Child Support: A Comparison of Income and Cost-Based Systems

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Introduction

This study compares Wisconsin's child support guidelines with the actual costs of children. Wisconsin for Children and Families (WFCF) has been advocating for separated parents and their children for over 40 years. WFCF believes both parents should have a meaningful role in their children's lives and this study considers only case where two parents have separated but both have placement. We will refer to this as *joint placement* for purposes of clarity.

The *Code of Federal Regulations 45 CFR § 302.56 - Guidelines for setting child support orders*, requires that, as part of the review of a State's child support guidelines, a State must:

- Consider economic data on the cost of raising children (h1)
- Analyze case data, gathered through sampling or other methods, on the application of and deviations from the child support guidelines (h2)
- Provide a meaningful opportunity for public input, including input from low-income custodial and noncustodial parents and their representatives (h3)

This study is intended help address these requirements.

This study analyzes the current guidelines by:

- Developing a model for the actual costs of children using economic data for modern Wisconsin.
- Comparing the results of that model with the results of the current income-based standard in several cases of joint-parenting families.
- Discussing the origins an important component of Wisconsin's current guidelines.

The Historical Background -- How We Got Here

A central tenet of the current guidelines is the assumption that a single child accounts for 17% of family income, and two children account for 25% of family income. It is useful to understand the origins of 17 and 25 given the millions of dollars that have been transferred to and from thousands of parents based on these numbers.
Wisconsin's guidelines are based, in part, on *On Measuring the Cost of Children* by Jacques van der Gaag. We note that *van der Gaag* is not the only source for the current guidelines, but it is apparent that this study can be credited with the core values of 17 and 25. This study in turn takes its relevant data from *The Cost of Children* by A. Henderson.

The Cost of Children itself has been largely forgotten, but its numerical legacy survives in numerous legal codes, making it arguably one of the most important studies in the history of economic sociology.

The Cost of Children analyzes data on family expenditures to estimate the percentage of an intact family's income that is devoted to its children. Henderson published his study in

1950, based on data collected from "working class families" in Britain in 1938. The scope is limited even for British policy in the mid-twentieth century. Henderson concedes that "These results apply only to the data on working-class expenditure. In the case of middle-class budgets, the position is wholly different."

Henderson never intended for his figures to be used in a formula for child support payments. He states clearly "Once again it must be emphasized that the figures can do nothing more than indicate the order of magnitude." The paper goes on (Table 18) to list the 17% and 25% factors, for the support of one and two children respectively. In spite of Henderson's caveats, these numbers have been doggedly carried through the years and now anchor the Wisconsin administrative code.

Henderson does make an important contribution, still relevant after seventy years. Wealthier family spend more on their children, but this is due to "sundries and luxuries." Sundries are defined as "education, medical services, holidays and washing." We will use the modern term of *variable expenses* to capture these sundries and luxuries, while acknowledging that the cost of washing might have an alternative categorization in modern Wisconsin. Henderson found that basic expenses stay relatively constant as income increases, and variable expenses account for rising expenditures with rising parental income.

The 17% and 25% values are based on 1938 data. Henderson goes further to study data collected in 1948, immediately following the Second World War. In this case food rationing and economic subsidies meant that the cost of children was substantially negative, as the British government provided incentives that made children profitable to their parents. It is interesting to speculate on the results if the 1948 data (-6% and -13%) had been applied to Wisconsin guidelines. But these results are no more meaningful than the 17% and 25% that survive to the present day. What is clear from Henderson's effort is that income-based estimation leads to results that are only applicable over a narrow range of incomes, during brief economic conditions and with careful consideration of government subsidies, incentives and tax policies.

In *On Measuring the Cost of Children* Jacques van der Gaag also seeks to calculate the fraction of a family's income that is devoted to children. He discusses a mathematical method for estimating the distribution of a family's income, referred to as the *utility framework*. This process involves a data on the various expenditure for goods and services, over various family compositions and incomes. To the surprise of no one who has worked with elaborate economic models, the author found it challenging to estimate the parameters for his model.
To quote:

> Though I did derive at a point (gu)estimate for the cost of a first child . . . I was able to do so only after extensive manipulation of the data. Unfortunately, the consensus about the cost of subsequent children is even weaker than that for the first child.

van der Gaag does collect the results of previous research in his first table. He writes:

> As the table readily reveals, there is not much consensus about the numbers. The percentage increase of income needed to compensate a couple for having a first child runs from 0% to 42%. There seems to be no systematic relation between the outcome and the technique used. Henderson, basing his estimates on 'adult consumption,' gets numbers between 17% and 22%, depending on income level.

Henderson's results, collected in Tables 1 and 2 of van der Gaag, bring us the 17% and 25% that appear to be the source of the numbers we find in the Wisconsin guidelines. This author has been unable to determine exactly how these values made the leap from *On Measuring the Cost of Children* to the legal code. One suggestion is that Henderson was featured more prominently in the text, and his numbers are at the top of the tables that feature them.
But as van der Gaag concludes his paper:

> The approaches that do not fit within the utility-maximizing framework are all based on questionable or imprecise definitions of the cost of a child. It seems unlikely that further work in these directions will lead to better estimates of a child's cost.

It would have been hard for van der Gaag to condemn his colleagues' work more clearly while staying within the dictates of professional tact. Yet these results have become the core of a code that is used throughout Wisconsin to determine child support. In the next sections we discuss some of the effects of this decision.

The Comparison

Our comparison is based on calculating the actual cost of children over several cases using data from the U.S. Department of Agriculture, and comparing results using the Wisconsin *Child Support Percentage of Income Standard.*

It should be noted that the cases chosen are based on situations familiar to WFCF. The cases are based on joint parenting families with lower to middle incomes. These are usually cases where a parent has reached out to the WFCF for assistance with the family court system. Our focus is on basic costs and we omit variable costs from the comparison. The distinction is important and will be discuss in greater detail below.

