Alabama

Economic Report on Alternative Child Support Cost Schedules and Related Issues, 2016

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Draft

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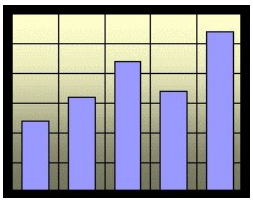

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CHAPTER I
Executive Summary

Introduction

This report has been prepared under contract with the Alabama Administrative Office of the Courts. This report is part of the on-going review of Alabama's child support guidelines as mandated by the Family Support Act of 1988 [P.L. 100-485] as promulgated under federal regulations [45 CFR 302.56]. The explicit objectives of this contract are:

- Develop an updated standard "Income Shares" cost table based on a 2010 study by David Betson of the University of Notre Dame. This is the study used as a foundation for guideline reviews by most states. The child cost table would be adjusted for Alabama income tax code and be based on gross income instead of net income in the study. It should be noted that this study is based on national data and can be considered a starting point for other methodologies applied in this report.

- Adjust the standard Income Shares cost table for differences between the cost of living in Alabama and the U.S. average. The child cost table would be adjusted for the cost of living ratios for selected cities in Alabama. An average of the cities would be used.

- Adjust the standard Income Shares cost table for the cost of a second household. The Betson study is based on intact family households. In child support cases, there are two households and this increases "adult overhead costs" such as for a second mortgage or rent payment and utilities. This reduces available income. Consideration of second household costs is appropriate for the presumptive cost table to be consistent with case facts—income actually available for covering the cost of raising children.

- While not part of the contract, a fourth set of child cost data were developed. The standard Income Shares cost table with an adjustment for the cost of a second household was adjusted with a COLA to reflect the cost of living in Alabama.

Rogers Economics, Inc. has developed four sets of alternative updated schedules based on the most current data on child costs available in 2010. It is based on:

- Price levels updated to March 2016;

- New measurements of child-rearing expenditures developed by Dr. David Betson applying the Rothbarth methodology to expenditures data from a nationally representative sample of families surveyed in 2004-2009, which is the most current survey data available;
- Adjusting the above measurements to reflect relative cost of living between Alabama and the national average using data from the Council for Community and Economic Research (CCER);
- IRS standards for housing allowances;
- 2016 federal and state withholding rates for income tax rates and FICA; and
- The 2016 federal poverty guidelines.

Rogers Economics essentially used these data to develop updated child support schedules as the assumptions and steps used to develop existing and previous Alabama child support schedules for standard Rothbarth numbers (used as a starting point for the other three sets of estimates.
This document provides a comparison of the existing and newly estimated schedules. Some of the proposed changes are significant and result from Alabama not having fully updated its schedule in about a decade and based on CPR's 2004 report to Alabama.

Additionally, comparisons were made for cost schedules are various scenarios for awards for current Rule 32, estimates for 2016, and neighboring and other states.

Key Findings

- The current BCSO schedule is vastly out of date—being based upon 1996-1999 Consumer Expenditure Surveys. The current Rule 32 cost schedule is also based on a child cost estimation methodology. New 2016 estimates in this Alabama study are based on David Betson's 2010 research on child costs using Consumer Expenditure Surveys from the first quarter of 2004 through the first quarter of 2009.

- The 2016 standard Rothbarth cost schedules are significantly higher than the current Rule 32 tables due to several factors.

    - The current Rule 32 cost table is based on data that are more than a decade old. Household spending patterns (in terms of percentages of net income and child costs as a percentage of overall household spending) rise with inflation-adjusted net income. After adjusting net income for inflation, spending percentages rise according to gross income. This increase has been substantial since the current cost schedule was implemented.

- There are some offsetting or mixed factors to the general upward trend in child costs. Very low income levels in 2016 estimates see lower numbers due to the sharp rise over the years in the federal poverty threshold which is a key input into calculating the self-support reserve.

- Betson's 2010 child cost estimates show notably higher percentages at higher incomes but lower percentages at lower incomes.

- The higher percentages are more significant for three or more children.

- The 2010 study switched its spending approach from use of "expenditures" to "outlays.

> Besides data years, BR4 [the fourth and latest Betson-Rothbarth study] differs from earlier BR measurements in two other ways. Earlier BR measurements consider "expenditures" while BR4 considers "expenditures-outlays." Expenditures include the purchase price (and sales tax) on any item purchased within the survey year regardless whether the item was purchased through installments. In contrast, outlays only capture what was actually paid toward that item during the survey period. So, if there were only four out of 20 installment payments made during the survey period, only those four payments are captured.
>
> Unlike expenditures, outlays also capture mortgage principal payments, payments on second mortgages, and payments on home equity loans. Both expenditures and outlays capture interest on the first mortgage among homeowners and rent, utilities, and other housing expenses among renters. The merit of expenditures for use of state guidelines is that it excludes mortgage principal payments. This is consistent with property settlements that have historically addressed equity in the home as part of the divorce settlement. The merit of outlays for use in state guidelines is it is a better reflection of actual family budgeting on a monthly basis.[1]

Overall, the switch to outlays has had a damping effect on costs.

- The 2016 Rothbarth estimates with a cost of living adjustment (COLA) for Alabama most closely follow the methodology underlying current Rule 32 cost tables. While cost levels are similar at modest income levels, even the COLA adjusted tables are notably higher at moderately high and high income levels for two or more children. This is especially the case for three or more children.

- Of the four sets of estimates for 2016:

[1] Jane Venohr, *Georgia Commission on Child Support Final Report 2014.*

- The standard Rothbarth estimates clearly are the highest and show sharp increases relative to the current Rule 32 numbers.
- The 2016 Rothbarth with a second household adjustment and Alabama COLA comes in with the lowest cost estimates.
- The 2016 Rothbarth with a second household adjustment (but NO COLA) and the 2016 Rothbarth with an Alabama COLA (but NO second household adjustment) fall in between and show roughly similar cost levels.

- While this report presents four alternative child cost tables for the Administrative Office of the Courts to consider for replacing current Rule 32 tables, another alternative may be for the AOC to choose a gradual update approach. That is, what may be considered would be a new cost tables that lies between current Rule 32 and one of the four new estimates. This approach has been used, for example, by the State of New Mexico.

- For state comparisons:

  - Rule 32 cost numbers fall on the low end of the scale for comparisons (Alabama, Colorado, Georgia, South Carolina, and Tennessee) with South Carolina close to Rule 32 dollars due to its low income realignment.
  - Alabama standard Rothbarth (no adjustments and based on national data) estimates for 2016 are similar to numbers for Colorado and Georgia. Colorado uses national data with a small upward adjustment for higher housing costs. Georgia's data are old but are based on a combination of the Rothbarth methodology and the very upward biased Engel methodology (discussed in Appendix II).
  - The 2016 Rothbarth with Alabama COLA falls at the middle for state comparisons.

Recommendations

- Current Rule 32 is significantly outdated (based on a 2004 study and data from 1996-1999). Some type of implementation of newer cost data is appropriate (using one of this study's 2016 methodologies alone or as a weighted average with current Rule 32).

- It should be noted that the four alternative tables are based on standard methodologies but with different assumptions (such as to use national or state based tables or to use data based on net income available to intact families or use data taking into account the added "adult overhead" of a second residence).

- The cost table using the Rothbarth methodology (based on David Betson's 2010 study) with a COLA adjustment for Alabama is based most closely to the methodology underlying current Rule 32. This version of 2016 estimates is similar to Rule 32 for one child costs. For two children, these 2016 estimates are marginal higher at middle incomes and somewhat notably higher at upper incomes. For three children or more, the Rothbarth with Alabama COLA costs are notably higher except at modest incomes. Higher income costs are somewhat significantly higher than Rule 32.

- Using a weighted average of the current cost table and an updated cost table would not be unprecedented. New Mexico is an example.

  New Mexico last reviewed its child support guidelines in 2007 and the 2008 New Mexico legislature adopted a partial update of the schedule. A full update to a schedule based on the most current economic data available 2007 would have produced substantial changes to schedule amounts. The schedule in effect at the time was based on 1994 data. (For various reasons, there were no updates to the New Mexico schedule from 1994 to 2007.) To avoid price sticker shock but bring New Mexico closer to current economic data, the legislature opted for a partial update. They essentially made 25 percent of the recommended change. For example, in 2007, the recommended change for the one-child amount for parents with combined gross incomes of $4,000 per month was from $550 to $665 per month, which is a $115 increase. Instead of this increase, however, the schedule was only increased by a quarter of that amount ($28, which is 25% of $115). This increased the one-child amount for parents with combined gross incomes of $4,000 per month from $550 to $578 per month rather than from $550 to $665 per month.[2]

- The self-support reserve portion of Rule 32 is out date, based on a 2004 report, and should be updated taking into account the 2016 poverty thresholds.

[2] New Mexico Child Support Guidelines Review, Preliminary Comparison of Updated Schedule, Submitted to New Mexico Human Services Department Child Support Enforcement Division, by Center for Policy Research, Denver, CO, September 8, 2010, Jane Venohr, p. 1.

CHAPTER II
Developing a Schedule of Support Obligations

The development of a schedule of child support obligations is fairly complex in that it requires (1) the use of multiple data sources (e.g., Consumer Expenditure Surveys); (2) decisions about how to treat certain classes of expenditures, notably what is and is not included in the presumptive cost table (e.g., medical care); (3) intermediate calculations (e.g., how to translate expenditures on children to a proportion of net income and how to interpolate various calculation); and (4) assumptions (e.g., how to estimate expenditures on children, computation of taxes in estimating net income, and the best method for estimating child costs at relatively high income). This technical appendix explains the procedures used in developing the table of support proportions (i.e., expenditures on children as a proportion of household net income for various levels of income and numbers of children and, in turn, for dollar expenditures at various gross income levels) and, therefore, the proposed Schedule of Basic Child Support Obligations.

This report provides four different sets of estimates of child costs with each set's key differences in methodology noted. These four methodologies are:

1) Standard Rothbarth estimates using national data from intact families,
2) Standard Rothbarth with an adjustment for the additional expense of second household expenses,
3) Standard Rothbarth estimates with an adjustment for the lower cost of living in Alabama relative to that of the U.S. average, and
4) Standard Rothbarth with an adjustment for the additional expense of second household expenses and with an adjustment for the lower cost of living in Alabama relative to that of the U.S. average.

