = (\text{BLS} + \text{CC}) - \text{C} \qquad (4.4.26)$$

where CC is child care expenses and

C is custodial mother's net income.

The next step is to find the size and expected value of child support for each of the three groups. The first group is comprised of income less than the exemption. The size of the exemption varies by family size and is equal to the BLS Lower Living Budget. The probability that income is below the exemption (X_j) is found using equation 4.4.27.[9]

$$\text{Prob}(Y < X_j) = \sum_{J=1}^{5} (Y < X_j) = \sum_{J=1}^{5} \text{Prob}(ND=J) * \int_{-\infty}^{X_j} fj(Z)dZ \qquad (4.4.27)$$

where J is the absent father household size.

Since income in this group is always less than the exemption, the expected value of child support from this portion of the distribution is zero.

Referring to the example and Table 4.5, the first column contains the Need of the custodial family with two children. The BLS Standard is $6915; there are no child care expenses and the custodial mother has nonwelfare income of $900. The NEED equals 8.7020 log dollars. The absent father's household exemption appears in column 2. This varies by household size. The average exemption per household is 8.6482 log dollars ($5700). For the given income distribution the probability that income is less than the exemption appears in column 4. The number of absent fathers who make up this income distribution and who will not be liable for any child support is 24.25. The result

Table 4.5

New York Guidelines: An Example Using a Distribution of 100 Absent Fathers with Mean Income of 9.159 log dollars and a variance of .54216

Number of Exemptions (Number of Dependents in Parentheses	Need of Absent Family (Exemption)	Need of Custodial Family	Probability of New Dependents	Probability that Income is less than the exemption	Probability that income is between the exemption & custodial need	Income for those between exemption & custodial need	Child Support Liability for those between Exemption and Custodial need	Probability that income is above custodial & absent family needs	Income for those above custodial & absent family needs	Child Support Liability for those above custodial & absent family needs
1 (0)	8.3619	8.7020	.384 (38)[1]	.1401 (5)	.4031 (15)	8.8398	7.7666	.4568 (18)	9.798	9.3191
2 (1)	8.6302	8.7020	.320 (32)	.2370 (8)	.3694 (12)	9.0071	7.7434	.3936 (12)	9.8781	9.2061
3 (2)	8.8414	8.7020	.165 (16)	.3334 (6)	.3278 (5)	9.1545	7.7354	.3387 (5)	9.954	9.1333
4 (3)	9.0158	7.7020	.094 (10)	.4202 (4)	.2886 (3)	9.2832	7.7280	.2912 (3)	10.026	9.0824
5 (4+)	9.1547	8.7020	.037 (4)	.4980 (2)	.2474 (1)	9.3929	7.7361	.2546 (1)	10.085	9.0413
Total	8.6177	8.7020	1.0 (100)	.2425 (25)	.3835 (37)	9.0074	7.7493	.3940 (39)	9.8814	9.2197 ($10,094)

[1] Count of absent fathers.

for each exemption category is found by multiplying column 3 (probability of new dependents) times column 4 times 100.

The second group consists of income which is above the exemption (referred to as the margin) but is insufficient to pay the full Need. The size of this interval between the exemption and Need is found using equation 4.4.28:

$$\mathrm{Prob}(X_j < Y < N) = \sum_{j=1}^{5} \mathrm{Prob}(ND)* \int_{X_j}^{N} fj(Z)dZ \qquad (4.4.28)$$

This is equivalent to:

$$\sum_{J=1}^{5} \mathrm{Prob}(ND)*\left[\int_{-\infty}^{N=X_j} (f_j(Z)dZ - \int_{-\infty}^{X_j} f_j(Z)dZ.\right] \qquad (4.4.28a)$$

The expected value of child support for this interval is equal to the expected value of income minus the exemption.

$$E(\hat{Y}_j \mid X_j < N) = Y + \sqrt{\sigma^2} * \frac{f_j(Z_x) - f_j(Z_n)}{F_j(Z_N) - F_j(Z_x)} \qquad (4.4.29)$$

Child support liability in the interval for each exemption group is:

$$E(CS_j \mid X_j < Y < N) = \hat{Y}_j + \log\,(1 - e^{X_j - \hat{Y}_j}) \qquad (4.4.30)$$

The expected value of child support for the interval is summed over the probability of being in the interval.

$$E(CS \mid X_j < Y < N) = \sum_{J=1}^{5} \log(Prob(ND)) + E(CS_j \mid X_j < Y < N) \quad (4.4.31)$$

Again referring to the example, the probability of income being within the interval is in column 5. The number in this interval for the whole distrbution is 36.35 ($\sum_{J=1}^{5}$ col 5 * col 3 * 100). The mean level of log dollar child support for each exemption group is in column 7. Note that, while the amount of income (column 6) increases with the number of exemptions, the size of each group decreases and child support is fairly stable. For example, approximately 2.15 absent fathers with one exemption and a mean income of 8.9398 are liable for mean child support of 7.7666 log dollars (median dollar liability is 2360). Only one absent father with five exemptions and a mean income of 9.3929 is liable for child support. The mean of the obligation is 7.7361 log dollar (or $2290).

The last group is made up of income which is high enough to permit the absent fathers to provide their own household needs plus the custodial family Need plus a supplement (SABA). The SABA is a proportional tax (in dollars) on the excess income. The tax rate varies with the number of child support eligible children and the number of dependents. The log tax rate is the log of the ratio of child support eligible children to the total of the eligible children plus the new dependents plus the absent father.

$$TR = \log(CSKDS/(CSKDS + ND + 1)) \quad (4.4.32)$$

The size of this group is found using equation 4.4.1 and substituting Need for a and positive infinity for b:

$$\text{Prob}(Y > N + X_j) = \int_{N+X_j}^{\infty} f_j(Z)dZ \qquad (4.4.33)$$

or equivalently

$$= 1 - \int_{-\infty}^{N+X_j} f_j(Z)dZ \qquad (4.4.34)$$

The mean of income in this interval is found using equation 4.4.35.

$$E(Y_j \mid Y > N + X_j) = Y + \sqrt{\sigma^2} * \frac{f_j(Z)}{1-F_j(Z)} \qquad (4.4.35)$$

Child support liability for this interval has two parts. The first part is the custodial family Need. The second part is the SABA;

$$E(SABA_j \mid Y > N + X_j) = \hat{Y}_j + TR + \log(1 - e^{N-\hat{Y}_j}) \qquad (4.4.36)$$

The total child support liability for each exemption group is:

$$E(CS_j \mid Y > N + X_j) = \sum_{J=1}^{5} \log(\text{Prob}(Y > N+X)) + E(CS_j \mid Y > N+X) \quad (4.4.38)$$

In the example the probability of being in the interval above the Need is found in column 8. The size of the total interval is 39.4 absent fathers with a mean income of 9.8814 log dollars. The SABA for this group is 8.2535 while the total mean child support obligation (from column 10) is 9.2197 log dollars.

In summary, the child support liability which results from the application of the New York Standard is equal to:

$$E(CS_i) = \sum_{J=1}^{5} (Prob(ND=J)*\log\left[\int_{X_j}^{N} f_j(Z)dZ*_e E(CS_j \mid X_j > Y > N) + \int_{N_j}^{\infty} f_j(Z)dZ*_e E(SABA \mid Y > N_j)\right] \qquad (4.4.39)$$

B. Tabulating the Results

After each normative standard is simulated the results are tabulated by using the following data: (1) the expected dollar value of child support for each distribution of absent fathers (i.e., the mean for each observation), (2) the population weight factor, and (3) the probability that income is greater than the exemption. Four summary measures are constructed for each normative standard. These four are: the total child support liability, average child support liability, average support liability for those with income above the exemption and the percent of absent fathers who are not liable for child support.

The first measure, total support liability, is calculated by multiplying the probability that the absent father has income greater than the exemption times the weight factor times the expected value of child support and summing over all observations. The second measure, average child support liability, is calculated by dividing the total support liability by the total number of absent fathers. The average support liability for those with income above the exemption is calculated by dividing the total support liability by the number of absent fathers liable for support. The number of absent fathers liable for support is equal to the probability that income is greater than the exemption times the weight factor. The last measure, the percent of absent fathers not liable for child support, is calculated by multiplying the probability that income is less than the exemption by the weight factor, summing over all observations, and dividing by the total number of absent fathers.