Wisconsin's Percentage of Income Guidelines

Wisconsin Administrative Code DCF 150, Child Support Percentage of Income Standard codifies the standard to be used by courts in determining child support obligation. We will refer to this code as *DCF 150* or *income-based* in the discussion below. We omit a detailed description of DCF 150, in favor of providing a discussion of the differences and similarities with a cost-based approach.

Briefly:

- Support is divided into basic and variables expenses. Broadly speaking, basic expenses cover the necessities and variables cover the costs beyond. Concise definitions are found below. Understanding these categories is important. They are treated separately in the Wisconsin court system, but components are often confused by analysts. This study focusses on basic costs.
- DCF 150 is based on a percentage of a parent's income, as the name suggests. The assumption is that parents pay 17% of their income to provide basic support for one child, 25% for two children, and so on.
- DCF 150 bases child support on a hypothetical intact family. The code is never applied to families that are intact. It is applied only to families that are no longer together or that never were together.

The Cost-Based Model

We have developed a model to serve as a baseline for comparing Wisconsin's Percentage of Income Standard with recent data on child costs. This model will be referred to as *cost-based* in the discussion below. We also note that this model is not a proposal for a new child support formula. It is intended to provide insights into cases where the income-based model works and doesn't work.

Several assumptions were used in developing the cost-based model:

- It focusses on child support cases. It assumes that the parents are living separately.
- It assumes that the cost of children will be divided between two parents, in proportion to their income. It is not applied to single-parent cases.
- It takes data from a source believed to be generally reliable – the United States Department of Agriculture.
- It uses results for the urban Midwest in 2021.
- It follows the existing Wisconsin legal framework where feasible, diverging only where economic reality demands.

Following the template used in Wisconsin today, support costs are broken into three categories: basic costs, variable costs and healthcare costs.

Basic support costs are food, shelter, clothing, transportation, personal care, and incidental recreational costs. This definition is taken directly from **DCF 150.02 (3).** The baseline uses housing, food, transportation, clothing and miscellaneous as the definition of basic expenses.

Variable costs are the reasonable costs above basic support costs incurred by or on behalf of a child, including but not limited to, the cost of child care, tuition, a child's special needs, and other activities that involve *substantial* cost. This definition is taken

directly from **DCF 150.02 (29).** We emphasize *substantial* – these are costs for which valid receipts can be reasonably requested and provided.

Healthcare costs under DCF 150 are described in Wisconsin Administrative Code DCF 150.05. This code is both complex and highly dependent on the court's discretion.

The remainder of this paper discusses basic expenses. Variable and health expenses are out of scope.

We further divide basic costs into two categories: *per parent*, and *split*.

Per parent are the costs that each parent must pay, regardless of placement time. They are effectively housing costs – each parent must cover these costs when the child is absent and when the child is present. `

Split costs move with the child as he or she shifts from one home to the next. The assumption is that a child doesn't eat twice as much when her parents separate. These costs are food, transportation and incidentals. Split costs are proportioned by placement time.

Total Basic Cost gives the total basic support cost for both parents – equal to twice the per parent costs plus the split costs. The court may order that a given child should enjoy luxuries well beyond these amounts. The cost of these luxuries will fall into the variables bucket.

Parent Income is the gross income of each parent. **Total income** is the income of both parents.

Parent Obligation is a parent's share of the total cost. It is proportional to that parent's income and shows the dollar amount that the first parent must cover.

Parent Direct Expense gives the out-of-pocket costs of the children for that parent. These include the per Parent (or housing) costs and the parent's share of the split costs.

Child Support Amount is the payment made by one parent to the other.

Cost-Based Support is the child support amount calculated using the cost-based approach.

Income-Based Support is the child support amount paid by one parent to the other, as calculated using the DCF 150 method.

Total Costs are the parent's direct expenses, plus the income-based support payment. The total cost of supporting a child or children with Wisconsin's present system.

Cost-Based Per Diem is the change in the cost-based child support with a single day change in placement per month.

Income-Based Per Diem is the change in the DCF 150 basic support payment with a single day change in placement per month.

Cliff Value is the reduction in the DCF 150 basic support payment when the placement time crosses the 25% threshold. At this point the income-based method uses a different formula to calculate child support.

Percent of Total Costs gives the breakdown of actual support costs between the parents. It accounts for the amount that each parent pays to support his or her children, after the DCF support payment.

The analysis below is limited to basic costs. Variable expenses are treated separately in both the legal code and actual courtroom practice. Values are in US dollars per month.

The Cost Baseline

The 2015 Expenditures on Children by Families from the U.S. Department of Agriculture provides the basis for child costs. Using data for middle-income families in the urban Midwest, per parent costs are taken as the housing cost. The split costs are the sum of the food, transportation, clothing and miscellaneous expenses. Working with the average of the child ages, and adjusting for inflation between 2015 and 2021, both per parent and split costs can be calculated for the cases of one to five children. The details can be found in Appendix A. The result is tabulated below:

Number of Children	1	2	3	4	5
Per Parent	410	637	741	984	1,228
Split	702	1,093	1,270	1,687	2,105

Table 1. The basic costs of children for middle income parents in the urban Midwest.

We note that many readers will find these values excessive and point to numerous families living comfortably on less. Our conclusions could be defended with substantially different values.