Technical considerations begin with standard Rothbarth estimates, followed by Rothbarth with a second household adjustment, and then the cost of living adjustment.

Parental Expenditures on Children

Building a schedule of support obligations begins with decisions about how to measure parental expenditures on children. Many economists believe that those expenditures cannot be observed directly, primarily because many expenditures (e.g., shelter, transportation) are shared among household members and are measured on a household basis and not separately for parents and children. For example, in a two-adult, two-child household, one such issue is what proportion of a new car's cost should be attributed to the children?

Since some key child expenditures cannot be measured directly, an indirect method must be defined to estimate those expenditures as a whole. The common element of all the estimation methods primarily used is that they define expenditures to the children based on a comparison of expenditure patterns in households with and without children and which are deemed to be equally well off. This approach in academic literature is known as "income equivalence." This type of approach—despite decades of use—remains controversial in terms of how well the income equivalence method works to estimate child costs. Some economists take the view that income equivalence overstates child costs while others see such estimates as understating child costs. These issues are discussed in Appendix II of this report.

Numerous child cost estimation techniques are available and they are described succinctly in a 1990 Lewin/ICF report to the U.S. Department of Health and Human Services. [3] The two techniques that may offer the most sound theoretical bases are the Engel and Rothbarth estimators—though, again, they remain the subject of controversy. The Engel approach estimates child expenditures based on total household expenditures on food. Household consumption of food (and non-food) is the measure of economic wellbeing. Households that consumer a greater share of food are seen as less well off as families spending a smaller proportion on food and a higher proportion on non-food items. Lower income families spend more on basics (including food) and higher income families can afford a greater proportion on non-food items. Economists believe child expenditure estimates using this approach represent an upper bound to those expenditures. More precisely, it is believed that the Engel methodology notably overestimates child costs because children are "food intensive" relative to adults. Having children requires a greater-than-proportional increase in income to restore the level of household spending on non-food items.

- With the Engel methodology, the income needed to restore household spending on non-food items to pre-child percentages is defined as child costs.

The Rothbarth approach, on the other hand, estimates child expenditures based on the level of household expenditures on adult goods (e.g., adult clothing, alcohol, tobacco). The current version of Rothbarth used by David Betson uses only adult clothing as the "target" good that reflects wellbeing. Some economists believe that child expenditures using this approach are seen to represent a lower bound to expenditures. Other economists see the Rothbarth methodology as overestimating child costs. The disagreement is over that impact of having children on spending habits.

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[3] Lewin-ICF, *Estimates of Expenditures on Children and Child Support Guidelines* (U.S. Dept. of Health & Human Services, 1990).

The first group argues that having children results in somewhat of an aversion to spending on goods shared with children and a higher wish for spending on adult goods. Essentially, there is a shift in desire for adults to spend on themselves—a "private time" type of argument. This shift theoretically results in a downward bias in estimates of child costs since this shift makes it easier to restore the spending level on adult goods. The other view is that having children reflects parents being somewhat "selfless" and have a preference toward spending on children—boosting the children's happiness. This shift makes it more difficult to restore spending on adult goods and leads to an upward bias in child cost estimates. Neither view has been proven statistically. Economists' views on the direction of the bias of the Rothbarth methodology are based simply on assumptions of parental spending behavior before and after having children.

Again, the Lewin/ICF report cited above presents a clear description of the approaches and of their merits and limitations as estimators of child expenditures. The support schedules defined in this report are based on the Rothbarth approach. Specifically, it is based on recent Rothbarth estimates developed by Dr. David Betson, Professor of Economics, University of Notre Dame, using 2004-2009 CEX data. Of course, there are four versions of Rothbarth based estimates with differing assumptions.

Data on Household Expenditures[4]

The data used in this study are drawn from the Consumer Expenditure Survey (CEX) conducted by the Bureau of Labor Statistics (BLS). The survey is based on quarterly interviews of roughly 7,000 consumer units (families). The data are used for the periodic revisions of the Consumer Price Index as well as other economic research and analysis of the spending patterns of American families. The CEX is the only nationally representative sample of American families that collects detailed information on the spending habits of families. As such, it is the only available national survey suited for estimating parental spending patterns.

Consumer Expenditure Survey Sample Selection Criteria

The data used in this study are from the interview component of the Consumer Expenditure Survey (CEX) beginning in the first quarter of 2004 through the first quarter of 2009. Consumer units are interviewed for five quarters; however, only data from the second through fifth quarterly interviews are reported in the public use files. While the BLS treats each quarterly response as an independent observation, the file used for this analysis is constructed from the BLS quarterly files to reflect a family's annual expenditures.

[4] This section is taken from "Appendix A, Parental Expenditures for Children: Rothbarth Estimates" as found in *Review of Statewide Uniform Child Support Guideline 2010, A Report to the California Legislature*, June 2011. This Appendix A was authored by David M. Betson as a portion of his contribution to the California report.

While any unit can have up to four quarterly interviews, some households cannot be located or refuse to be interviewed and hence will have had fewer than four interviews.

This study was intended to focus on the spending patterns on children in families where both parents were present; consequently, the following sample restrictions were made:

- The consumer unit contained a married couple between the ages of 18 and 60 years old;
- The consumer unit contained six or fewer children;
- The consumer unit did not have any other adults (individuals 18 years old or older) present in the unit even if these adults were the children of the couple;
- The consumer unit did not have a change in family size or composition over the period in which the unit was interviewed; and
- Only consumer units with at least three completed interviews were included in the final analysis sample.

These restrictions yielded a sample of 7,846 consumer units where 2,937 observations were childless married couples and 4,909 were married couples with children.

Exhibit 1.

Sample Observations by Number of Children

Number of children	0	1	2	3	4	5 or 6
Number of observations	2,937	1,511	2,235	869	214	80

Source: David M. Betson.

Given the rather small sample sizes for four and more children, most of the following tables will group families with three and more children into a single category for presentation purposes. While families with four and more children will be included in the analysis, estimates for the cost of children will be presented for one through three children only.

Even though the CEX may be the best database to estimate child expenditures, it has some limitations that are important to the development of a schedule of child support obligations, especially a schedule based on an income shares concept. They include:

- Only a few expenditure items in the CEX (i.e., adult clothing, alcohol, tobacco) are solely "adult" expenditures;

- It is not possible to distinguish between "necessary" child care expenses (e.g., those incurred to allow someone to work) from "discretionary" expenses;

- Medical expenses on children cannot be distinguished from expenses on adult household members (they are intertwined in the medical expenses in the CES); and

- The CEX likely understates total household income due to the nature of the survey methodology of the CEX (individuals report their incomes and spending estimates rather than disinterested third parties). Under reporting of income is especially an issue for data from modest income households.

The first issue is of concern because the Rothbarth technique estimates child expenditures by examining how adult expenditures are affected by the addition of a child to the household; that is, asking how much of total expenditures is displaced (i.e., transferred from the adults to the children) when a child is added to the household. The precision of the technique would be improved if there were more items that were clearly adult expenses. There are theoretical shortcomings with the Rothbarth technique discussed in a separate section in this report's Appendix II.

The second issues is of concern because the support schedule developed for Alabama establishes a "basic" support obligation to which is added the parental share of expenditures for child care and unreimbursed medical expenses. However, "basic" in reference to expenditures on children does not mean minimal spending. It is in reference to the fact that these costs which exclude child care and all but a moderate amount of non-extraordinary spending on medical care. The assumptions used to deal with these limitations are discussed later in this appendix. Importantly, the schedule of basic child costs reflects typical spending on children at varying income levels. Child costs reflect rising standards of living as income grows. But as a technicality, "basic" costs merely exclude child care and a number of medical expenses.

The CEX is much like every survey that attempts to capture income information; that is, there is likely to be underreporting or non-reporting of income. Staff research at the Bureau of Labor Statistics, which administers the survey, suggests that income reported in the CEX is too low relative to expenditures. That is, income is under reported. This problem may be exacerbated if the economy is moving more toward a greater in cash transactions for work. There are, however, no studies to suggest how to adjust income for this underreporting problem and so no adjustment is applied.

- Underreporting of income likely leads to overestimates of child costs at a given income level.

Economic Cost of Child Rearing

Economist Jane Venohr recapped some basics on economic studies on the economic cost of child rearing—including for the 2010 study by David Betson which is the starting point for the four sets of child cost estimates provided in this study for the state of Alabama in 2016. The following are from *Georgia Commission on Child Support Final Report 2014.*

> There are several studies measuring the cost of raising children. Most state guidelines rely on studies of child-rearing expenditures across a range of incomes rather than studies that examine the minimum and basic needs of children. This is because the premise of most state guidelines is that children should share in the lifestyle afforded by their parents. The studies typically develop measurements from examining expenditures data from thousands of families participating in the Consumer Expenditure Survey (CES), the nation's largest and most comprehensive survey of household expenditures. The CES is an ongoing survey that is used for many purposes, including the calibration of the price index used to track inflation.
>
> In all, there are eight studies of child-rearing expenditures that underlie state guidelines schedules and formulae. The studies of child-rearing expenditures vary in the age of the data used, the methodology used to separate the child's share of expenditures from total household expenditures, and other data or methodological issues. Only three of the studies underlying state guidelines have been conducted since Georgia developed its schedule in 2005.[5] All of these three studies measure child-rearing expenditures using the Rothbarth methodology.
>
> METHODOLOGIES MEASURING COST OF CHILD REARING
>
> Economists do not agree on which methodology best measures actual child-rearing expenditures. Nonetheless, economists generally agree on which methodologies understate and overstate actual child-rearing expenditures. It is widely accepted that any guidelines amount between the lower and upper bounds of credible measurements of child-rearing expenditures are appropriate guidelines amounts. In general, guidelines amounts below the lower bound are deemed to be inadequate for the support of children.
>
> Through a contract with the U.S. Department of Health and Human Services, Lewin/ICF (1990) developed this approach for assessing state guidelines.[6] Since then, several states have used this approach and continue to use it. The most commonly used methodology, the "Rothbarth" methodology, is generally considered the lower bound in the range of available estimates. The Betson-Rothbarth (BR) measurements form the basis of 29 state guidelines, including many states that neighbor Georgia (i.e., Alabama, South Carolina

[5] This includes the 2006 and 2010 studies by David Betson and the 2013 study by Rutgers University conducted for the State of New Jersey.