V. THE RESULTS

The results of the simulation of the eight normative standards are presented in Table 4.6, entitled "Normative Standard Simulations: Aggregate Results of Ability to Pay." Four measures are presented to compare the impacts of the normative standards and their intrinsic value judgments; (1) Total Child Support Liability, (2) Average Child Support Liability, (3) Average Support Liability for those with income greater than the exemption, and (4) the Percent Who Are Not Liable for Child Support. These four measures make up the rows of the Table. The eight normative standards make up the columns of the Table. The first two columns contain the "Total Income" standards with the IRP and Lower Tax Rates. The second two columns contain the two "Income

Table 4.6

Normative Standard Simulations: Aggregate Results of Ability to Pay
(Assumes 100% Collection and No Labor Supply Effects)

	Total Income		Personal Exemption		Personnel and New Dependent Exemptions			
	IRP Tax	Lower Tax	IRP Tax	Lower Tax	IRP Tax	Lower Tax	Wisconsin State Guidelines	New York Guidelines
TOTAL								
Child Support Generated	115.5	88.3	54.5	41.7	50.5	38.6	108.0	133.3
Average Support Award	1,735	1,326	818	626	759	580	1,622	2,002
Average Support Award for Those Who Are Ordered	1,735	1,326	1,232	943	1,222	934	2,707	5,689
Percent Who Pay Nothing	0.0	0.0.	33.5	33.5	37.9	37.9	40.0	64.8

Table 4.6, continued

	Total Income		Personal Exemption		New Dependent Exemptions		Wisconsin State Guidelines	New York Guidelines
	IRP Tax	Lower Tax	IRP Tax	Lower Tax	IRP Tax	Lower Tax		
NONWHITES								
N = 24,876 (37%)								
Child Support Generated	36.7	28.0	14.5	11.0	13.9	10.6	34.5	37.2
Average Support Award	1,475	1,125	583	446	558	426	1,387	1,495
Average Support Award for Those Who Are Ordered			1,035	793	1,029	785	2,753	5,219
Percent Who Pay Nothing	0.0		43.7% (10,877)		45.7 (11,367)		49.6 (12,346)	71.5 (17,748)

Table 4.6, continued

	Total Income		Personal Exemption		New Dependent Exemptions			
	IRP Tax	Lower Tax	IRP Tax	Lower Tax	IRP Tax	Lower Tax	Wisconsin State Guidelines	New York Guidelines
WHITES								
N = 41,669 (63%)								
Child Support Generated	78.8	60.2	39.9	30.5	36.5	27.9	73.6	96.0
Average Support Award	1,891	1,445	957	732	875	669	1,766	2,304
Average Support Award for Those Who Are Ordered			1,320	1,009	1,313	1,003	2,692	5,899
Percent Who Pay Nothing	0.0	0.0	27.5 (11,445)		33.3 (13,864)		34.4 (14,330)	60.9 (25,394)

Above the Personal Exemption" Standards. The fifth and sixth columns contain the "Income Above Personal and New Dependent Exemptions." The seventh column is the Wisconsin State Guidelines and the eighth column is the New York Council Guidelines.

The first result that is apparent from Table 4.5 is that absent fathers do indeed have ability to pay child support. More striking is the fact that the total amount of ability to pay varies so widely. Depending upon the normative standard chosen, the absent fathers' total child support liability ranges from a low of $38.6 million to a high of $133 million.

Even the lowest amount generated by the Personal and New York Dependent Exemption Lower tax rate Standard is at least 17 percent more than what AFDC absent fathers currently pay ($33.0 million in FY 1981, US HHS 1982). The largest amount comes from utilizing the New York standards and is some four times what is currently paid.

Although absent fathers do have substantial ability to pay, both the amount of their liability and the number of fathers who are liable varies widely from standard to standard. The magnitude of these two factors, amount of ability to pay and number of liable fathers, are a consequence of the value judgments employed in the normative standards. The amount of ability to pay is most affected by (1) the numbers and size of the exemptions, and (2) the marginal tax rate. The number of absent fathers liable or not liable is affected solely by the number and size of the exemptions.

The exemptions have the greatest impact on the ability to pay. This becomes obvious when comparing normative standards which employ the same marginal tax rate but different exemptions (columns 1, 3, and 5, or 2, 4, and 6). The impact of the personal exemption is to reduce total ability to pay by 53 percent of total generated by the Total Income Standards. In dollar terms, this equates to a $61 million cost to the custodial families when using the IRP tax rate. The Lower tax rate produces a $46 million reduction in ability to pay.

The addition of exemptions for new dependents further reduces ability to pay to 44 percent of the amount generated by the Total Income Standards.

Concomitant with the decrease in ability to pay due to exemptions is the decrease in the number of absent fathers who would be liable for child support because of insufficient income. The personal exemption excludes some 33 percent of absent fathers while the addition of new dependent exemptions excludes a total of 38 percent.

The generosity of the exemption is another important factor. For example, the Wisconsin Guidelines offer a more generous personal exemption than does the Personal Exemption Standards. The result is that the generosity of the Wisconin exemption excludes an additional 6.5 percent or 4300 absent fathers. The New York Guidelines provide a very generous personal and new dependent exemption (about 1.5 times poverty level) which excludes about 65 percent of absent fathers from a support liability.

The marginal tax rates also impact upon ability to pay. The difference in total liability due to the Lower tax rate vis-à-vis the IRP tax rate is 76 percent. Very large marginal tax rates such as those employed in both the Wisconsin and New York Guidelines can offset any exemptions to the absent parent.

The differences in potential support liability between whites and nonwhites can be seen in Panels 2 and 3 of the Table. For the whites, absent fathers' ability to pay ranges from a low of $28 million to a high of $96 million, while for nonwhites the range is from $10.6 million to $37.2 million. Despite comprising 37 percent of the eligible AFDC population, nonwhites account for only 26 to 32 percent of total ability to pay. This reflects their lower income. Also reflecting the lower incomes of nonwhites is the differential impacts of the exemptions. For example, the personal exemption reduces the nonwhites' total support liability by close to 60 percent while for whites the reduction is 50 percent. In addition, 15 percent more nonwhites than whites are excluded from any liability due to the exemption.

In summary, whether or not absent fathers have ability to pay depends upon the value decisions made in setting up the normative standard. Although the New York Guidelines generate the highest total ability to pay, it also excludes almost two-thirds of all absent fathers. In other words, almost two-thirds of absent fathers are <u>unable</u> to pay child support using the New York Guidelines. Utilizing the Total Income Standards, each absent father would be required to pay some level of support, no matter how trivial. The amount of ability to pay and the number who are able to pay depends upon the level of the exemptions and the marginal tax rates.

Notes to Chapter 4

[1]See Appendix A.1 for 1981 U.S. Official Poverty Lines.

[2]See Appendix A.2 for the Wisconsin Exemptions.

[3]See Appendix A.3 for the Bureau of Labor Statistics lower budget.

[4]A more appropriate method would be to use a single equation with an ordinal dependent variable and a multilogit program. Since such a program is not available, the method described is used.

[5]It has been suggested that an additional variable be included in the regressions-income. It is not clear what would be gained because, when imputing new dependents, income of the absent father would be the predicted value (a linear combination of human capital). Further research will look at this possibility.

[6]The length of the current spell on AFDC can be used as a crude proxy for the time since divorce. Some 26% of divorced women have been on AFDC for less than 12 months, while an additional 29% have been on 12 to 24 months.

[7]See Appendices A-1 through A-3 for the exemptions, that is, the U.S. Official Poverty Lines, BLS Lower Budget and Wisconsin Needs Standards.

[8]In dollars, the same two parameter distribution methods for assessing child support liability can be used with one important caveat. Even in cases where the normative standard does not incorporate an exemption, zero income should be treated as a lower truncation point. Otherwise, the mean of child support will be effected by negative incomes which make up part of the income distribution. For example, let the mean income equal $10,861, the standard deviation equal $8981 and the tax rate equal 25%. For a distribution of 100 absent fathers, using the point estimate only results in a mean support liability of $2715 for a total support liability of $271,525.

Average support = 10861*.25 = $2715.25

Total support = 2715.25*100 = $271525

Using the distribution method results in an average support liability of $2848 for the 100 absent fathers but more importantly the following information is developed:

1. Given the mean and the standard deviation, 11 absent fathers have income less than zero.

$$P(Y < 0) = F(Z)$$

$$Z = \frac{X - \overline{Y}}{G} = \frac{0 - 10861}{8981} = -1.21$$

$$F(-1.21) = .11$$

2. The mean child support liability for the 89 fathers with positive income is \$3199.6.

$$E(Y \mid Y > 0) = Y + \sigma * \frac{f(Z)}{1 - f(Z)}$$

$$= 10861 + 8981 \frac{*.192}{.89}$$

$$= 12798.5$$

Child support = 12798.5*.25 = \$3199.62

Total support = 3199.62*89 = 284,766 or \$13,241 more than found using the point estimate.