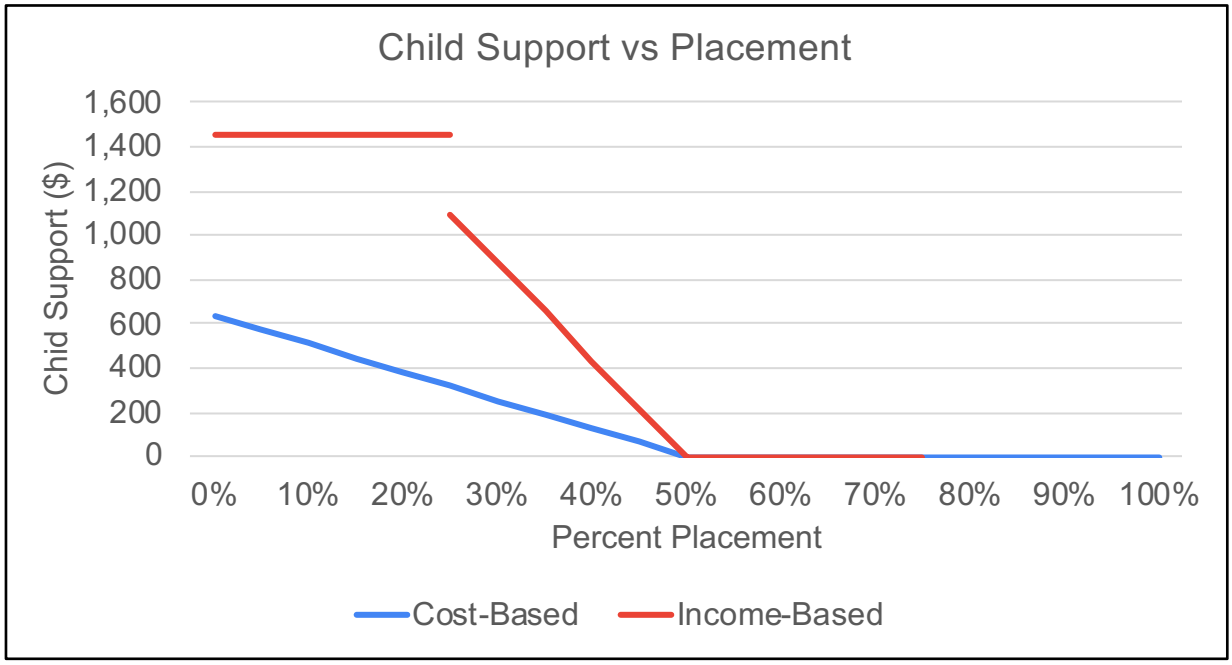
Case Studies

Case 1a: Equal and Average Incomes

Both Parent 2 and Parent 1 are public school teachers with three children. Both parents earn $5000 per month, slightly more than the average school teacher in in Wisconsin. Parent 1 has placement for three days on alternating weekends, with the remaining days awarded to Parent 2.

	Parent 1	Parent 2
Number of Children	3	
Placement Time	21.4%	78.6%
Income	5,000	5,000
Actual Basic Costs	1,013	1,738
Cost-Based Support Payment	363	
Income-Based Support Payment	1,450	
Cost-Based Per Diem	42	
Income-Based Per Diem	0	
Cliff Value	363	

	Parent 1	Parent 2
Income	5,000	5,000
Basic Child Costs	1,013	1,738
Income-Based Support	1,450	-1,450
Total Costs	2,463	288
Remainder	2,537	4,712
% of Total Costs	90%	10%



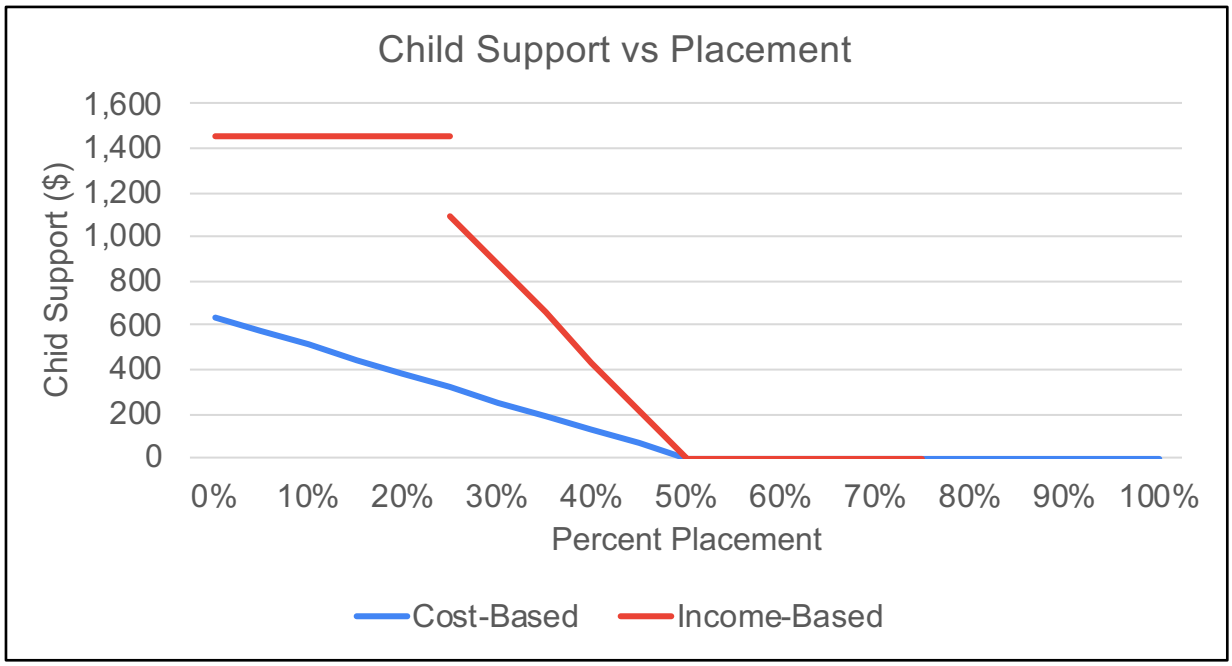
The incomes are equal, but Parent 1 is covering almost all of the child care costs. The difference is the placement. These case studies don't take taxes into account – but Parent 2's support payment is tax-free. A tax adjustment would probably mean that Parent 2's disposable income is about double Parent 1's.

Case 1b: The Cliff

Here the incomes remain the same, but Parent 1 has placement on four days every two weeks. This brings his placement time to 28.6%.