[6] Lewin/ICF. (1990). Estimates of Expenditures on Children and Child Support Guidelines. Report to U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation. Fairfax, Virginia.

and Tennessee). The most current BR study is from 2010 and uses expenditures data from families surveyed in 2004-2009.[7]

When the Lewin/ICF prepared its original report in 1990, the Engel estimator, which is discussed in greater detail later, was considered the upper bound. At the time, one of the most credible and widely-used studies on child-rearing expenditures was by Thomas Espenshade, who applied the Engel methodology to expenditures data from families surveyed in 1972-73.[8] The Espenshade-Engel estimates formed the basis of most states' original guidelines schedules or formulas and there are a few states that still rely on the Espenshade-Engel estimates.

Betson prepared Engel estimates in 1990 and 2001. However, there has been no recent study of child-rearing expenditures using the Engel estimator. Instead, the most current study considered to be the upper bound is conducted by the United States Department of Agriculture (USDA). Minnesota is the only state to use the USDA study as the basis of its guidelines. With the exception of New Jersey, which is discussed in more detail later, most of the states that do not rely on BR measurements for their guidelines rely on very old studies of child-rearing expenditures dating back to the 1980s.[9]

Both the Rothbarth and Engel methodology are considered "marginal cost" approaches to measuring child-rearing expenditures. The margin is how much more a couple spends when the couple has children. The marginal cost approach compares expenditures between two equally well-off families: (a) married couples with children, and (b) married couples of childrearing age without children. The difference in expenditures between these two families is deemed to be child-rearing expenditures. The Engel and Rothbarth methodologies, which are named by the economists who developed them, use different indicators of equally well off families. The Engel methodology uses expenditures on food, while the Rothbarth methodology relies on expenditures for adult goods (specifically, adult clothes in the Rothbarth estimates that form the basis of state guidelines) to determine equally well-off families.

The USDA estimates child-rearing expenditures individually for several expenditure categories (e.g., food and clothing), then adds them to develop a total. As discussed more in the USDA report, a different methodology is used to measure expenditures for each category.[10] Some categories unique to children can be measured directly (e.g., children's clothing, childcare expenses and education expenses). The child's food costs are measured using the food plans developed by the USDA. The child's transportation is measured by only considering family-related activities, which are 59 percent of total transportation according to research findings. The child's housing expenses are measured from estimating the average additional costs of housing given the number of bedrooms in a home, assuming more bedrooms are required when there is more than one child and controlling for income level. Food, transportation and housing comprise the vast majority of child-rearing expenditures. Economists generally believed that the USDA's previous

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[7] Betson, David M. (2010). "Appendix A: Parental Expenditures on Children." in Judicial Council of California, Review of Statewide Uniform Child Support Guideline, San Francisco, California.

[8] Espenshade, Thomas J. (1984). Investing in Children: New Estimates of Parental Expenditures. Urban Institute Press: Washington, D.C.

[9] Over a dozen states base their guidelines on the following two studies: Jacques van der Gaag (1981). On Measuring the Cost of Children. Discussion Paper 663-81. University of Wisconsin Institute for Research on Poverty, Madison, Wisconsin, and Thomas J. Espenshade. (1984). Investing in Children: New Estimates of Parental Expenditures, Urban Institute Press: Washington, D.C.

[10] Lino, Mark (2013) Expenditures on Children by Families: 2012 Annual Report. U.S. Department of Agriculture, Center for Nutrition and Policy Promotion. Miscellaneous Publication No. 1528-2012, Washington, D.C.

approach to measuring child-rearing expenditures overstated actual child-rearing expenditures, but economists have not assessed the USDA methodology since it was changed in 2008.

Overview of the Betson-Rothbarth Measurements

In the past two decades, Professor Betson, University of Notre Dame, has conducted four studies estimating child-rearing expenditures. Each study uses expenditures data from the most current CES data available. For Betson's first study, he used CES data from 1980-86.[11] For his second study, he initially used from 1996-98 CES data, but later expanded it to encompass 1996-99.[12] For his third and fourth studies, respectively, he used data from the 1998-2004 and 2004-09 CES.[13]

Some of his studies use other methodologies besides the Rothbarth methodology to measure child-rearing expenditures. Betson's first study was conducted in 1990 and responded to a Congressional mandate to provide information about child-rearing expenditures for states to develop and revise child support guidelines. For this study, he used and compared five different methodologies for measuring child-rearing expenditures and concluded that the Rothbarth estimator produced the most "robust" (i.e., sound and statistically reliable) results and recommended its use for state guidelines. The Rothbarth methodology is a marginal cost approach that compares expenditures of two sets of equally well-off households: one set consists of two-parent families with children and the other consists of couples without children. The difference in their expenditures is presumed to be spent on child rearing. The Rothbarth methodology relies on the percentage of total expenditures devoted to adult goods (i.e., adult clothing in Betson's application) to determine equally well-off families.

Differences in the BR4 Measurements from earlier BR measurements

The findings from the BR4 measurements are that, on average, child-rearing expenditures as a percentage of total household expenditures are 27 percent for one child, 37 percent for two children, and 45 percent for four children.

Besides data years, BR4 differs from earlier BR measurements in two other ways. Earlier BR measurements consider "expenditures" while BR4 considers "expenditures-outlays." Expenditures include the purchase price (and sales tax) on any item purchased within the survey year regardless whether the item was purchased through installments. In contrast, outlays only capture what was actually paid toward that item during the survey period. So, if there were only four out of 20 installment payments made during the survey period, only those four payments are captured.

Unlike expenditures, outlays also capture mortgage principal payments, payments on second mortgages, and payments on home equity loans. Both expenditures and outlays capture interest on the first mortgage among homeowners and rent, utilities, and other housing expenses among renters. The merit of expenditures for use of state guidelines is

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[11] David M. Betson (1990). Alternative Estimates of the Cost of Children from the 1980-86 Consumer Expenditure Survey, Report to U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation, University of Wisconsin Institute for Research on Poverty, Madison, Wisconsin.

[12] David M. Betson (2001). "Chapter 5: Parental Expenditures on Children," in Judicial Council of California, Review of Statewide Uniform Child Support Guidelines, San Francisco, California.

[13] Regarding the third study, see David M. Betson (2006). "Appendix I: New Estimates of Child-Rearing Costs" in PSI, State of Oregon Child Support Guidelines Review: Updated Obligation Scales and Other Considerations, Report to State of Oregon, Policy Studies Inc., Denver, Colorado.

that it excludes mortgage principal payments. This is consistent with property settlements that have historically addressed equity in the home as part of the divorce settlement. The merit of outlays for use in state guidelines is it is a better reflection of actual family budgeting on a monthly basis.

The second difference is that Betson relied on a newly available measure of income developed by the Bureau of Labor Statistics, the organization that conducts the CES. The under-reporting of income is a problem inherent to most surveys. The new measure attempts to correct under-reporting, particularly at low incomes. The problem was identified from findings from earlier CES that revealed that many low-income families spend considerably more than what they report as income. The new measurement essentially bumps income up for some families, hence reducing the percentage of their income spent on child rearing.

Exhibits 2, 3 and 4 [in Venohr's 2014 report to Georgia] compare BR measurements over time for a range of after-tax income for one, two and three children, respectively. The Exhibits show that families devote a smaller proportion of income to child-rearing expenditures as income rises. The Exhibits also show that BR4 produces smaller amounts at low-incomes and larger amounts at high-incomes than earlier BR measurements. The decrease at low-incomes may be attributable to the refinement to the income measurement, while the increase at high-income may be attributable to the use of outlays since higher income families are more likely to have more and larger installment payments.

Six states (i.e., Colorado, North Carolina, Rhode Island, Vermont, Virginia, and Wyoming) rely on the most recent Betson-Rothbarth (BR4) measurements, 13 other states rely on BR3 measurements, and 10 states, including Georgia, rely on older BR measurements.

- The Exhibits show that BR4 (the most current Betson study using the Rothbarth methodology) produces smaller amounts at low-incomes and larger amounts at high-incomes than earlier BR measurements.

- The decrease at low-incomes may be attributable to the refinement to the income measurement, while the increase at high-income may be attributable to the use of outlays since higher income families are more likely to have more and larger installment payments.