[9]The source for equations 4.4.1 thorugh 4.4.3 is Johnson and Kotz (1972). For computational purposes both the exemption and income are reduced by 10%. This is done because only 90% of the margin (excess income above the exemption) is available for support purposes.

Chapter 5

The Impacts of Potential Transfers on AFDC Costs, Caseloads and Recipient Well-Being

I. INTRODUCTION

In the previous chapter it was shown that while the amount varied, absent fathers could afford to pay more child support than they presently pay. Still not clear is whether child support can have a significant impact on AFDC costs, caseloads, and recipient well-being. The aggregate potential child support transfers do not permit the examination of these issues. While these aggregate amounts can suggest that some impacts are possible, only through the use of microsimulations can this question be critically investigated.

In this chapter the impacts of child support on AFDC costs, caseloads and economic well-being will be examined. The eight normative standards will again be applied to the distributions of absent fathers' income. These microsimulations will produce four outcome measures. The first two measures are designed to capture the effects of increased transfers on the AFDC caseload and AFDC cost. The second two measures will capture the antipoverty effects of increased child support transfer as measured by the reduction in the number of poor families and the poverty gap.

In the next section the four impact or outcome measures will be presented. This will be followed by an explanation of the impact simulation methodology. The last section will contain a presentation and discussion of the results.

II. OUTCOME MEASURES

The impact microsimulations are designed to produce four outcome measures. The first two of the outcome measures are designed to reflect the impacts on the AFDC dependence of eligible families. The second two outcome measures relate to the antipoverty impacts of child support transfers.

The first two outcome measures are AFDC caseload reduction and AFDC cost reduction. These two measures capture the decrease in dependence on AFDC benefits as a source of money income. Caseload reductions reflect a total independence from AFDC benefits for money income. Cost reductions reflect a combination of total savings for some families and partial savings for others.

AFDC cost reductions are equal to the minimum of the child support transfer or the AFDC benefit. In other words, for those where the support transfer exceeds the AFDC benefit, the cost reduction is equal to the AFDC benefit. For those families where the transfer is less than the benefit, the cost reduction is equal to the transfer. AFDC caseload reductions are equal to a count of families where the child support transfer exceeds the AFDC benefit.

The third and fourth outcome measures relate the anti-poverty effects to the child support transfers. These two measures are the reduction in the number of poor families and the reduction in the poverty gap. The impacts of these measures are limited to those families who are poor. The poor families are identified by comparing their total family money income to the appropriate Official Poverty Line. The poverty gap used to compare the child support transfer for families found to be poor is equal to the Official Poverty Line minus the total family money income. The third measure, the reduction in the number of poor families, is a count of families raised above the Official Poverty Line by the child support transfers. It should be noted that if the family is poor prior to the child support transfer and the transfer does not exceed the AFDC benefit, the family cannot be removed from poverty.

The reduction in the poverty gap is the last outcome measure. Again this potential impact is limited to those poor families where the child support transfer exceeds the AFDC benefit. The reduction in the poverty gap is equal to the minimum of the amount of the child support transfer which exceeds the AFDC benefit and the poverty gap.

In summary, the microsimulations will produce four outcome measures. Two will measure the impacts on AFDC costs and caseloads and two will measure the impacts on the number of poor families and the poverty gap.

III. METHODOLOGY

The microsimulation of the eight normative standards is not as simple or straightforward as the summaries presented above. This is because distributions of child support rather than the point estimate are compared to the AFDC benefit and poverty line. In addition, six of the eight normative standards generate distributions of child support which cannot be utilized in the impact analysis. With the exception of the two Total Income Standards, the generated child support distributions are not normally distributed. The distributions generated by the six other normative standards are truncated normal distributions. The truncation is due to the exemption and/or need standards employed in the normative standards. For example, in the Personal Exemption Standards the exemption produces a singularly truncated distribution. The distribution is truncated from below, or in other words, below the exemption there is no child support generated and thus no distribution. A more complex standard such as the Wisconsin Guidelines which employs multiple exemptions and a need standard results in a child support distribution which is triply truncated.

The truncated distributions are problematic for the micro impact analysis. They are problematic because the normal distribution and its related probability statistics are an integral part of the methodology. An alternative method which could be employed would ignore the variance and use the mean value as the sole summarizing statistic of the distributions. This method has the same drawback as the use of the mean of income would have had in the previous simulations. Again, using only the point estimate or mean loses information about the distribution. This lost information may be replaced by error.

To avoid the truncation problem the simulation method goes back to the original income distributions to produce the desired results. In this way all available information about the income distributions are utilized. The impact microsimulation will employ the same data as the previous simulations plus: the AFDC benefit amount, other family money income, and family size.[1]

The methodology for simulating the AFDC and poverty impacts of the child support transfer is, with a few important exceptions, the same as the methodology for simulating the normative stanrdads in the previous chapter. Because of this only the detail of the methodology for the Personal Exemption Standards will be presented. The simulation methods for the other seven normative standards are fairly straightforward extensions of the Personal Exemption Standards.

The methodology uses the mean and variance of the income distribution to determine the probability that the transfer is above or below some point of interest. The points of interest for the impact analysis include (1) the exemptions, (2) the AFDC benefit, and (3) the poverty line. The probability is then combined with the population weight factor to compute the number of families above or below each point. The mean and variance of child support is also computed for each group.

The methodology for the AFDC impact simulations will be presented first. This will be followed by the methodology for the poverty impact simulation.

A. AFDC Impact Simulations

There are four steps to simulating the AFDC caseload and AFDC cost impacts of the child support generated by each of the eight normative standards. The first is to apply the marginal tax rate(s) to the absent fathers' income and the exemptions. Secondly, using the taxed income distribution (TXI) and taxed exemption from step 1, the probability that child support is within some specified interval is then estimated. Thirdly, the mean and variance of child support for each of the intervals is computed. Lastly, the information developed in steps 1 to 3 is used to compute the impacts on AFDC caseloads and AFDC costs.

In order to simulate the impacts of the normative standards, the original income distributions must be used. The first step is to transform the income distribution into a taxed income distribution (TXI). This is done by applying the marginal tax rate to the entire income distribution. By ignoring for the moment any exemption the result of this transformation is a normal distribution of TXI dollars. This normal distribution is defined by its mean and variance. The mean of TXI is a simple linear transformation of income:

$$TXI = Y + TR \qquad (5.3.1)$$

where

Y = absent father's income

TR = log tax rate

Because TXI is a linear transformation of income, the variance of TXI is equal to the variance of income ($\sigma^2_{TXI} = \sigma^2$).

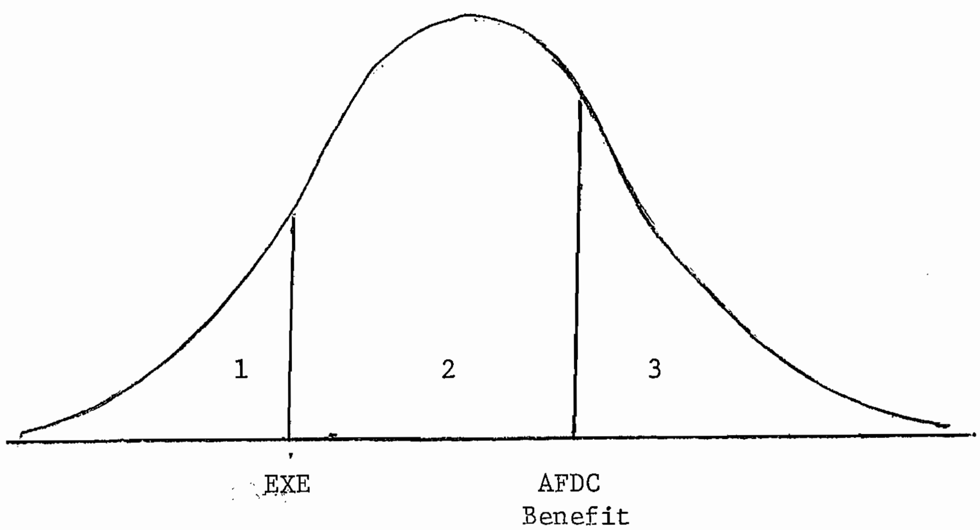
The tax rate is also applied to the exemption of the normative standard. This puts the exemption in the same metric as TXI. Not incidently the linear transformation of both income and the exemption has a very useful property. Namely, the relationship between income and the exemption and the relationship between TXI and the taxed exemption is the same. This property of the linear transformation is what makes the whole micro simulations work. The remainder of the methodology is quite similar to that used in the previous chapter for the Wisconsin and New York Standards with their multiple exemptions and need standards.