	Parent 1	Parent 2
Number of Children	3	
Placement Time	28.6%	71.4%
Income	5,000	5,000
Actual Basic Costs	1,103	1,648
Cost-Based Support Payment	272	
Income-Based Support Payment	932	
Cost-Based Per Diem	42	
Income-Based Per Diem	143	
Cliff Value	363	

	Parent 1	Parent 2
Income	5,000	5,000
Basic Child Costs	1,103	1,648
Income-Based Support	932	-932
Total Costs	2,036	715
Remainder	2,964	4,285
% of Total Costs	74%	26%



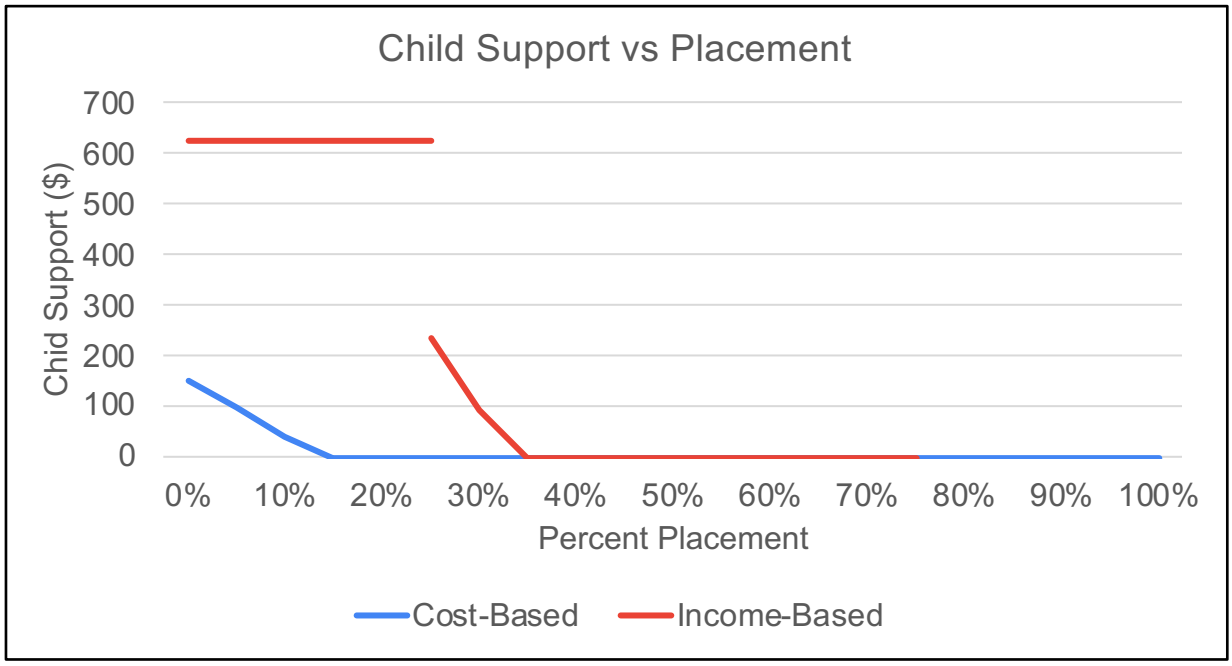
The change in placement takes the percentage of income calculation from *primary placement* to *shared placement*. A different formula is applied and the income-based child support amount falls from $1,450 to $932. Most of the difference is due to the *cliff value,* the change in child support as the payer moves past the 25% threshold. In this case the cliff is $363. The cliff value can provide a substantial economic deterrent to shared parenting. The graph shows the support payment as the placement time changes for this case. The cliff is depicted by the discontinuity in the income-based curve.

Case 2

Parent 1 is a restaurant cook; Parent 2 is a nursing assistant. Parent 1 has placement one weekend every two weeks.

	Parent 1	Parent 2
Number of Children	2	
Placement Time	14.3%	85.7%
Income	2,500	5,000
Actual Basic Costs	793	1,574
Cost-Based Support Payment	0	
Income-Based Support Payment	625	
Cost-Based Per Diem	36	
Income-Based Per Diem	0	
Cliff Value	391	

	Parent 1	Parent 2
Income	2,500	5,000
Basic Child Costs	793	1,574
Income-Based Support	625	-625
Total Costs	1,418	949
Remainder	1,082	4,051
% of Total Costs	60%	40%