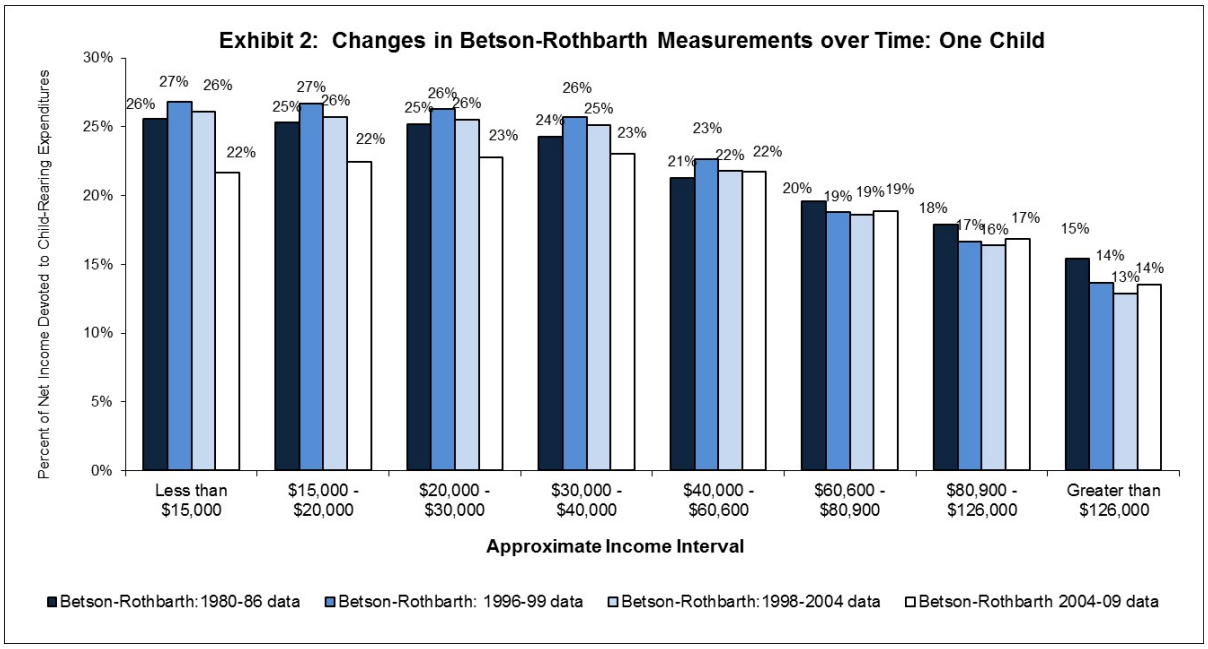


Exhibit 2: Changes in Betson-Rothbarth Measurements over Time: One Child
Percent of Net Income Devoted to Child-Rearing Expenditures
30%
25%
20%
15%
10%
5%
0%
26% 27% 26% 22%
25% 27% 26% 22%
25% 26% 26% 23%
24% 26% 25% 23%
21% 23% 22% 22%
20% 19% 19% 19%
18% 17% 16% 17%
15% 14% 13% 14%
Less than $15,000
$15,000 - $20,000
$20,000 - $30,000
$30,000 - $40,000
$40,000 - $60,600
$60,600 - $80,900
$80,900 - $126,000
Greater than $126,000
Approximate Income Interval
Betson-Rothbarth: 1980-86 data
Betson-Rothbarth: 1996-99 data
Betson-Rothbarth: 1998-2004 data
Betson-Rothbarth 2004-09 data

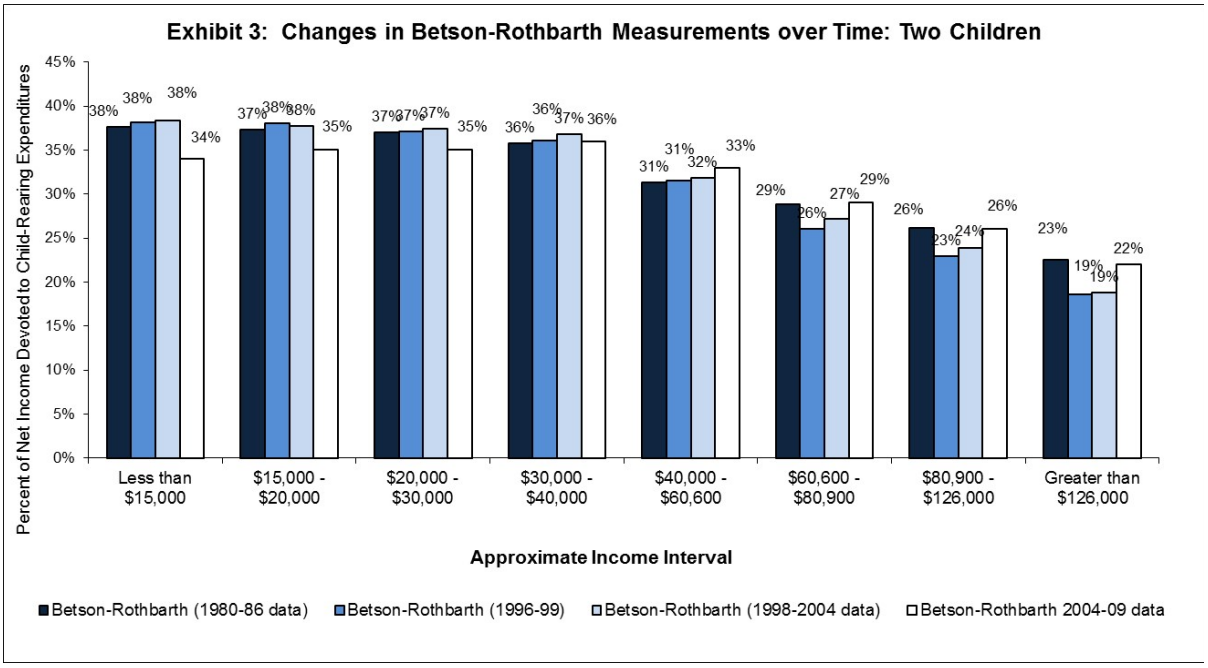
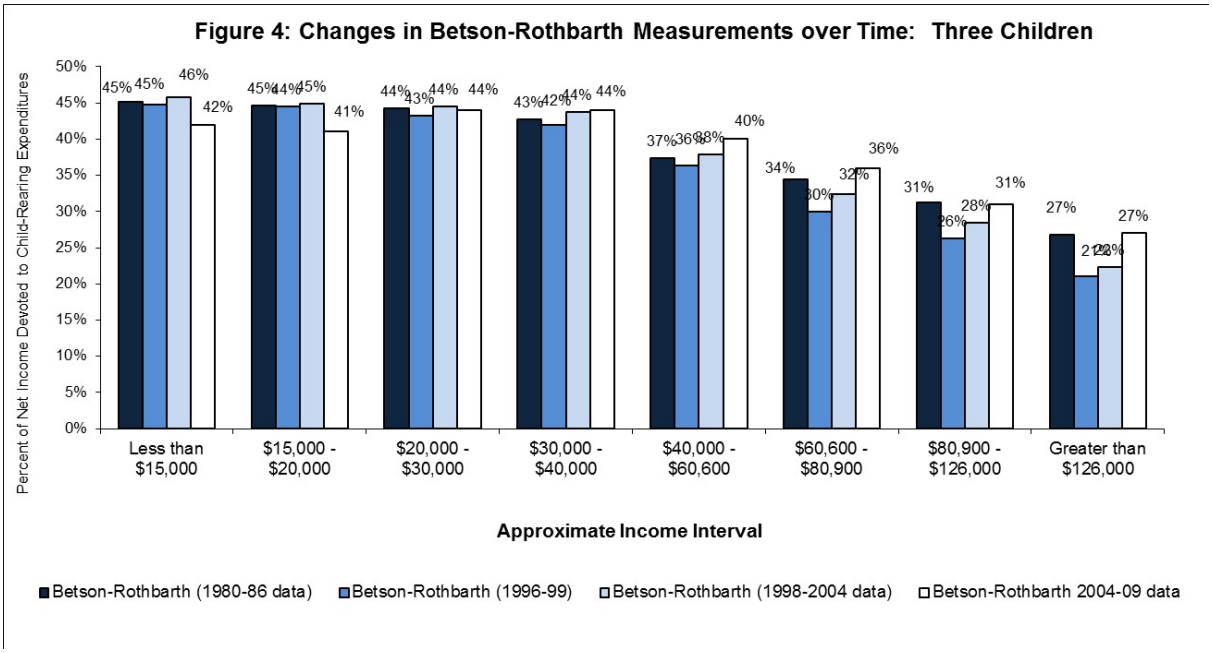


Exhibit 3: Changes in Betson-Rothbarth Measurements over Time: Two Children
Percent of Net Income Devoted to Child-Rearing Expenditures
45%
40%
35%
30%
25%
20%
15%
10%
5%
0%
38% 38% 38% 34%
37% 38% 38% 35%
37% 37% 37% 35%
36% 36% 37% 36%
31% 31% 32% 33%
29% 26% 27% 29%
26% 23% 24% 26%
23% 19% 19% 22%
Less than $15,000
$15,000 - $20,000
$20,000 - $30,000
$30,000 - $40,000
$40,000 - $60,600
$60,600 - $80,900
$80,900 - $126,000
Greater than $126,000
Approximate Income Interval
Betson-Rothbarth (1980-86 data)
Betson-Rothbarth (1996-99)
Betson-Rothbarth (1998-2004 data)
Betson-Rothbarth 2004-09 data



Estimating Child Expenditures for Alabama

The Summary Table for Spending Patterns, Household Total, on Children, on Child Care, and on Medical

The key foundation for determining a cost table using the standard Rothbarth methodology is a summary table of expenditures in households at various brackets for net income. While more than one economist or teams of economists have estimated child costs with the Rothbarth methodology, the version that is primarily in use for child support guidelines if from the research of David M. Betson of the University of Notre Dame. His research has been updated every several years with the latest version released in 2010 for a study conducted for the State of California.

Exhibit 2 below summarizes his results.

- The 2010 national child cost study is based on spending shares of various components as a share (percentages) of net income.

- The goal is to estimate child costs (for one to six children) at various net income levels and translate these spending levels to gross (before tax) income at various levels.

The data Betson used for his computations were from the time period 1996 through 1999. For this report for Alabama, income levels for net income brackets were updated to March 2016 using the Consumer Price Index.

- **For this study for Alabama, net income brackets for household spending patterns were updated to March 2016 using the Consumer Price Index.**

Looking ahead in this technical discussion, the goal is to estimate child costs (for one to six children) at various net income levels and translate these spending levels to gross (before tax) income at various levels. As seen in the table below, brackets for net income are shown with percentages spent on total household expenditures, the children's share of total spending, and the percentage shares of spending on children (out of total spending) for day care and for medical expenses. Because most states (including Alabama) presumptively look at child costs excluding day care and unreimbursed medical expenses, an early step in the process is to calculate dollar values for the presumptive child costs which exclude these two broad categories (with a minor exception for medical expenses as discussed below).

Using the Rothbarth estimation technique and CEX data from 2004-2009, David Betson computed child expenditures for 1, 2 and 3-child households. These expenditures are related to total consumption expenditures in the expression EC/C, where EC = expenditures on children and C = total consumption expenditures. In order to estimate EC as a share of net income (NI), the share between NI and C must be computed. This can be done from the CEX because of the detailed itemization of expenditures.

Under the approach used to develop the income shares model, net income is derived independently using CEX data on gross income (GI) and on itemized deductions for (1) federal, state and local taxes, including personal property taxes; (2) social security (FICA) taxes; and (3) union dues, which are considered to be mandatory employment expenses. Thus net income (NI) is based on the formula below and is based on the data in the CEX:

$$NI = GI - taxes - FICA - union\ dues$$

In relation to consumption, net income is greater by the amount of spending that is not related to current consumption. This includes, for example, spending on contributions, savings, personal insurance and pensions. Included in the category of non-current consumption are principal payments on a home mortgage (interest payments are counted as household consumption) and changes in net worth (i.e., net change in assets - net change in liabilities). That is, changes in net worth are neither current income nor current spending (consumption).