The next step is to use the TXI support distribution, summarized by the mean and variance, to find the size of the intervals of interest in the distribution. Since these micro simulations focus on AFDC caseload and AFDC cost reductions, there are three intervals of interest. Diagram 5.1 illustrates these three intervals on a normal distribution of child support.

The first interval is that part of the distribution which is below or to the left of the taxed exemption. No child support is expected from this region of the distribution. This is equivalent to income being less than the exemption. The second interval is the area of the

Total Income (TXI) Distribution

Diagram 5.1



1: No Child Support Due

2: Child support Due is less than the AFDC benefit. Therefore only partial savings

3: Child Support Due is greater than the AFDC benefit. Therefore, families are removed from AFDC and the entire benefit is saved.

distribution where the level of the child support transfer is less than the AFDC benefit. The eligible families who receive the distribution of child support transfers from the first and second intervals will remain AFDC dependent. The last interval contains that portion of the TXI support distribution which exceeds the AFDC benefit. Only those families who receive a child support transfer from this region of the distribution will be removed from AFDC dependence.

The size of each of these intervals or regions is found by integrating over the area of the normal curve between two points. This is done by using the cumulative distributions function (cdf) of a normal random variable. The integration formula is given by equation 5.3.2.

$$P(a < TX < b) = \int_a^b f(Z)dZ \qquad (5.3.2)$$

where the f(·) is the probability density function, TXI is the mean of the taxed income distribution, and a and b are the lower and upper truncation points.

The reduction in AFDC caseload is found by calculating the size of the third interval. This is done by estimating the probability that TXI is less than the AFDC benefit and then subtracting this probability from unity. The result is the probability that the transfer is greater than the benefit.

$$P(TXI > AFEX) = 1 - \int_{-\infty}^{AFEX} f(Z)dZ \qquad (5.3.3)$$

where AF is the AFDC benefit and AFEX is the combined AFDC beneft and the taxed exemption. The AFEX is computed using equation 5.3.4:

$$AFEX = AF + \log(1 + e^{EXE-AF}) \qquad (5.3.4)$$

where EXE is the taxed exemption.

It is important to note that the exemption and the AFDC benefit is combined rather than the transfer being reduced by the exemption. This is done because a nonlinear transformation of the transfer would alter its variance. Therefore, it is more straightforward to adjust the constants (AFDC benefit and exemption).[2]

The reduction in AFDC costs has three parts which correspond to the three intervals. In the first interval there is no child support transfer and therefore no AFDC savings. The size of this interval is equal to the probability that TXI is less than the taxed exemption. In the second interval there is some level of child support but the amount is less than the AFDC benefit. The size of this interval is equal to the probability that TXI is less than AFEX minus the probability that TXI is less than the exemption.

$$P(EXE < CS < AFEX) = \int_{-\infty}^{AFEX} f(Z)dZ - \int_{-\infty}^{EXE} f(Z)dZ \qquad (5.3.5)$$

The amount of AFDC savings for this interval is equal to the mean value of child support in the doubly truncated interval. This is found using equation 5.3.6.[3]

$$E(CS \mid EXE < TXI < AFEX) = TX + \sqrt{\sigma^2} * \frac{f(Z_{EXE}) - f(Z_{AFEX})}{F(Z_{AFEX}) - F(Z_{FXE})} \qquad (5.3.6)$$

The savings for the third interval is equal to the AFDC benefit. This is because the child support transfer is greater than or equal to the benefit. The size of this interval was found using equation 5.3.4 when estimating the size of the AFDC caseload reductions.

An example may help clarify the methodology for estimating AFDC caseload and AFDC cost reductions. Assume that there are 100 absent fathers who make up an income distribution with a mean income of 9.159 ($9500) and a variance of .54216. Assume further that each of these 100 absent fathers is responsible for two AFDC children who together with their mother receive an annual AFDC benefit of 8.412 log dollars ($4500). The normative standard which is applied to the absent fathers' income is the Personal Exemption Standard using the IRP tax rate of -1.366 (25%) for two children. The absent father's exemption is equal to the poverty line for a single person of 8.462 log dollars ($4730).

The first step of the methodology is to convert the income distribution and the exemption into the metric of child support.

TXI = 9.159 + -1.386.

TXI = 7.773.

EXE = 8.462 - 1.386 = 7.076.

The next step is to determine the size of the caseload reduction or the number of families in the third interval. This is done by first combining the exemption and the AFDC benefit using equation 5.3.4.

$$AFEX = 8.412 + \log\ (1 + e^{7.07\ -\ 8.412})$$

$$AFEX = 8.645.$$

The size of the third interval is formed using equation 5.3.3 and is equal to the probability that child support exceeds both the exemption and the benefit.

$$P(CS > AFEX) = 1 - \int_{-\infty}^{8.645} f(Z)dZ$$

$$= 1 - F\ (-1.184)$$

$$= 1 - .88$$

$$= .12$$

The number of families in the third interval is equal to the probability that the transfer is in the interval multipled by the total number of families or .12*100 = 12 families. Therefore, the caseload reduction for this distribution of 100 families is 12. Note that if only the point estimate of child support were employed the caseload reduction would be equal to zero because the mean transfer is less than the benefit.

To find the reduction in AFDC costs requires some additional information. What is known so far is that 12 families would be removed from AFDC dependency by the child support transfer. For these families the AFDC savings would be equal to their AFDC benefit. Therefore for those twelve families there is an AFDC cost reduction of $54,000 (or $4500*12).

In addition to the savings attributable to the transfers received by the 12 families there is also some cost reduction for the 88 families who remain dependent upon AFDC. To calculate this savings two additional pieces of information are needed. First, how many of the 88 families receive some child support? Second, how much is the transfer that they receive?

The first question is answered by finding the size of the interval between the exemption (EXE) and AFEX. This is equal to the probability that the size of the transfer is within this range. This is found using equation 5.3.5.

$$P(EXE < CS < AFEX) = \int_{-\infty}^{8.645} f(Z)dZ - \int_{-\infty}^{7.076} f(Z)dZ$$

$$= F(-1.184) - F(-9.6)$$

$$= .88 - .17$$

$$= .71.$$

Therefore 71 families (.71*100) receive some level of child support while another 17 families receive no child support transfer.

The amount of the child support transfer for the 71 families is equal to the mean of the doubly truncated distribution. This mean value of child support is found using equation 5.3.6 and is equal to 7.832. In dollars the total AFDC cost reduction for these 71 families is equal to $232,525.[4]

In sum, the AFDC caseload reduction for this distribution of 100 families would be equal to 12. The AFDC cost reduction would total $286,525 or 64 percent of the total AFDC benefits for the 100 families.

B. Poverty Impact Simulations

The poverty impact microsimulations are designed to produce two outcome measures for each of the eight normative standards. First is the reduction in the number of poor families. Second is the reduction in the poverty gap. The methodology for simulating these poverty impacts of the child support transfers is very similar to that employed in simulating the AFDC impacts. In fact, the poverty impact simulations build directly upon the AFDC simulations. This is done by simply adding another interval. The additional interval is the poverty gap.

The poverty methodology uses the TXI distributions and the taxed exemptions developed for the AFDC simulations. The first step in the poverty simulation is to find those families who are poor. This is done by comparing the families' total money income with the appropriate poverty line for family size. If the families' income is less than the poverty line, then the family is poor. The remainder of the simulation is confined to only those families who are poor. The next step is to calculate the poverty gap. The poverty gap measures how poor (in dollar terms) the poor families are relative to the poverty line. It is the amount of money needed to raise a family out of poverty. The poverty gap is equal to the poverty line minus the family's total money income.