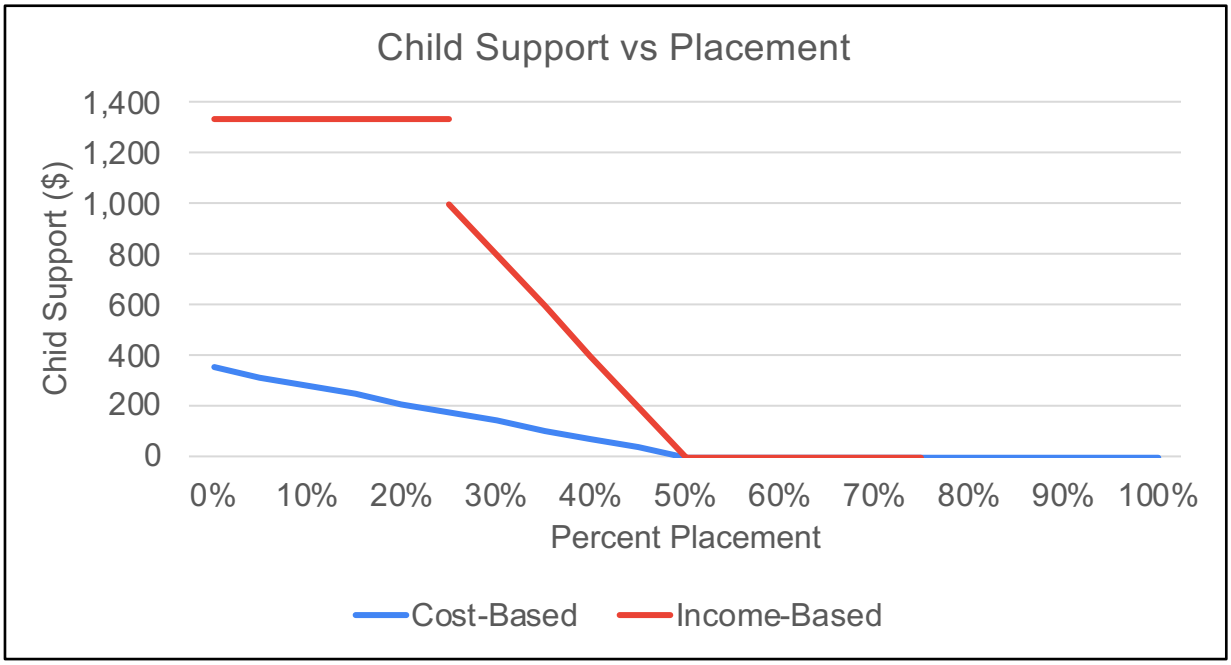


Why are the curves so different? When placement is below 25% Parent 2's income is not considered in the income-based calculations. Parent 2's income is twice Parent 1's, but Parent 1 shoulders most of the basic costs.

Case 3

	Parent 1	Parent 2
Number of Children	1	
Placement Time	35.7%	64.3%
Income	8,000	8,000
Actual Basic Costs	661	861
Cost-Based Support Payment	100	
Income-Based Support Payment	570	
Cost-Based Per Diem	23	
Income-Based Per Diem	131	
Cliff Value	333	

	Parent 1	Parent 2
Income	8,000	8,000
Basic Child Costs	661	861
Income-Based Support	570	-570
Total Costs	1,231	291
Remainder	6,769	7,709
% of Total Costs	81%	19%



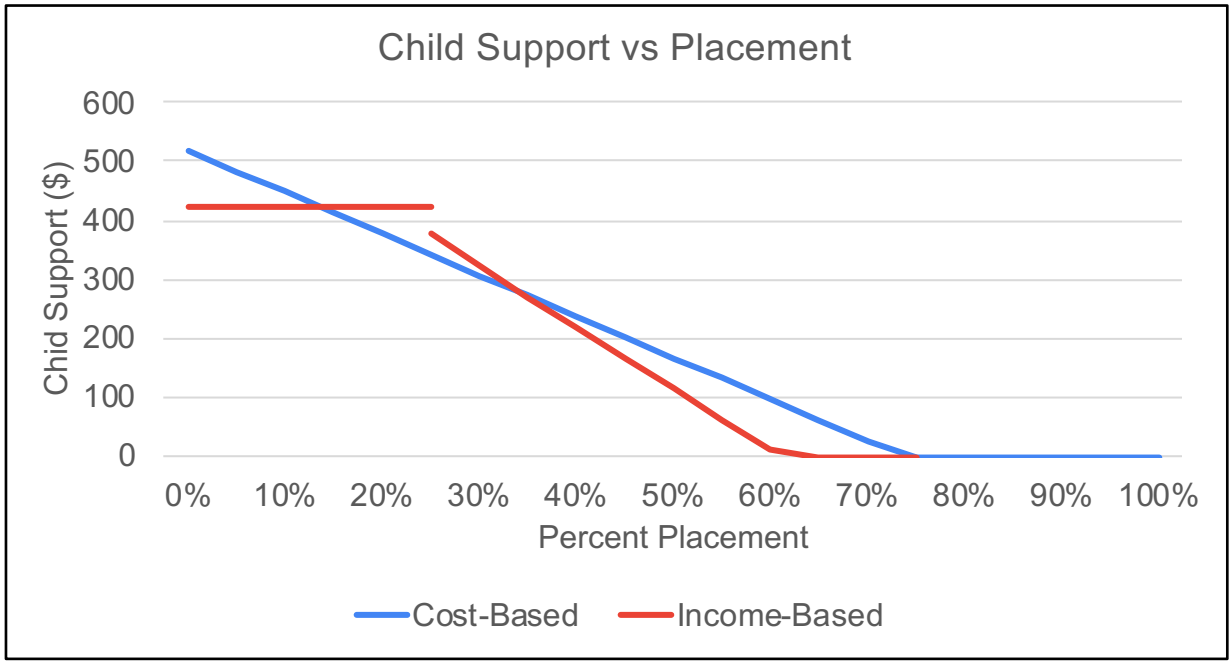
Cost-based per diem is the change in actual costs if placement changes by one day. Here it is $23, largely the cost of groceries and transportation for one child for one day. *Income-based per diem* is the change in the income-based child support payment if placement changes by one day. In this case the model assumes that child will need $131 per day for food, transportation, clothing and miscellaneous.
How does the income model come up with such a number? Since this case is *shared-parenting* the 17% factor is multiplied by 150%. Both parents have above average incomes, and the income model assumes that about a fourth of the combined income is spent on a single child.

Case 4

Parent 1 works in a grocery store; Parent 2 works part-time as housekeeper.