For low income households, consumption expenditures frequently exceed the net income figure derived by subtracting taxes and other items from gross income. Thus, consumption as a proportion of net income (C/NI) exceeds 100 percent for low income and modest income brackets as seen below. In these instances, the C/NI ratio is set at 1.0 for calculations of overall household spending. For example, in Betson's calculations, consumption expenditures exceeded net income for the lowest seven income ranges (i.e., all households with annual net incomes at and below $47,277 in March 2016 dollars). This outcome may be partially related to reported difficulties of measuring income in the CEX as discussed above. As shown in Exhibit 2 below, the measured ratio of consumption expenditures to net income ranged from 46.8 for households with annual net incomes or $15,759 or less to 0.538 for households with annual net incomes
above $168,094.

With the lowest net income bracket showing spending at 4,684.7 percent (yes, that is the correctly stated percent) of net income and six other brackets exceeding 100 percent, these number clearly suggest that spending is overestimated relative to reported income. Even limiting spending to 100 percent of net income in calculations implies overestimation issues for total household spending and, in turn, spending on children as a share of net income.

- The Betson 2010 study likely is based on government data that overestimate spending relative to income.

One should notice that the income bracket for the highest range of net income is an extremely large bracket. As will be discussed separately, the very large bracket for upper income creates uncertainty over the best way to estimate spending on children at very high levels of net income.

Exhibit 2.

The Summary Table for Spending Patterns, Household Total, on Children, on Child Care, and on Medical

Annual Net Income Ranges Upper Bound (March 2016 Dollars)	Annual Net Income, Midpoint (March 2016 Dollars)	Number of Observations	Current Consumption as a % of Net Income	Expenditures on Children as a % of Total Consumption Expenditures (Rothbarth 2004 - 2009 Data)			Child Care $ as a % of Consumption (per child)	Medical $ as a % of Consumption
				1 Child	2 Children	3 Children		
$15,759	$7,879	221	4684.7	21.61	33.68	41.57	0.3446	0.1242
$21,012	$18,386	213	168.7	22.44	34.92	43.04	0.3639	0.2693
$26,265	$23,639	267	140.6	22.66	35.25	43.44	0.4871	0.6430
$31,518	$28,892	321	121.5	22.83	35.51	43.74	0.5066	0.564
$36,771	$34,145	341	114.7	22.97	35.72	43.98	0.6658	0.4876
$42,024	$39,398	427	106.1	23.09	35.89	44.18	0.6429	0.6309
$47,277	$44,651	411	103.9	23.19	36.03	44.36	0.8937	0.6599
$52,530	$49,904	432	96.5	23.25	36.12	44.46	0.9943	0.9044
$57,782	$55,156	403	91.0	23.28	36.17	44.52	1.1487	0.8072
$63,035	$60,409	417	89.8	23.34	36.26	44.62	1.3082	0.6023
$68,288	$65,662	385	88.7	23.40	36.34	44.71	1.2134	0.9437
$73,541	$70,915	411	83.1	23.41	36.35	44.73	1.3289	0.7969
$78,794	$76,168	402	82.5	23.45	36.42	44.81	1.4856	0.8175
$84,047	$81,421	314	76.2	23.44	36.41	44.79	1.4308	0.9152
$94,553	$89,301	668	76.4	23.52	36.51	44.92	1.4754	0.8076
$105,059	$99,807	529	73.6	23.57	36.59	45.01	1.3564	0.9983
$115,565	$110,312	412	72.5	23.63	36.68	45.12	1.8433	0.8424
$126,071	$120,818	321	67.6	23.65	36.70	45.14	1.7049	0.8489
$141,830	$133,951	350	67.0	23.72	36.80	45.26	1.7482	0.8514
$168,094	$154,963	350	61.6	23.76	36.86	45.33	1.8513	0.6834
$1,050,589	$609,342	326	53.8	23.85	37.00	45.49	2.0101	0.7060

Sources: *Quadrennial Review of the Maryland Child Support Guidelines and Schedule of Basic Support Obligations*, submitted to: Maryland Department of Human Resources Child Support Enforcement Administration, Baltimore, Maryland, submitted by Econometrica, Inc., Bethesda, Maryland, November 29, 2012. Also, *CPI Detailed Report, Data for March 2016*, Bureau of Labor Statistics, U.S. Department of Labor, Washington, D.C., Table 24.

Basic Steps in Developing Alabama's Child Cost Tables

The following are the basic steps used in converting spending pattern percentages from David Betson's 2010 study to child cost tables for Alabama.

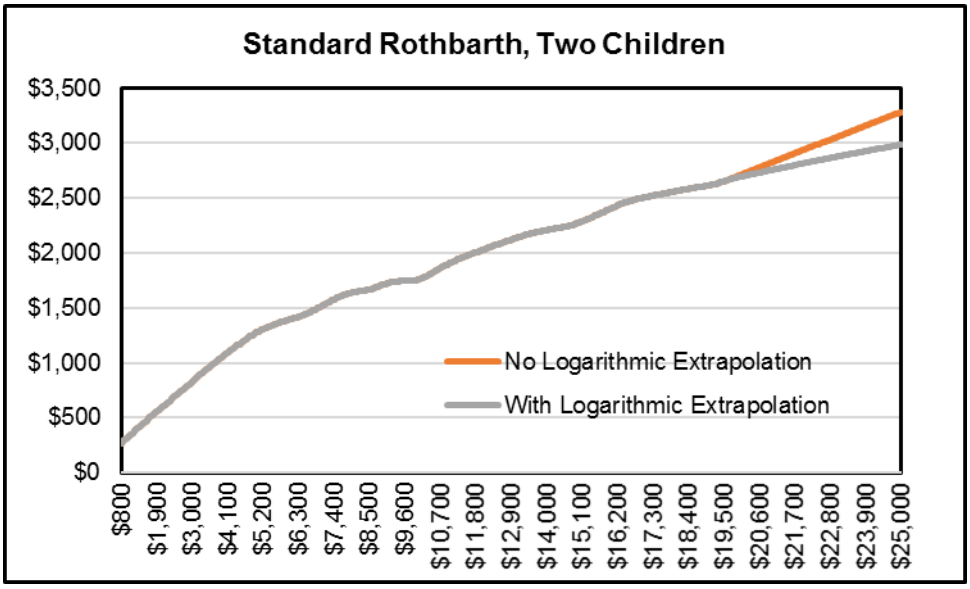
1) Summary percentages for spending patterns are shown according to net income brackets in David Betson's study. Net income brackets were updated to March 2016 using the Consumer Price Index.
2) Gross income brackets are established at $50 intervals for combined gross income (before tax).
3) Net income is calculated for each gross income bracket but using annualized incomes since most inputs at the federal level are in terms of annual data. Calculations take into account federal income taxes, FICA taxes, and Alabama income taxes. See technical detail in the appendices for additional explanation of net income.
4) Midpoints for net income brackets in Betson's summary table of his 2010 study were determined.
5) Spending percentages by category as a percentage of net income (household consumption, expenditures on children, child care, and medical expenditures) were multiplied against net income to derive dollar amounts for each category at the net income bracket midpoints and corresponding gross income brackets.
6) Annual child costs excluding day care and medical in dollars were calculated by determining total child costs and then subtracting dollar amounts for day care and medical expenses. These calculations were done just for income levels corresponding to net income bracket midpoints.
7) Annual child costs excluding day care and medical as a percentage of net income were calculated for net income bracket midpoints for the Betson summary table.
8) These percentages were used as benchmarks for interpolating these same percentages to each gross income bracket. Percentages were used for calculating "in between" midpoint costs instead of marginal changes in dollar levels. The midpoint percentage in adjacent net income brackets were compared and differenced. The difference in these percentages were evenly distributed along gross income brackets. These two methodologies are essentially the same but the percentage approach is simpler and provides a slightly smoother table of cost numbers as income rises.
9) Once these percentages were calculated for all gross income brackets, dollar levels for each cost component were calculated and used to obtain annual child costs excluding day care and medical (subtracting dollar levels for day care and medical from total spending on children).
10) Annual child costs were converted to monthly child costs for all gross income brackets.
11) Child costs at upper income levels were based on logarithmic extrapolation to preserve the pattern of rising but slowing growth in child costs at modest and middle income levels. That is, for high incomes, cost estimates were compared to changes in income (as reflected in gross

income in logarithmic form) and extrapolated on logarithmic income and then converted back to standard income. See further below for more detail.

12) David Betson's study covered cost estimates only for one, two, and three children. Child cost tables were expanded for four, five, and six children using income equivalence ratios from a 1995 study by Constance F. Citro and Robert T. Michael. See further below for more detail.[14]
13) The above steps are used for the standard Rothbarth estimates which are based on national data for intact families. Additional steps (discussed further below) are included for an Alabama cost of living adjustment and separately for an adjustment for the cost of a second household when parents do not live in the same residence.

The large net income brackets at upper levels of net income result in straight line estimates for upper incomes. This results in overestimates for high incomes unless logarithmic extrapolation is used. Additionally, for high income brackets with low sample size, data likely are clustered toward to bottom of each bracket, adding to the overestimation effect.

Exhibit 3.



In the above chart, applying data directly from the very wide brackets for high incomes results in an aberation in the cost data—costs run too high and show no deceleration in growth as seen at more moderate income levels. Logarithmic extrapolation preserves the pattern of deceleration.

[14] Constance F. Citro and Robert T. Michael, Editors. *Measuring Poverty: A New Approach*, National Academy Press, Washington, D.C. (1995).

CHAPTER III

Income Shares Child Support Guidelines and the Issue of Intact Family Data Overstating Child Costs

Rule 32 incorporates a schedule of Basic Child Support Obligations that is based on intact family child cost data. Regarding a legal presumption for child support determination, the issue is whether such a cost schedule reflects actual case facts and reflects the parents' true ability to pay. That is, does the available income assumed in the guidelines' presumptive cost schedule reflect the actual available income of the parents?