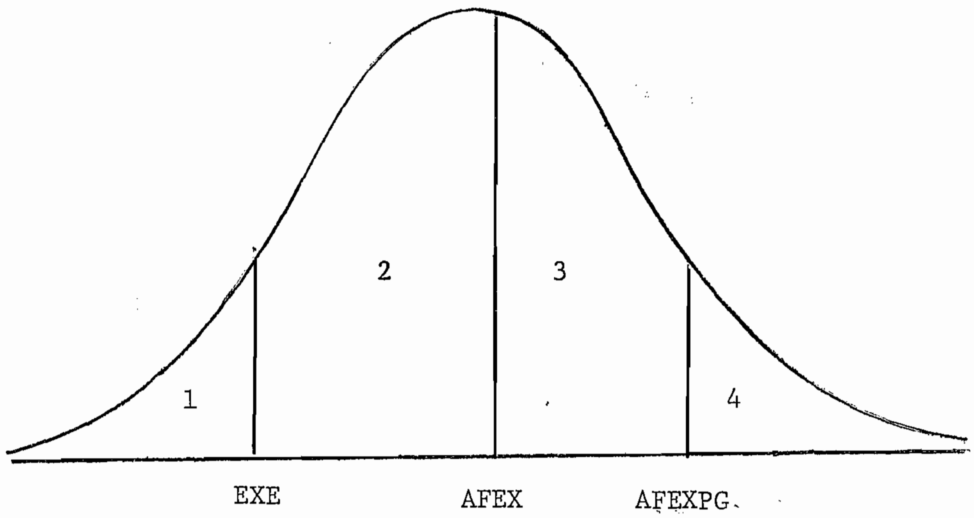
The next step is to ascertain the impact of the child support transfer on the poverty status of eligible poor families. Is the child support transfer large enough to raise families out of poverty? This simulation compares the distribution of TXI to the poverty gap. Those families who receive a transfer which exceeds the combined taxed exemption, AFDC benefit and poverty gap will be removed from the poverty ranks. Diagram 5.2 illustrates this comparison.

Referring to the Diagram, those poor families who receive a transfer from the TXI distribution to the left of AFEXPG will remain poor, while those poor families who receive a transfer from that part of the distribution to the right of AFEXPG will be removed from poverty. To find that portion of the TXI distribution which will provide transfers which exceed the poverty gap it is necessary to find the size of the interval to the right of AFEXPG. This is found using equation 5.3.7.

$$P(TXI > AFEXPG) = 1 - \int_{-\infty}^{AFEXPG} f(x)dx \qquad (5.3.7)$$

Diagram 5.2

Distribution of Child Support Transferred to Families in Poverty



where EXE = the taxed exemption

AFEX = the AFDC beneft combined with the taxed exemption

AFEXPG = the poverty gap combined with AFEX

1: Families Remain Poor; no support due

2: Families Remain Poor; no poverty gap reduction but some support is due

3: Families Remain Poor; some poverty gap reduction

4: Families removed from poverty; total reduction in poverty gap

The number of families removed from poverty is calculated by multiplying this probability times the weight factor; this is the first poverty impact outcome measure.

The second poverty impact outcome measure is the reduction in the poverty gap. The poverty gap reduction, like the AFDC cost reduction, has two components. The first component is the poverty gap reduction due to families being removed from poverty. This reduction is equal to the families pre-child support transfer poverty gap summed for all families removed from poverty. The number of families comes from the first poverty impact measure.

The second component of the poverty gap reduction is attributable to those families who receive a child support transfer which exceeds the AFDC benefit but who remain poor. This reduction is equal to the amount of the child support transfer which exceeds the AFDC benefit. To calculate the reduction for this group it is necessary to do two things. First, find the number of families in this group. Second, estimate the level of the child support transfer they receive.

Referring to Diagram 5.2, a transfer which exceeds the AFDC benefit but is less than the poverty gap lies between points AFEX and AFEXPG. The number of families who would receive a transfer in this interval is found by estimating the probability that the transfer would come from the interval. This probability is found using equation 5.3.8.

$$P(AFEX < TXI < AFEXPG) = \int_{-\infty}^{AFEXPG} f(x)dx - \int_{-\infty}^{AFEX} f(x)dx \quad (5.3.8)$$

This probability is multiplied times the weight factor to produce the count of families in the interval.

The poverty gap reduction for those families in the interval is equal to the amount of their child support transfer which exceeds their AFEX benefit. The mean child support transfer for the doubly truncated distribution is found using equation 5.3.9.

$$E(CS \mid AFEX < TXI < AFEXPG) = TX + \sqrt{\sigma^2} * \frac{f(Z_{AFEX}) - f(Z_{AFEXPG})}{F(Z_{AFEXPG}) - F(Z_{AFEX})} \quad (5.3.9)$$

In sum, the dollar value of the reduction in the poverty gap is found using equation 5.3.11.

$$PGR = [P(TX > AFEXPG)*PG + P(AFEX < TXI < AFEXPG)*$$

$$e^{E(CS \mid AFEX < TXI < AFEXPG) + \sigma^2_{CS}/2}]*WT \quad (5.3.11)$$

where PGR = poverty gap reduction

PG = poverty gap

σ^2_{CS} = variance of the doubly truncated distribution

WT = weight factor

C. Tabulating the Results

The microsimulation for each of the eight normative standards will produce four outcome measures. These measures include two each for the AFDC impacts and the poverty impacts. These measures are tabulated using some or all of the following data: (1) the probabilities that the child support transfer exceeds (a) the AFDC benefit, and (b) the poverty gap; (2) the probabilities that the child support transfer is (a) greater than the exemption but less than the AFDC benefit, and (b) greater than the AFDC benefit but less than the poverty gap; (3) the expected value of dollar child support for each of the intervals specified in (2); (4) the AFDC benefit; (5) the poverty gap and (6) the population weight factor.

The first AFDC impact measure is the reduction in caseload. This is calculated by multiplying the probability that the transfer exceeds the AFDC benefit times the weight factor for each observation. The result is then summed over all observations to produce a count of families removed from the AFDC rolls.

The second AFDC impact measure is the reduction in costs. This is calculated in two parts of each observation which are then added togther and summed over all observations. The first part of AFDC cost reduction is calculated by mutiplying the AFDC caseload reduction for each observation times the benefit. The second part of the cost reduction is computed by multiplying the probability that the transfer is greater than the exemption but less than the benefit times the value of the transfer in the interval times the weight factor.

The first poverty impact measure is the reduction in the number of poor families. This measure is calculated for the pre-child support transfer poor by multiplying the probability that the transfer exceeds the poverty gap times the weight factor for each observation. The result is then summed over all observations.

The second poverty impact measure is the reduction in the poverty gap for the pretransfer poor families. This, like the AFDC cost reduction measure, has two parts. The first part is computed by multiplying the reduction in the number of poor families for each observation times the poverty gap. The second part is calculated by multiplying the probability that the transfer exceeds the AFDC benefit but is less than the poverty gap times the expected value of child support for the interval times the weight factor. The two parts are then added together for each observation and summed over all observations to produce the outcome measure.

IV. THE RESULTS

The results of the micro impact simulations for the eight normative standards are presented in Table 5, entitled "The Effects on AFDC and Poverty of 100% Collection of Child Support Liability." The four outcome measures make up the rows of the Table: (1) AFDC Caseload Reduction, (2) AFDC Cost Reduction, (3) Reduction in the Number of Poor Families, and (4) Reduction in the Poverty Gap. The eight normative standards make up the columns of the table. The first two columns contain the outcome measures for the Total Income Standards with the IRP and lower tax rates. The results for the two Personal Exemption Standards are in the next two columns. The fifth and sixth columns contain the New Dependent and Personal Exemption Standards' results. The seventh column is the Wisconsin State

Table 5.1

The Effects on AFDC and Poverty
100% Collection of Child Support Liability

		Percent of Total Income		Percent of Income Above Personal Exemption		Percent of Income Above New Dependent Exemption		Wisconsin Guidelines	New York Guidelines
		Low Tax	IRP Tax	Low Tax	IRP Tax	Low Tax	IRP Tax		
Savings	$	82.2	103.1	39.6	50.0	36.7	46.5	97.9	83.4
(305.9)[1]	%	27.	34.	13.	16.	12.	15.	32.	27.
Caseload Reduction	#	4692	7235	2653	4027	2397	3644	6894	9354
(66565)	%	7.0	10.7	4.0	6.0	3.6	5.5	10.4	14.8
Families Removed from Poverty	#	357	784	231	489	218	460	194	2885
(48906)	%	1.6	1.6	0.5	1.0	0.4	0.9	0.4	5.8
Poverty Gap Reduction	$	2.9	5.4	1.7	3.2	1.6	2.9	7.7	12.9
(145.1)	%	1.2	3.7	1.1	2.2	1.1	2.0	5.3	8.9

Table 5.1, continued

		Percent of Total Income		Percent of Income Above Personal Exemption		Percent of Income Above New Dependent Exemption			
		Low Tax	IRP Tax	Low Tax	IRP Tax	Low Tax	IRP Tax	Wisconsin Guidelines	New York Guidelines
					Nonwhites				
Savings	$	26.9	34.3	10.8	13.8	10.4	13.3	32.3	26.2
(181.4)	%	21.5	27.4	8.6	11.0	8.3	10.6	25.8	20.9
Caseload Reduction	#	1006	1602	513	798	481	750	1501	2509
(24896)	%	4.0	6.4	2.1	3.2	1.9	3.0	6.0	10.0
Families Removed from Poverty	#	87	192	50	108	48	104	45	675
(20508)	%	0.4	0.9	0.2	0.5	0.2	0.5	0.2	3.3
Poverty Gap Reduction	$	.6	1.2	.3	.6	.3	.6	1.8	3.0
(58.3)	%	1.0	2.1	0.5	1.0	0.5	1.0	3.1	5.1