	Parent 1	Parent 2
Number of Children	1	
Placement Time	35.7%	64.3%
Income	2,500	1,600
Actual Basic Costs	661	861
Cost-Based Support Payment	267	
Income-Based Support Payment	264	
Cost-Based Per Diem	23	
Income-Based Per Diem	34	
Cliff Value	49	

	Parent 1	Parent 2
Income	2,500	1,600
Basic Child Costs	661	861
Income-Based Support	264	-264
Total Costs	925	597
Remainder	1,575	1,003
% of Total Costs	61%	39%



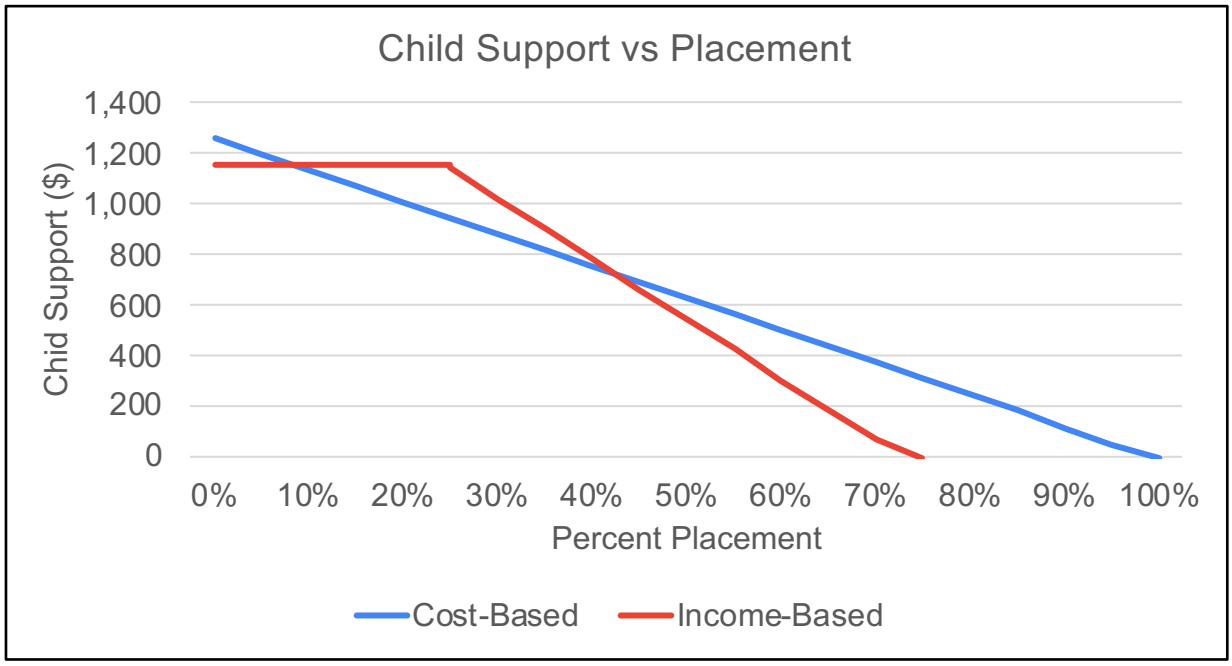
The income-based formula works fairly well in this case. Why? Both incomes are low. Note that this table does not capture a realistic picture of the family economics. Social programs will likely be an important component of the real-world income. Also note that after the child support payment Parent 1 is well below the 200% poverty line and close to the 100% FPL of $1451.

Case 5

Parent 1 is a warehouse manager. Parent 2 works part-time in retail, allowing her to care for the children when school is out. Parent 1 has placement five days every two weeks.

	Parent 1	Parent 2
Number of Children	3	
Placement Time	35.7%	64.3%
Income	4,000	1,500
Actual Basic Costs	1,194	1,557
Cost-Based Support Payment	807	
Income-Based Support Payment	886	
Cost-Based Per Diem	42	
Income-Based Per Diem	79	
Cliff Value	18	

	Parent 1	Parent 2
Income	4,000	1,500
Basic Child Costs	1,194	1,557
Income-Based Support	886	-886
Total Costs	2,080	671
Remainder	1,920	829
% of Total Costs	76%	24%



The income-base formula works reasonably in this case. Why? There is a wide disparity in incomes, the combined incomes are fairly low and the actual child costs are a large fraction of the total family income. Note that if social program income and taxes were considered the picture would probably be different.

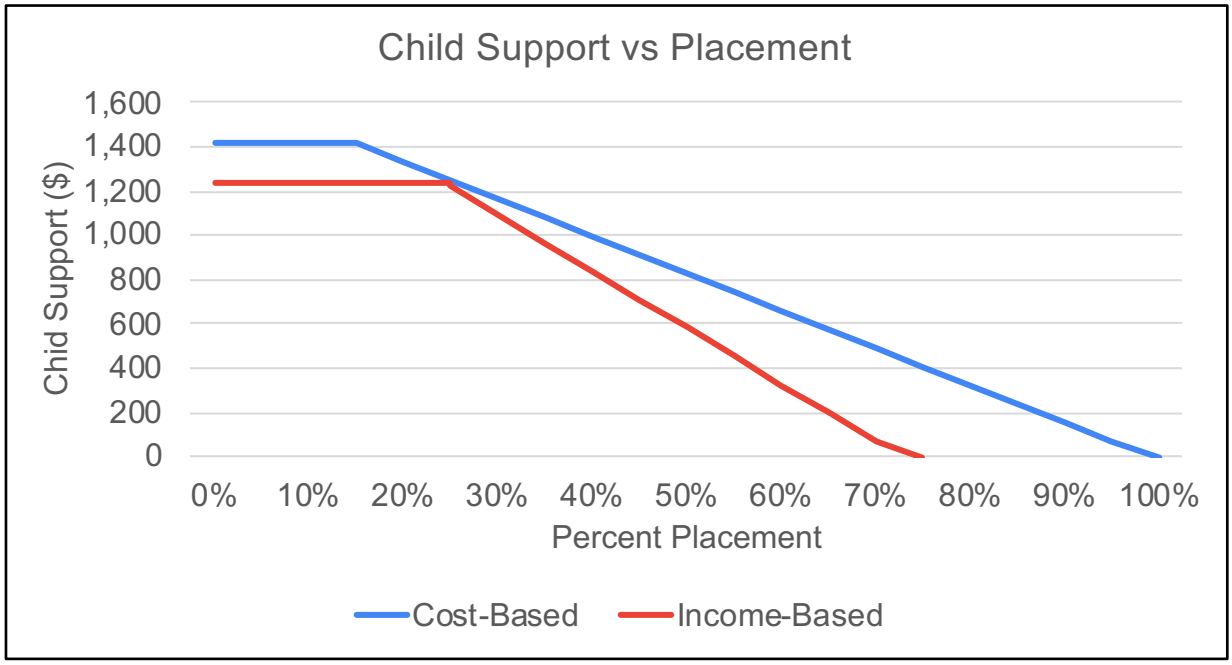
This is a case where the income-based results achieve what many people would see as simple fairness; Parent 1 earns about three times what Parent 2 earns and Parent 1 pays about three time as much to cover the cost of the children. In this case about half of the combined family income is devoted to child expenses.