Background and Assumptions of the Income Shares Methodology

Alabama's child support guidelines are a variation of child support guidelines developed by Policy Studies, Inc (Denver, CO) and are known as Income Shares. Alabama's guidelines are based on national research on child costs as discussed in *Alternative Estimates of the Cost of Children from the 1980-86 Consumer Expenditure Survey*, by David M. Betson, University of Notre Dame, September 1990. See *Rule 32, Alabama Rules of Judicial Administration, Comment*. See also *Alabama Updated Child Support Schedule,* February 25, 2004 by Jane C. Venohr and Tracy E. Griffith of Policy Studies, Inc., Denver, Colorado, submitted to State of Alabama, Administrative Office of the Courts, Montgomery, Alabama, pp. I-1 through I-2.

The relevance of these reports and research related to the version of Income Shares adopted by Alabama is that they provide the underlying facts for the guidelines for determining if the presumptive awards are economically appropriate when applied in specific child support cases in Alabama. The Alabama guidelines were designed to be applicable only if the household had certain economic characteristics. These underlying economic characteristics of the household include, among others:

- The household is intact.
- The child support award is based on combined parental incomes.
- The household does not have the additional overhead that is incurred by a separated family that would reduce income available to spend on children.
- The cost schedule assumes that the household has income available for children based on both parents sharing adult overhead costs as found in one, combined household.

Documentation of the Use of Intact Family Data for the Presumptive Child Cost Schedule

Whether Alabama's child support guidelines are based on intact family data is an economic issue for rebuttal because child support awards are determined for non-intact families. The fact that Alabama's child support guidelines have a child cost schedule based on intact family data is clearly documented in the 2004 report submitted by Policy Studies, Inc.

> The child-rearing expenditures discussed in this report are estimates from samples of two-parent households. This is appropriate since the Income Shares model (upon which the Alabama guidelines are based) seeks to apportion to the child the amount that the parents would have spent if the household were intact.[15]

Use of Intact Family Data on Child Costs Overstates Child Costs for Situations in Which There Are Two, Single-Parent Families

The use of intact family data results in child cost schedules that reflect situations in which for any given level of combined income (of the two parents), there is only one set of adult "overhead" or adult fixed costs such as housing and utilities. Once the fixed costs of a mortgage or rent payment and utilities are paid and shared by the two parents, the remaining after-tax income can be spent on other "things"—including children. In contrast, when the two parents are divorced or unwed, there are two sets of adult overhead for the same level of combined income. There is less after-tax income after paying for housing and utilities. There is less discretionary income available combined for other things—including children. In each of the two households, there is on average half of the income available less housing and utilities. Less income is spent on children in a divorced situation simply because in part there is less combined income after paying for adult fixed costs. This has been recognized in the forensic economic literature. A joint income standard for child support imposes a greater burden on the NCP [non-custodial parent] than the CP [custodial parent]. The NCP is forced to pay for child costs assuming less burdensome intact family overhead that is not the actual circumstance. Instead, the NCP pays child support for intact family expenditure standards but truly can only afford one-parent household spending because of higher overhead. In contrast, the CP receives intact family based child support that exceeds one-parent based child support but actually spends on the child as though the CP is in a one-parent household because that indeed is the case. The intact family based child support that exceeds one-parent based expenditures is then a windfall—or profit—for the CP.[16]

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[15] See *Alabama Updated Child Support Schedule,* February 25, 2004 by Jane C. Venohr and Tracy E. Griffith of Policy Studies, Inc., Denver, Colorado, submitted to State of Alabama, Administrative Office of the Courts, Montgomery, Alabama, p. II-8.

[16] See R. Mark Rogers and Donald J. Bieniewicz, "Child Cost Economics and Litigation Issues: An Introduction to Applying Cost Shares Child Support Guidelines," Reading #20 in *Assessing Damages in Injuries and Deaths of Minor Children*, ed. by Thomas R. Ireland and John O. Ward, Lawyers & Judges Publishing Co., Tucson, AZ, 2002, p. 358.

Use of intact family data is not consistent with the underlying fact of child support cases that families are not intact and do not live under the same roof with adult costs lower than if living under two separate roofs.

Solutions to the Presumption of Intact Family Child Cost Schedule's Conflict with the Fact that Child Support Is Applied to Non-Intact Family Situations

There are two economic solutions to the presumption of intact family child costs not fitting case facts of divorced or never married parents:

1. Use single-parent child costs based on an average of the two parents' incomes, or
2. Make adjustments to the intact family data to reflect the additional adult overhead from two single-parent households compared to one intact household.

Use of single-parent data is the more economically sound approach. The child cost schedule should be based on single-parent household data and on an average of the two parents' incomes. Average income is the maximum standard of living that can be sustained in both households.

The problem with this first approach is that there are very few data for single-parent households, especially for moderately high and high incomes. It essentially is not a statistically viable approach.

Regarding the second approach, the Income Shares intact family data on child costs can be at least partially corrected for the additional adult overhead of a second household to be maintained after divorce or in unwed situation. One can deduct the cost of a second mortgage (or rent) and utilities from combined net income. The same child cost study can be used but the net income used should be redefined for this adjustment. The lower adjusted net income are associated the same gross income amounts, resulting in lower child cost percentages associated with the various gross income brackets.

Adjusting a standard Income Shares cost schedule for a second household's expenses may be a more "comfortable" approach, given that it keeps the traditional Income Shares cost schedule as its starting point. Additionally, adjusting an intact family data cost schedule for the added cost of a second household is not a novel idea. Kansas has built in such a calculation in its presumptive child cost schedule. Kansas uses a variation of the Income Shares methodology. As noted in the Kansas guidelines:

The [child cost] schedules also include a built-in reduction from average expenditures per child (the dissolution burden), because of the financial impact on the family of maintaining two households instead of one.[17]

[17] See Kansas Judicial Branch, Rules Adopted by the Supreme Court, Rules Relating to District Court, Administrative Order 180, Re: 2003 Kansas Child Support Guidelines, Kansas Child Support Guidelines, II(C).

CHAPTER IV
Adjusting National Child Costs to the Alabama Cost of Living

Whether to Realign National Estimates to Alabama's Income Distribution

Alabama's current child support guidelines include an adjustment with then intent to realign the child cost table to reflect Alabama's income distribution that has more households in lower and middle income brackets than the U.S. average. This inclusion of an income distribution adjustment is based on the view that spending on children depends in part on where a family falls within the state's income distribution and not just on spending patterns based solely on the income dollar level (and, of course, the number of children). This adjustment lowered Alabama's child cost table due to moving the gross income brackets more toward use of higher income spending percentages. Spending percentages on children are higher at income levels. Essentially, the U.S. spending patterns are compressed into a narrower income range for Alabama than for the U.S. since Alabama has a smaller percentage of households in upper income brackets than the U.S. average.

However, this view that spending on children depends heavily on income distribution in a given state relative to the U.S. has never been conclusively proven or disproven.

Instead of adjusting the standard Rothbarth cost table for Alabama's income distribution, this report uses a different approach. Two of the four methodologies presented include a cost of living adjustment (COLA) for the lower cost of living in Alabama. Cost of living is a different concept versus income realignment but reflects the fact that costs in Alabama are notably lower than the U.S. average. Applying a COLA has a similar impact on the child cost tables as an income distribution realignment—the cost tables are somewhat lower than without the adjustment. The Alabama COLA is discussed below.

Adjusting the Standard Rothbarth Estimates for the Cost of Living in Alabama

The Alabama cost of living adjustment uses data from the Council for Community and Economic Research (CCER) for the first quarter of 2016.[18] For the Alabama adjustment, data were used for the following metropolitan areas: Anniston-Oxford-Jacksonville, Auburn-Opelika, Birmingham-Hoover, Decatur, Dothan, Florence-Muscle Shoals, Huntsville, and Montgomery.

The CCER uses a benchmark of 100 for the U.S. average cost of living. The above metropolitan cost of living indexes were weighted by shares of combined population. This produced an index for Alabama

[18] Council for Community and Economic Research, *Cost of Living Index, Comparative Data for 260 Urban Areas*, First Quarter 2016, Vol. 49, No. 1, Arlington, VA.

which was 89.0. This Alabama COLA reduced the standard Rothbarth cost schedule based on national data by 11 percent.

The COLA method applies equally across all income ranges. This is in contrast to the income realignment method which has low impact for modest incomes while higher impact at the middle and upper income ranges.

The income realignment method compresses the spending pattern (higher percentages at low incomes and lower percentages at high incomes) into a smaller income range for Alabama than the U.S. average. While there is room to shift low percentages notably at high incomes using realignment, there essentially is little movement in the percentages downward at low incomes because one cannot shift percentages below zero income. This divergent impact largely explains why there is little difference between COLA Rothbarth for Alabama 2016 and the current Rule 32 costs. Current Rule 32 costs were shifted down very little at low income ranges while the COLA based 2016 Rothbarth was shifted down notably at all income ranges.

- Under the income realignment method, the spending pattern (higher percentages at low incomes and lower percentages at high incomes) are compressed into a smaller income range for Alabama than the U.S. average.

- While there is room to shift low percentages notably at high incomes using realignment, there essentially is little movement in the percentages downward at low incomes because one cannot shift percentages below zero income.

- With the realignment method, current Rule 32 costs were shifted down very little at low income ranges while the COLA based 2016 Rothbarth was shifted down notably at all income ranges.

CHAPTER V

Income Shares with a Second Household Discount to Adjust Intact Family Child Costs

Adjusting Intact Family Cost Schedule for Reduction in Available Income Due to Second Household Expenses

Alabama's current child support cost schedule is based on intact family data as is the schedule proposed by Policy Studies, Inc. in 2004. That is, these cost schedules assume that the parents have available income after paying only one rent (or mortgage) payment and only have only one set of utilities. In contrast for the case before the court, the parents are not in an intact family and support two separate households. The two parents do not have the available, discretionary income assumed in the standard Rothbarth cost schedules.

To reflect the reduced available income due to maintaining a second household, a simple adjustment for a second household and related expenses is to subtract from combined income (used for "looking up" the child cost in the child cost schedule) the amount of gross income needed for paying for the second set of adult overhead of additional rent and utilities for housing.

Steps in the second household adjustment are the following:

1) Determine the traditional adjusted gross income and net income for both parents;
2) Determine appropriate cost of maintaining a second household (mortgage or rent and utilities but not the cost of parenting time—the appropriate cost should vary by income)[19];
3) Subtract the cost of maintaining the second household from net income; and
4) Apply Betson's child cost percentages to mid-points for net income after deducting second household costs (instead of the standard usage of unadjusted net income).
5) Convert net income percentages for spending to dollar levels.