Table 5.1, continued

		Percent of Total Income		Percent of Income Above Personal Exemption		Percent of Income Above New Dependent Exemption		Wisconsin Guidelines	New York Guidelines
		Low Tax	IRP Tax	Low Tax	IRP Tax	Low Tax	IRP Tax		
Whites									
Savings	$	55.2	68.9	28.8	36.2	26.4	33.2	65.6	57.2
(181.4)	%	30.4	38.0	15.9	20.0	14.6	18.3	36.2	31.5
Caseload Reduction	#	3687	5650	2140	3229	1916	2893	5393	7345
(41669)	%	8.8	13.6	5.1	7.7	4.6	6.9	12.9	17.6
Families Removed from Poverty	#	270	591	180	381	170	357	149	2210
(29299)	%	0.9	2.0	0.6	1.3	0.6	1.2	0.5	7.5
Poverty Gap Reduction	$	2.4	4.3	1.5	2.6	1.3	2.3	5.9	9.9
(86.8)	%	2.8	4.6	1.7	2.9	1.5	2.6	6.8	11.4

[1]Numbers reflect current system factors: (1) AFDC costs, (2) AFDC child support eligible caseload, (3) number of families in poverty, and (4) poverty gap.

Guidelines and the last column is the New York Council Guidelines. The results of the impact analysis are expected to show differential impacts by race. This is not only because white absent fathers have higher child support liabilities than nonwhites but also due to differences in family composition and other family income. This expectation is reflected in the table by the use of three separate panels. The first panel presents the results for the combined races. The second and third panels contain the results for the nonwhites and whites, respectively.

Clearly the most significant impact that can be gleaned from Table 5.1 is the reduction in AFDC costs due to the child support transfers. This reduction ranges from a low of $37 million to a high of $103 million. Perhaps the single most striking fact presented in the table is the virtual non-impact of child support transfers on the number of AFDC dependent families and economic status of eligible families. The reduction in the AFDC caseload never exceeds 15 percent or ten thousand families, while the number of families removed from poverty and the reduction in the poverty gap due to child support transfers are trivial impacts.

The AFDC cost reduction due to the transfer of child support varies widely from normative standard to normative standard. Not surprisingly the New Dependent and Personal Exemption low tax rate standard which generates the least absent fathers' liability also produces the lowest savings ($37 million). The use of Total Income IRP tax rate standard results in the greatest savings ($103 million).

This range represents an annual AFDC cost reduction of at least 12 but not more than 34 percent. In other words, if 100 percent of the child support liability were collected from 100 percent of absent fathers, eligible families could reduce their level of financial dependence on the AFDC program by at least one-tenth and at most one-third. These numbers, presented thus far, say nothing about how these transfers are distributed amongst the eligible families. Nor do they give any information on the transfers' impact of the economic status of eligible families.

Since cost reductions are composed of two parts, reduced dependence for those who remain, and total independence for those who leave, it may be insightful to look at the level of dependence for those who remain. The average annual AFDC benefit prior to any child support transfer is $4595. The AFDC family who continues to receive AFDC benefits would experience a $400 to $1200 benefit reduction on average in response to the child support transfer. This is equivalent to an 8 to 25 percent decrease in financial dependence on the AFDC program for the average family who remains.

The number of families who become totally independent of the AFDC program for their financial needs is given by the second outcome measure, Caseload Reduction. Again the impacts vary from standard to standard. The reductions in the total caseload of 66,565 families range from a low of about 2400 families to a high of almost 9800 families. At best this amounts to less than a 15 percent reduction, while at worst only a 4 percent reduction is realized. Only three of the eight normative standards result in caseload reductions of more than 5000 families, or seven and a half percent of the eligible caseload of 66,565 families.

The antipoverty impacts of the child support transfers are even more dismal. In only one case, the New York Guidelines, does the number of families removed from poverty exceed 1000. In six out of the remaining seven normative standards, less than 500 families are removed from poverty. This amounts to less than a 1 percentage point reduction in the poverty rate for six of the eight normative standards.

The reduction in the poverty gap is no more heartening. The pretransfer poverty gap of $145.1 million is reduced by no more than $12.9 million in the case of the New York Standard and less than $8 million for the remaining seven normative standards. For the average poor AFDC family the poverty gap equals $2915. For the average family who remains poor after the receipt of child support the poverty gap is reduced by a mere $35 to $140.

There are several reasons for the results on the four outcome measures. First, the AFDC cost reduction measure is the most sensitive to the transfer of child support. Therefore, it reflects the greatest impact. The high sensitivity of this outcome measure is due to the 100 percent benefit reduction rate applied to the AFDC benefit due to the child support transfer. That is, for each dollar of child support received the AFDC benefit is reduced by one dollar.

Second, and possibly just as important in explaining the AFDC results, is the fact that the average AFDC benefit far exceeds the average child support transfer. The only exception is the mean transfer from the New York Guidelines which is greater but only about one-third of the eligible families would receive any transfer. Therefore, based on the simple comparison of the average benefit and transfer one would expect small caseload reductions.

Third, the least sensitive measures are for the poverty impacts. The lack of any significant impact on these two outcome measures is directly related to the low caseload reduction. This is because the families' economic well-being cannot improve until the child support transfer exceeds the AFDC benefit. It has already been shown that this latter event occurs in less than 15 percent of all eligible cases. Therefore, the poverty impacts are limited to a very small portion of eligible families.

The differential impacts of child support transfers on whites and nonwhites can be gleaned by a review of Panel 2 and 3 of the table. In general whites fare better than nonwhites on all four outcome measures. On the most sensitive measure, cost reduction, whites outpace nonwhites by a factor ranging from one and a half to two in relative terms (i.e., comparing percentage change). On the other three outcome measures whites fare two to three times better than nonwhites.

The favoring of whites over nonwhites on the impact measures was not unexpected. There are several explanations for these differences. First and foremost is the fact that nonwhite absent fathers have less income to share with their children than white absent fathers. The effect of lower incomes on support liability levels is tempered somewhat because non-whites have more children to support on average. Still, nonwhites' child support liability is lower than whites. In addition, the exemptions included in six normative standards proportionally exclude more nonwhites than whites from support liability.

Second is the fact that the average AFDC benefit is higher for nonwhites ($5058) than whites ($4344). This reflects a combination of more children and less other money income for nonwhites on average. Therefore, caseload reduction is less likely to occur for nonwhites.

Third, nonwhite families are generally larger. Thus non-white families are poorer and less likely to see much improvement in economic well-being. In sum, nonwhites do not fare as well as whites on any of the four outcome measures.

In summary, the major impact of potential child support transfers is a substantial decrease in the state's AFDC expenditures. On the other hand, the vast majority of AFDC recipient families have nothing to gain from the 100 percent collection of the absent fathers' support liability. This is true regardless of the normative standard used to determine the level of support liability. There are several reasons for the non-impact of the child support transfer but there is one major reason. It is the low level of absent fathers' liability relative to the custodial families' AFDC benefits.

The results presented in this Chapter are too low. There are two reasons why this is true. First, the income estimates from Chapter 3 and the concomitant estimates of ability to pay of Chapter 4 are too low. They are too low because of the decisions to overcorrect the biases in the income estimation methodology. Second, the impact simulations do not incorporate the potential behavioral responses to increased child support transfers. One of the most important of these is the custodians' labor supply response. It is expected that custodians will increase their work effort in response to child support. For those whose child support transfer is high enough to remove them from AFDC, there will be a marked drop in the tax on earnings. Under most normative standards, the tax rate (or benefit reduction rate) drops to zero. In addition, many of those who remain on AFDC may find that combining their child support with a little earnings may be enough to get them off of AFDC altogether. Therefore the potential impacts estimated in this Chapter provide a lower bound estimate.

Notes to Chapter 5

[1]The previous simulations incorporated the following data: The estimated distributions of absent fathers' gross and net incomes, the custodial mothers' earned and nonwelfare unearned income, the number of child support eligible children, the estimated number of absent fathers, the estimated number of absent father's dependents, official poverty lines, and BLS Family Budgets.

[2]Although in dollars reducing the transfer by the exemption is a linear transformation in log dollars this operation is nonlinear. Since in dollars $_{e}CS - {}_{e}EXE > {}_{e}AF$ is equivalent to $_{e}CS > {}_{e}AF + {}_{e}EXE$ the log of this equivalent is $CS + \log(1 + e^{EXE-CS}) > AF$ is equal to $CS > AF + \log\,(1 + e^{EXE-AF})$.]