Case 6

This is identical to the previous case, except that the family has a fourth child.

	Parent 1	Parent 2
Number of Children	4	
Placement Time	35.7%	64.3%
Income	4,000	1,500
Actual Basic Costs	1,587	2,069
Cost-Based Support Payment	1,072	
Income-Based Support Payment	947	
Cost-Based Per Diem	55	
Income-Based Per Diem	84	
Cliff Value	19	

	Parent 1	Parent 2
Income	4,000	1,500
Basic Child Costs	1,587	2,069
Income-Based Support	947	-947
Total Costs	2,533	1,122
Remainder	1,467	378
% of Total Costs	69%	31%



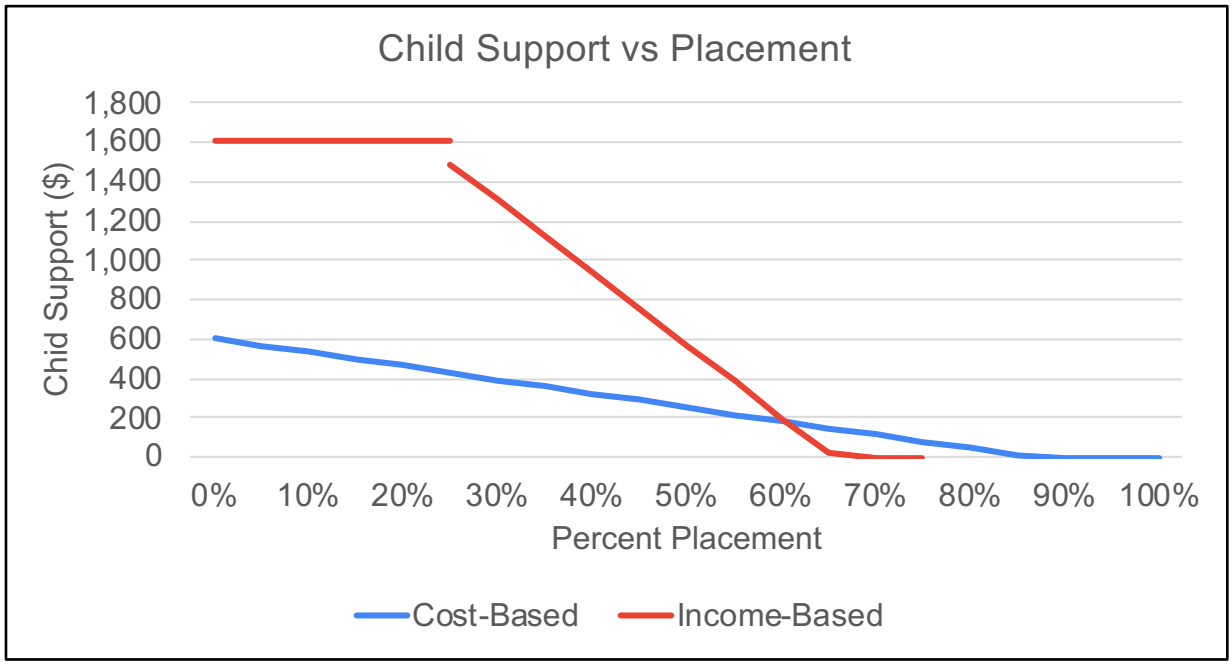
The cost-based formula works out better for Parent 2 at all placement levels. Why? The income model assumes the fourth child costs about 18% as much as the first child. The USDA data used in the cost model assumes the fourth child costs 96% as much. This author found nothing close to a consensus on what an accurate number might be. We suspect that it would fall somewhere in the middle.

Case 7

Both parents have equal placement of their single child. Parent 1 works as an actuary for a large insurance company. Parent 2 processes claims in a different department.

	Parent 1	Parent 2
Number of Children	1	
Placement Time	50.0%	50.0%
Income	10,000	5,000
Actual Basic Costs	761	761
Cost-Based Support Payment	254	
Income-Based Support Payment	570	
Cost-Based Per Diem	23	
Income-Based Per Diem	121	
Cliff Value	118	

	Parent 1	Parent 2
Income	10,000	5,000
Basic Child Costs	761	761
Income-Based Support	570	-570
Total Costs	1,331	191
Remainder	8,669	4,809
% of Total Costs	87%	13%



Parent 1 covers almost all of the actual costs for his child, even in an equal placement case. Why? In modern America affluent parents spend only a small fraction of their incomes on children's food, clothing, transportation and incidentals.

Conclusions

Henderson, van der Gaag and their peers had both advanced mathematical tools and broad data sets, yet failed to estimate how much of an intact family's income is devoted to their children.

There are at least two problems with this approach:

- Reliable cost estimates using parental income have proved elusive at best. There is little correlation between basic child costs and parental income.
- It is the wrong question. We need guidance for setting child support in cases of joint placement. By definition these are not intact families.

This study shows that Wisconsin's income-based model fails to capture the real-world cost of children in many cases. A simple mathematical formula, based on income, that holds true in all places and times has a certain intellectual appeal. What is clear is that such a formula has not been provided yet, and it is doubtful that it will arrive soon.

If child support payments are to serve the material well-being of children, we need only answer a simpler question: how much does a child cost her parents? We argue that this could be accomplished with the straightforward application of economic data and basic accounting.