With steps 1 through 5, one has the standard income figure (adjusted gross income) and the BCSO adjusted for the second household discount. These steps are repeated across net income ranges and corresponding gross income brackets.

Data Source for One-Adult Housing Costs

Alabama's child support guidelines implicitly assume typical housing costs for an intact family. How much of total child costs is for housing must be inferred from separate data. A reasonably reliable data source

[19] Non-custodial parenting time costs are an issue that is separate from the cost of an additional housing unit. The second household costs exist even if the non-custodial parent incurs no child costs.

is found with the U.S. Internal Revenue Service. The U.S. Internal Revenue Service establishes standards for allowable living expenses for tax payers with tax arrearages and need to determine how much income is available for paying back taxes on an installment basis. These data are part of the IRS's Collection Financial Standards. These data include allowable living expenses for housing and utilities and vary by income and are established on a county-by-county basis. Exhibit 4 shows a few of Alabama's county data in the IRS's allowable housing allowances.

Exhibit 4.

	Housing and Utilities for a				
County	**Family of 1**	**Family of 2**	**Family of 3**	**Family of 4**	**Family of 5 or more**
Autauga County	$1,184	$1,390	$1,465	$1,633	$1,660
Baldwin County	$1,324	$1,555	$1,639	$1,827	$1,857
Barbour County	$978	$1,148	$1,210	$1,349	$1,371
Bibb County	$1,054	$1,237	$1,304	$1,454	$1,477
Blount County	$1,102	$1,294	$1,364	$1,521	$1,545
Bullock County	$1,091	$1,281	$1,350	$1,505	$1,530
Butler County	$998	$1,172	$1,235	$1,377	$1,399
Calhoun County	$1,079	$1,267	$1,335	$1,489	$1,513

Source: U.S. Department of the Treasury, Internal Revenue Service, IRS Collection Financial Standards, Alabama – Local Standards: Housing and Utilities, effective 1/1/2016.

Housing and utilities standards include mortgage or rent, property taxes, interest, insurance, maintenance, repairs, gas, electric, water, heating oil, garbage collection, residential telephone service, cell phone service, cable television, and Internet service.

These one-adult costs are put into a database along with median county income figures from the U.S. Census Bureau. These data are used to statistically estimate one-adult housing costs at $50 increments in income. These estimates are subtracted from combined net income.

A full cost schedule using this approach is included in this report's Attachments. A second cost schedule with both a second household adjustment and Alabama COLA is included.

CHAPTER VI

Summary of Key Characteristics of Alternative Basic Child Support Obligation Schedules

Exhibit 5.

Comparison of Key Characteristics and Bases of Alternative Basic Child Support Obligation Schedules

	Rule 32, Current	Rogers Economics 2016 Standard Rothbarth	Rogers Economics 2016 Standard Rothbarth with AL COLA	Rogers Economics 2016 Rothbarth with 2nd Household Adjustment	Rogers Economics 2016 Rothbarth with 2nd HH Adj. & AL COLA
Underlying study	Betson, 2001	Betson, 2010	Betson, 2010	Betson, 2010	Betson, 2010
Key data sources	1996-99 CEX	2006-09 CEX	2006-09 CEX; CCER[20]	2006-09 CEX; IRS Collection Standards, Housing	2006-09 CEX; IRS Collection Standards, Housing; CCER
Estimation technique[21]	Rothbarth income equivalence based on spending on adult clothing	Rothbarth income equivalence based on spending on adult clothing	Rothbarth income equivalence based on spending on adult clothing	Rothbarth income equivalence based on spending on adult clothing	Rothbarth income equivalence based on spending on adult clothing
Intact family or adjusted for 2nd HH	Intact	Intact	Intact	Adjusted for Second Household	Adjusted for Second Household
Day care	Excluded—treated as an add-on	Excluded—treated as an add-on	Excluded—treated as an add-on	Excluded—treated as an add-on	Excluded—treated as an add-on
Medical expenses	Includes $250 per child per year	Includes $250 per child per year	Includes $250 per child per year	Includes $250 per child per year	Includes $250 per child per year
Self-support	Based on 2003 poverty threshold	Based on 2016 poverty threshold	Based on 2016 poverty threshold	Based on 2016 poverty threshold	Based on 2016 poverty threshold

Table continues

[20] Council for Community and Economic Research, *Cost of Living Index, Comparative Data for 260 Urban Areas*, First Quarter 2016, Vol. 49, No. 1, Arlington, VA.

[21] See Appendix V for more discussion of the Engel and Rothbarth estimation techniques.

Exhibit 5 continued.

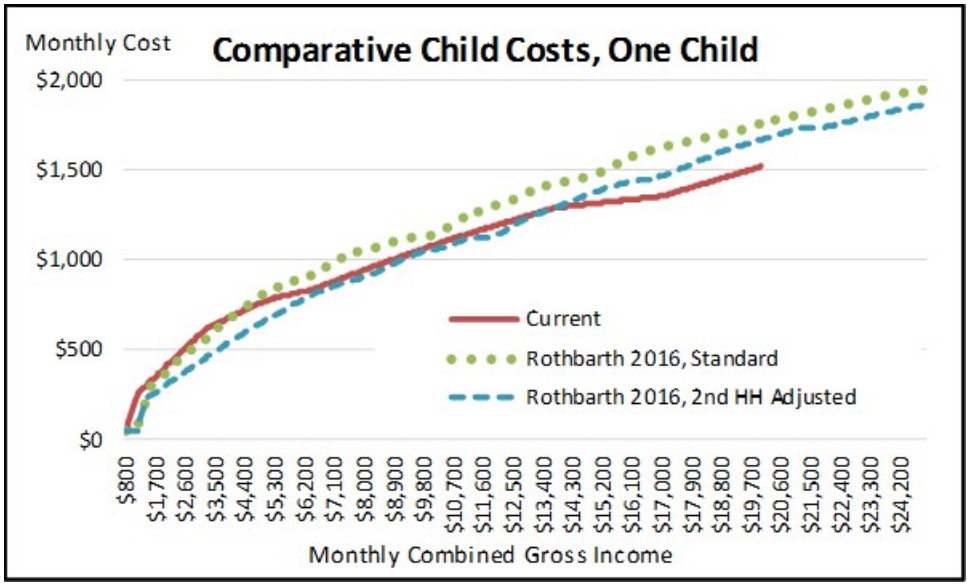
Comparison of Key Characteristics and Bases of Alternative Basic Child Support Obligation Schedules

	Rule 32, Current	Rogers Economics 2016 Standard Rothbarth	Rogers Economics 2016 Standard Rothbarth with AL COLA	Rogers Economics 2016 Rothbarth with 2nd Household Adjustment	Rogers Economics 2016 Rothbarth with 2nd HH Adj. & AL COLA
Lower limit of schedule before suggesting use of discretion	$800	$1,100 suggested	$1,100 suggested	$1,100 suggested	$1,100 suggested
Upper limit of schedule before suggesting use of discretion	$20,000 in monthly combined gross income	$25,000 in monthly combined gross income	$25,000 in monthly combined gross income	$25,000 in monthly combined gross income	$25,000 in monthly combined gross income
Realigned for Alabama's relative distribution of income to the U.S.	Realigned	Not realigned	Not realigned; COLA used instead	Not realigned	Not realigned; COLA used instead

CHAPTER VII

Charts: Alternative Basic Child Support Obligation Schedules

Exhibit 6.



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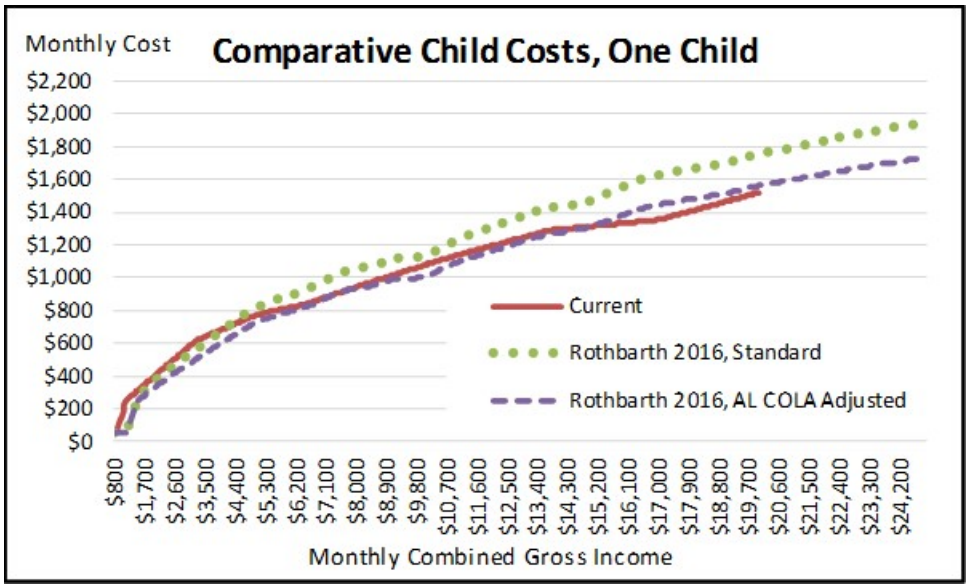