[3]To convert the mean value found in equation 5.3.6 to dollars the variance of the doubly truncation distribution must also be computed. This is done using equation 4.4.3 from Chapter 4.

[4]The mean dollar amount is found using the equation $e^{cs} + \sigma^{2/2}$. The variance (σ^2) for the truncated distribution is found using equation 4.4.3 and in this example is equal to .52371. Thus a mean transfer of 7.832 is equal to \$3275.

[5]Therefore, for the families in this group the reduction in the poverty gap is \$357 each or \$1071 in total reduction.

Chapter 6

Summary and Conclusions

I. INTRODUCTION

Child support is an income transfer from a noncustodial parent to his/her dependent children. It is a mechanism for the noncustodial parent to share the cost of raising his/her children. For divorced and separated parents, it is an extension of the sharing of resources that presumably took place when the family was intact. Many non-custodial parents fail to make this contribution. This is especially true for noncustodians of AFDC recipients.

Changes in the current child support system over the past thirty years have met with only limited success. Many demographically eligible families do not have a child support award. Many of those families with an award do not receive their due. Nationally, in 1981, 61 percent of those custodial families who were demographically eligible for child support received nothing. Of those demographically eligible families who were poor, 79 percent received nothing.

The purpose of this research endeavor has been to measure the impacts of potential child support transfers on AFDC costs, caseloads, and recipient well-being. The State's CRN provided the primary data source for this effort. The CRN data base provides the most complete and up-to-date information on AFDC recipient families. Its major shortcoming is the lack of any data on the noncustodial parents. This weakness is not peculiar to the CRN data. In fact, there is very little reliable data on noncustodial parents and even less that can be linked to the custodial families. A most important exception is the recently acquired WAPS data. Even the WAPS data has no data on two-thirds of the absent fathers. Moreover, it is limited to Wisconsin and expensive to replicate for every state. Therefore, a major portion of this research effort has been directed at developing an estimation methodology for the missing noncustodial parents' income and number of new dependents that can cheaply and readily be applied to any state in particular or the nation as a whole.

There were three steps required to examine the economic impacts of potential child support transfers. First, it was necessary to supplement the CRN data with estimates of the missing noncustodial fathers' income and number of new dependents. Second, normative standards of ability to pay had to be applied to the noncustodians' income to generate child support liability. Last, the economic impacts of the child support transfers had to be assessed.

II. THE RESULTS: A SUMMARY

A. Noncustodial Father Data

The single most important piece of missing data was the noncustodial parents' income. An indirect methodology was utilized to estimate this data. The custodial mothers' characteristics were combined with the estimated relationship between wives' characteristics and husbands' income for currently married couples with children to impute the noncustodians' income. The result was that Wisconsin's AFDC noncustodial fathers had a mean income of $8765. Looking at the distribution of noncustodians' income reveals that over 1/3--36 percent to be exact--had income less than $5000. Only 8 percent had incomes greater than $20,000. The absent fathers of AFDC children are not, on the whole, a wealthy group.

Estimates of the noncustodians' net income and new dependents were also needed. Net income estimates were generated by simulating federal, state and FICA tax regimes on the gross income estimates. The result was that Wisconsin's AFDC noncustodial fathers had a mean after-tax income of $7900.

New dependents were estimated in a fashion similar to the income estimates. The result was that 50 percent of divorced noncustodial fathers or just 17 percent of all absent fathers had at least one new dependent.

The income estimates for the noncustodial fathers were necessary but not sufficient to determine their ability to pay. Normative standards of ability to pay or tax regimes had to be applied to their income to generate some level of support. The level of support liability is contingent on the value judgements made on various normative issues. The resolution of these issues form the basis for the standard. The impacts of alternative value responses to five issues were assessed by simulating eight normative standards. The results were that the mean child support obligation ranges from a low of $934 when using the Personal and New Dependent Exemption Standard with a low tax rate to a high of $5689 when the New York Guidelines are applied. The most striking finding to come out of these simulations was the sensitivity of the results to the value judgements made in assessing liability. Perhaps most important, a poverty line personal exemption not only reduces the aggregate amount of support owed by 29 percent but it also excludes about one-third of the absent fathers from any support obligation. A more generous than poverty level personal exemption, combined with more generous exemptions for new dependents as embodied in the New York Guidelines, excludes close to 65 percent from any support obligation or liability. In sum, whether or not noncustodial fathers can afford to pay child support depends heavily on the value judgements made in assessing liability.

Previous research has pointed to the failure of the current child support system. But these research endeavors were left with the nagging question of whether or not noncustodians had untapped ability to pay. This was especially true for noncustodians of AFDC children. For nearly all the standards simulated, this research effort answers that question affirmatively--noncustodians of AFDC children do have untapped ability to pay. The one exception was the New Dependent Exemption Standard which generated only 17 percent more than the current system, and remember income was systematically underestimated.

B. The Economic Impacts

The last part of the analysis simulated the economic impacts of the child support transfers. Four outcome measures were generated for each of the eight normative standards. The first two measured the impacts on AFDC dependence in terms of reductions in caseloads and costs. The reduction in the number of poor families and the poverty gap were used to indicate the antipoverty impacts.

The bright spot in the analysis was the finding of substantial reductions in AFDC costs under the eight standards. The average reduction across standards was 22 percent or $68 million. This is just over twice what the system currently collects for these families. This large cost reduction can be viewed in two ways. The first, albeit narrow, view would see this reduction solely in terms of a windfall for the State. That is, the State gains by significantly reducing welfare expenditures while recipient families gain very little as indicated by the other outcome measures. While this is true, a broader view would see as an important implication of this reduction a concomitant reduction in AFDC dependence. Each dollar of child support transferred is a dollar reduction in AFDC expenditures. In addition, each child support dollar reduces the AFDC benefit by a dollar. Thus it brings the recipient families closer to the point of independence; the point where they can be self-sufficient.

The overall results on the remaining three outcome measures were not very encouraging. It was clear from the static analysis that child support transfers alone cannot significantly reduce AFDC caseloads nor poverty. This was true under all eight normative standards. The average AFDC caseload reduction was just over 5000 families or 7.5 percent, while the reduction in the number of poor families averaged just 1.5 percent. The average reduction in the poverty gap was just 3.8 percent. In sum, child support transfers have the potential to significantly reduce AFDC expenditures.

III. STRENGTHS AND WEAKNESSES

The confidence in the results of this analysis and their usefulness to policymakers and policy analysts rests on the strengths and weaknesses of the analysis. There are several strengths:

First, the methodologies developed in this thesis can be applied to other state and national data to estimate the absent fathers' income, ability to pay and the impacts of potential child support transfers. The use of these methodologies is not restricted to AFDC families. It may be applied to all child support eligible households.

Second, the simulations of both ability to pay and the economic impacts utilized a numerical integrative technique which makes use of a two-parameter distribution (mean and variance) rather than just the point estiamte. This resulted in more accurate results.

Third, the absent fathers' incomes developed in Chapter 3 provide a lower bound estimate of their income. This is due to the decisions to overcorrect potential biases rather than undercorrect, whenever possible. These decisions included the assumption that the absent fathers of out-of-wedlock children are always those men with the lowest incomes. That is, they are single, never-married men. Also, the combined marital status and AFDC status biases were overcorrected due to data limitations which ruled out the estimation of an interaction effect. The microsimulations of Chapters 4 and 5 used these lower-bound income estimates to produce estimates of ability to pay and the economic impacts of potential child support transfers. Therefore, these too are lower-bound estimates.

Fourth, the analysis included the microsimulation of eight normative standards. This provides a systematic examination of effects of different normative judgements on both the ability of the absent parent to pay and the economic impacts on the AFDC system and its recipient families.

The last strength of this analysis is more of a caveat. The choice of Wisconsin tends to understate the impacts of potential child support transfers on AFDC costs, caseloads and recipient well-being, either in a more typical state or for the nation. This is because Wisconsin provides very generous AFDC benefit guarantees and is therefore atypical. Wisconsin provides the fourth highest AFDC guarantee for a single-parent family of four in the nation. The national average guarantee is less than two-thirds of Wisconsin's while income is not as disproportionately above the national average.

There are also several weaknesses in this analysis. First, the simulation methodology in Chapter 5 fails to incorporate an expected increase in the labor supply of the custodial mothers. This leads to an underestimate of the potential AFDC and antipoverty impacts. A positive labor supply response is expected because of the decrease in the marginal tax rates on earnings for the custodians. Under six of the eight normative standards simulated, the tax rate is reduced to zero if the family has enough income to leave welfare. Remember that the present AFDC system taxes earnings at the rate of 100 percent after four months of employment. This is a strong work disincentive.