This paper has discussed cases where the current guidelines ask a middle-class parent to pay in excess of one hundred dollars per day for the basic expenses of an ordinary child. Wisconsin's current policy is based on the argument that a child's welfare should not be harmed by the divorce or separation of his parents. If the Wisconsin legislature mandated that middle-class married couples spend more than one hundred dollars each day for their child's basic expenses, the new law would be greeted with amazement. Yet this is the mandate for separated parents under the Percentage of Income Standard.

In many cases economic distortions from the current system cause serious damage to family finances and childrens' futures. In particular, it is a system that creates an economic incentive to eliminate or reduce joint parenting, and generates drawn-out litigation instead of an equitable distribution of family resources. It is time to reform the Wisconsin's child support system and build a system that is fair to all parents and their children.

Appendix A
Baseline for Child Support Comparison

This paper compares Wisconsin's income-based formula with a baseline representing actual costs for middle-income Wisconsin families. This is a baseline for comparison, not a proposal for a replacement. Such a proposal is beyond the scope of this paper. Average costs are taken from the USDA's *2015 Expenditures on Children By Families.* It uses only basic expenses - housing, food, clothing, transportation and miscellaneous. This appendix describes the adjustments made for the number of children in a family, the age of those children and the inflation between the collection date of the data and 2021.

The starting point is USDA's Appendix A, Table 4. *Estimated annual expenditures on a child by married-couple families, urban Midwest, 2015.* This table represents costs for an intact family with an average income of $81,700 – close to the average for Wisconsin in 2021.

Age of child	Total expense	Housing	Food	Transportation	Clothing	Health care	Child care and education[a]	Miscellaneous[b]
Before-tax income: $59,200 to $107,400 (Average = $81,700)								
0 - 2	$12,370	$3,500	$1,490	$1,710	$890	$1,160	$2,730	$890
3 - 5	12,420	3,500	1,600	1,760	740	1,090	2,730	1,000
6 - 8	12,030	3,500	2,170	1,820	740	1,120	1,560	1,120
9 - 11	12,830	3,500	2,550	1,860	930	1,260	1,560	1,170
12 - 14	12,680	3,500	2,650	2,010	1,020	1,220	1,260	1,020
15 - 17	13,470	3,500	2,670	2,200	1,000	1,280	1,830	990
Total expenses	**$227,400**	**$63,000**	**$39,390**	**$34,080**	**$15,960**	**$21,390**	**$35,010**	**$18,570**

Step 1: Average the expenses over all age groups:

	Total	Housing	Food	Trans-portation	Clothing	Health Care	Child Care and Education	Misc
Average	**12,633**	**3,500**	**2,188**	**1,893**	**887**	**1,188**	**1,945**	**1,032**

Step 2: Break out Basic and Variable Expenses

Per Parent	= Housing	3,500
Split	= Food + Transportation + Clothing + Misc	6,000
Variable	= Health Care + Child Care and Education	3,133
Total		12,633

Step 3: Extend Costs for Families with Multiple Children
Table 8, page 15 of USDA makes adjustments for families with one or more children. The algorithm is tabulated below. This results in a set of factors that allow the conversion of costs to cases of one to five children.

Number of Children	Formula (Table 8)	Factor
1	1.26	1.26
2	1+.96	1.96
3	.78*(1+.96+.96)	2.2776
4	.78*(1+.96+.96+.96)	3.0264
5	.78*(1+.96+.96+.96+.96)	3.7752

These factors can be applied to the result of step 2, to create a table of costs based on the number of children.

Number of Children		1	2	3	4	5
Factor		1.26	1.96	2.2776	3.0264	3.7752
Per Parent	3,500	4,410	6,860	7,972	10,592	13,213
Split	6,000	7,560	11,760	13,666	18,158	22,651
Variable	3,133	3,948	6,141	7,136	9,483	11,829

A few quick comments:

- The averaging in step 2 results in three interestingly round numbers.
- The cost data in step 1 is for intact families but the multiple-child formulas are for single-parent cases. This was chosen as the closest option for representing middle-income, Midwest and single-parent using USDA as the source.
- The costs for four and five children are controversial at best. Many large families are comfortable with substantially less.

Step 4: Adjust for Inflation
USDA page 19 estimated that inflation would run at 2.2% per year.
Using this estimate – which time has proved accurate – we can calculate an inflation factor of 111.5%. This multiplier is applied to the previous table:

Number of Children	1	2	3	4	5
Per Parent	3,902	4,917	7,649	8,888	11,810
Split	6,690	8,429	13,112	15,236	20,246
Variable	3,494	4,402	6,847	7,957	10,573

Step 5: Divide by 12 to convert from annual to monthly values.

Number of Children	1	2	3	4	5
Per Parent	410	637	741	984	1,228
Split	702	1,093	1,270	1,687	2,105

Appendix B

The algebra for the cost baseline.

I_1, I_2 - Incomes of parents
T_1,T_2 – Fraction of time spent in each parents home.
C_F - Fixed cost for one parent
C_S - Split Costs
$C = C_F + 2C_S$ = Total basic expense
P_1, P_2 – Child Support Amount

The total obligation for the first parent is proportional to that parent's income, applied to both variable and basic costs:

$$O_1 = \frac{I_1 C}{I_1 + I_2}$$

And similarly for the second parent:

$$O_2 = \frac{I_2 C}{I_1 + I_2}$$

The child support payment for the first parent, P_1, is that parent's obligation, minus the fixed cost for one parent, minus a portion of the split costs adjusted for the placement time.

$$P_1 = O_1 - C_F - T_1 C_S$$

And similarly for the second parent:

$$P_2 = O_2 - C_F - T_2 C_S$$

Where the support for the parent receiving child support will be negative.
In the case where neither parent is low-income, the state provides no support for the children:

$$P_1 + P_2 = 0$$

Using the previous three equations, we can show that

$$O_1 + O_2 = 2C_F + C_S$$

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