Second, there was no attempt to measure the antipoverty impacts of potential child support transfers in the absence of an AFDC benefit. In cases where the family was not poor under AFDC there was no attempt to ascertain if they would be poor in the absence of AFDC and unpoor with child support. In addition, the reduction in the poverty gap attributable to child support transfers is understated. This is because the poverty gap calculation gave precedence to the antipoverty effect of AFDC benefit. Therefore, this masks part of the antipoverty effects of child support transfers.

Third, the assumption that any child support collection system, even operating at peak effectiveness, can secure awards in all cases and collect 100 percent of liability is a bit grandiose. There will always be some percentage of cases where paternity cannot be established; the absent parent's whereabouts are unknown or the absent parent is in jail, institutionalized or dead, unbeknownst to either the custodial parent or the system.

The fourth shortcoming is closely tied to the third. It is the lack of any administrative cost analysis connected with the collection of the potential liability.

Lastly, the impact analysis ignores the economic and behavioral impacts of increased child support transfers on the noncustodial parent. An important question not addressed in this thesis is how many absent fathers would be made poor by these increased transfers? The estimated income distribution of absent fathers indicates that more than one-third have income below the poverty line. Except for the Total Income Standards, the normative standards provide at least a poverty-level exemption for the absent parents' personal needs. Three normative standards provide the absent father and his new dependents with protection from slipping into poverty. A crude estimation of the poverty impacts of the Total Income Standard using the IRP tax rate reveals that about half of all absent fathers would be living in poverty.[1]

IV. POLICY IMPLICATIONS

The policy implications of this research effort are not straightforward. Whether or not it is necessary, or even desirable to reform the current child support collection system requires the making of value judgements. The eight normative standards employed in this thesis represent value judgements concerning the extent to which absent fathers should be held liable for the financial support of their dependent children. The choice of a low revenue generating standard such as the Personal and New Dependent Exemption Standards would imply a relatively weak case for system reform. This standard utilizing the lower tax rates would generate about 17 percent more child support than the current system collects, while increasing the percentage of liable absent fathers by about 15 percentage points. Another normative standard, that is, another value choice, would imply a stronger argument for system reform.

Given that certain value judgements would lead to a consideration of reform, the question arises as to what shape the reform should take. Other data sources reveal that many of those families who are demographically eligible do not have an award and many of those who have an award do not receive their due. The incidence of support awards could be increased by replacing the often lengthy judicial process currently needed to secure an award with the use of more perfunctory administrative awards. This would still leave the problems of establishing paternity in cases of out-of-wedlock births and handling out-of-state cases. Collection of the child support liability could be improved through the universal use of income or wage assignments. The costs of such changes have not been explored and may impact on the ultimate decisions. This suggests the need to pilot test any reforms.

The static AFDC caseload and antipoverty impacts of the potential child support transfers provide much clearer policy implications.

Child support transfers cannot do it alone; they are not enough. It is obvious that public subsidies will remain a necessity for most AFDC recipient families. Still more needs to be done, beyond child support reform, to promote the independence and economic well-being of recipient families. The form of this further assistance may vary. One possibility is the public sharing of the expenditure savings with the recipient families, which could be done by reducing the current 100 percent benefit reduction rate on child support received. Although this would enhance the economic well-being of recipient families, it would not promote their independence from welfare. It would result in both the recipient families and the public benefiting from increased child support transfers. For current recipients the taxpayer cost of such an arrangement would be equal to a percentage of current support collections. For example, Wisconsin currently collects about $30 million; if the benefit reduction rate were reduced to, say, 50%, the cost would be $15 million or about 5% more than current expenditures. There is also a likelihood that such a programmatic change would result in increased caseloads and thus higher program costs.

Garfinkel et al. (1982) have proposed an alternative. Their proposal would integrate an improved child support collection system with a guaranteed minimum benefit for all eligible children. The child support eligible families, under this proposed system, would receive the greater of the absent parents' support liability and the guarantee. If the support liability is less than the guarantee the difference would be funded from general revenues. Garfinkel and Haveman (1983) take this reform proposal a step further by proposing that it be combined with a credit income tax for all households and jobs for those unemployed or underemployed household heads.

V. FURTHER RESEARCH

Child support research has been severely hampered by the lack of data. As new and better data sources become available, the quality and quantity of the research and the questions that can be examined will improve. This research effort is but a scratch on the surface and much remains to be done. There are several possible extensions of this research effort:

1. The incorporation of potential labor supply effects of child support tranfers on the custodial parents. A first step, albeit crude, would be to estimate the distribution of AFDC benefits by recipients. This would provide a picture of how close (or far away) families may be from AFDC independence. Next, it would be possible to estimate a shadow wage rate for those custodians not now in the labor force. This could be used to determine the number of hours work needed to achieve that independence. Lastly, more sophisticated simulation models could be developed to incorporate labor supply responses and their economic impacts into the impact simulations. Work in this area is now underway at IRP.

2. The application of the methodologies for estimating the absent fathers' income and ability to pay, and the economic impacts of potential child support transfers, are not confined to Wisconsin data. National estimates are possible for both AFDC and non-AFDC child support eligible populations. The 1979 or 1982 CPS-CSS could be utilized in this effort. Better national AFDC estimates as well as individual state AFDC estimates could be developed using either the 1977 or 1979 national AFDC surveys. Remember, Wisconsin is an atypically high AFDC benefit state. Therefore, national or more typical state estimates may be much better.

3. The analysis of the economic impacts were limited to AFDC and antipoverty. The same methodology could be applied to assess the distributional impacts of potential child support transfers or both AFDC and non-AFDC, poor and non-poor families. This would examine the impact of child support transfers on the income distribution of all eligible families. The impacts on the economic status of near poor and non-poor eligible families could provide further evidence of the need for reform.

4. One of the most important unanswered questions to date is the economic and behavioral consequences of an improved child support collection system on the absent parent--the payor. The 1980 June CPS Fertility Supplement, which contains a sample of self-identified absent parents, may provide the data needed for the economic impact analysis.

Behavioral consequences of an improved child support also need to be assessed, but data is not available. Important questions include: Will increased child support payments affect the relationship between noncustodian and the children? Will men, now generally noncustodial, seek custody because of the increased costs? What about the possible labor supply effects on the noncustodian? Additional questions center on reconciliation, marriage and remarriage, and procreation. In sum, many questions will need to be addressed as a consequence of increased child support.

5. The cost effectiveness of child support collection is an important missing ingredient in the research to date. The lack of reliable cost data makes the evaluation of an economically optimal child support system impossible at the present time.

6. A final task for future research is to estimate the extent to which our AFDC data underestimate the numbers of absent fathers who are deceased or incarcerated.

In conclusion, some of the suggestions for further research are currently underway at the Institute for Research on Poverty. Others will have to wait for better data and/or improved methodologies. Despite the limitations of this thesis, it is hoped that the results will contribute to the current policy debate both in Wisconsin and across the nation. The financial support of a large and growing number of our nation's children is an important societal concern.

Notes to Chapter 6

[1]This back-of-the-envelope estimate was computed in the following manner:

First, assume that the average number of eligible children is 2. Therefore, the IRP tax rate is 25% of income.

Next, the poverty line for a single person is \$4370. Combining this with the tax rate of 25% produces a new poverty threshold of \$6307, so that 6307 - 25% = \$4729. The mean log dollar income is 8.806 and assume that the variance of income is equal to the variance of whites' income (.54216). It is then straightforward to compute the probability that income is less than the poverty threshold.

$$P\left(Y < \frac{C - X\beta}{\hat{\delta}}\right) \approx F(Z) \text{ where } Z = \frac{C - X\beta}{\hat{\delta}}$$

therefore,

$$A = \frac{8.749 - 8.806}{.736} = -.077$$

$$F(-.077) \approx .48.$$

APPENDIX

A-1

U.S. Official Poverty Line-1981

Family Size	Poverty Threshold
1	$4730
2	6110
3	7250
4	9290
5	11000

A-2

Wisconsin Child Support Guidelines
Basic Family Needs Budget

Family Size	Family Budget
1	$4800
2	6720
3	8140
4	9600
5	11040

Source: Wisconsin 1982.

A-3

U.S. Bureau of Labor Statistics
Lower Budget Living Standard
(1981 Dollars)

Family Size	Family Budget
1	$7144
2	9342
3	11540
4	13737
5	15785

Source: Sauber et al., 1977.

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