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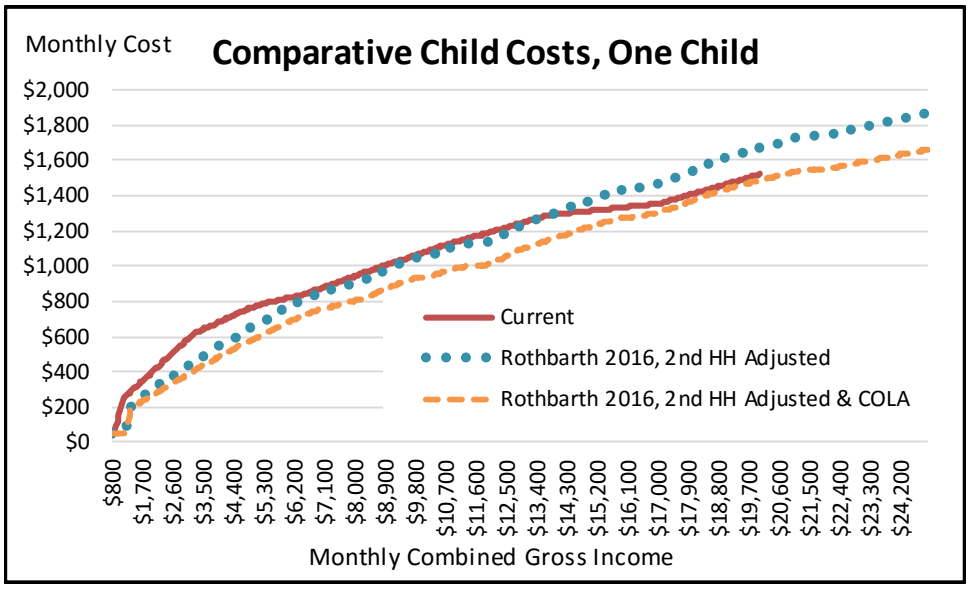

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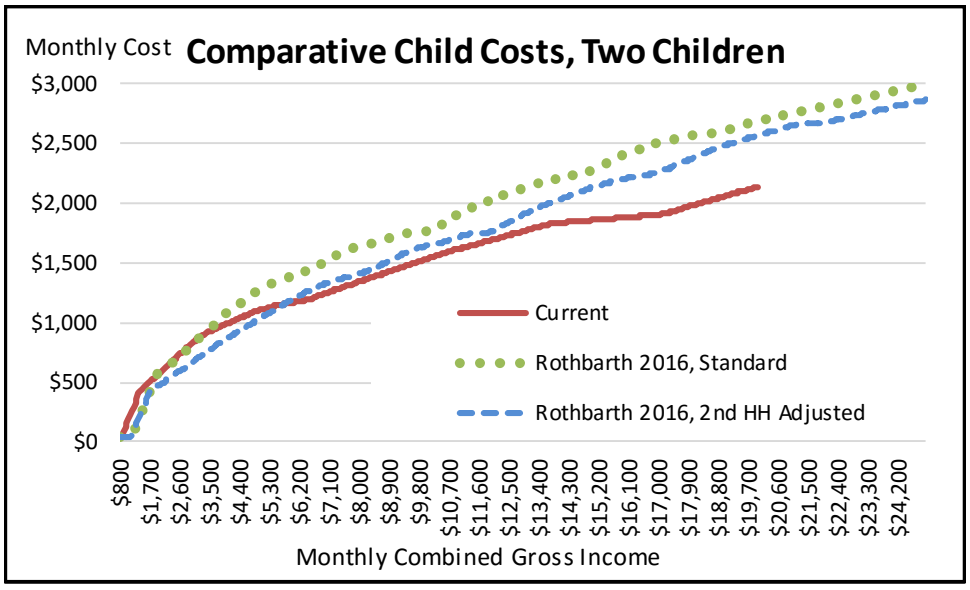
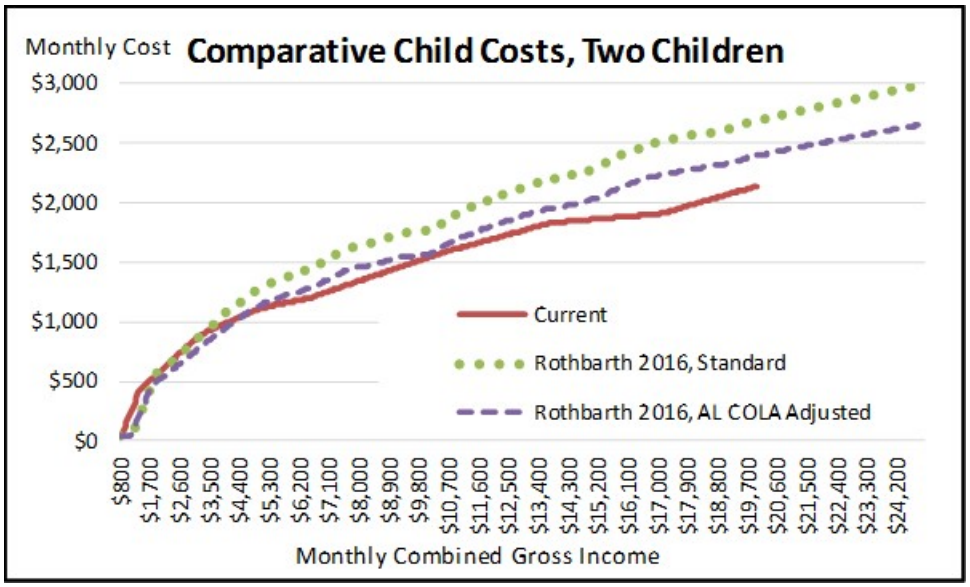


Exhibit 10.



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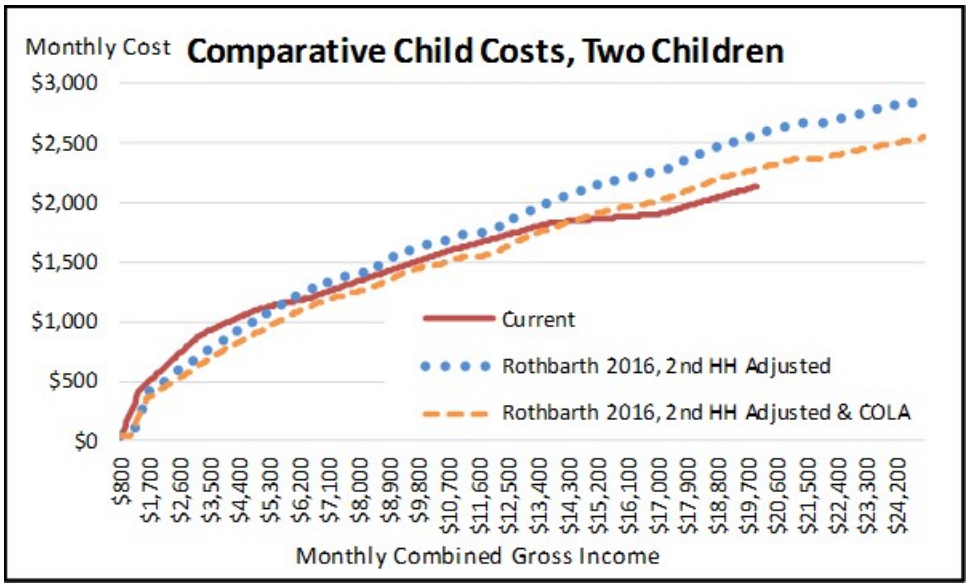

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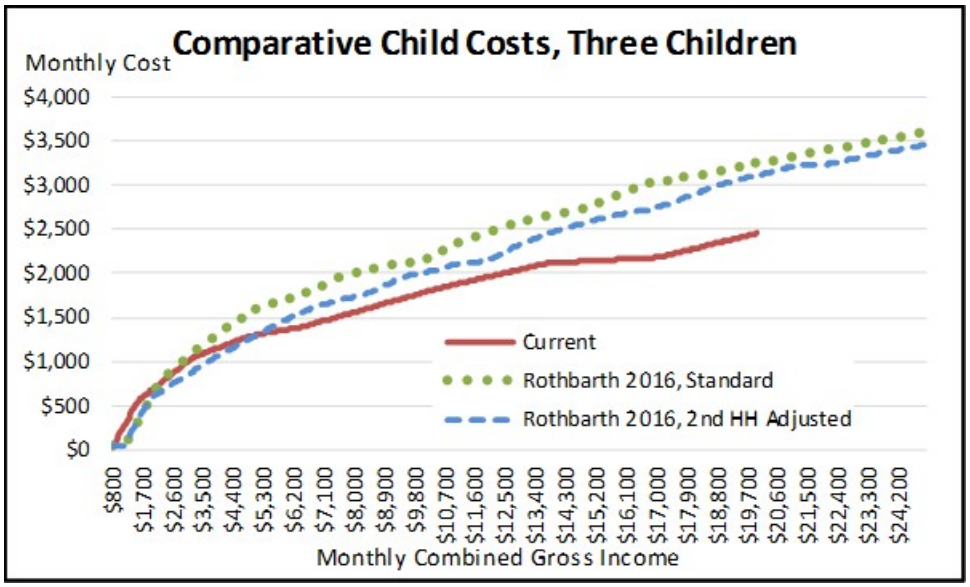
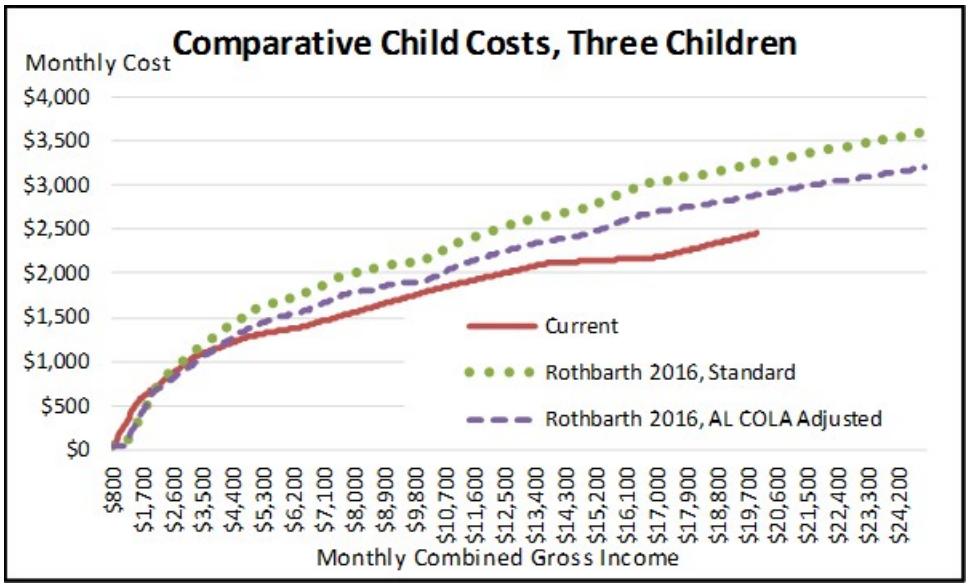


Exhibit 13.



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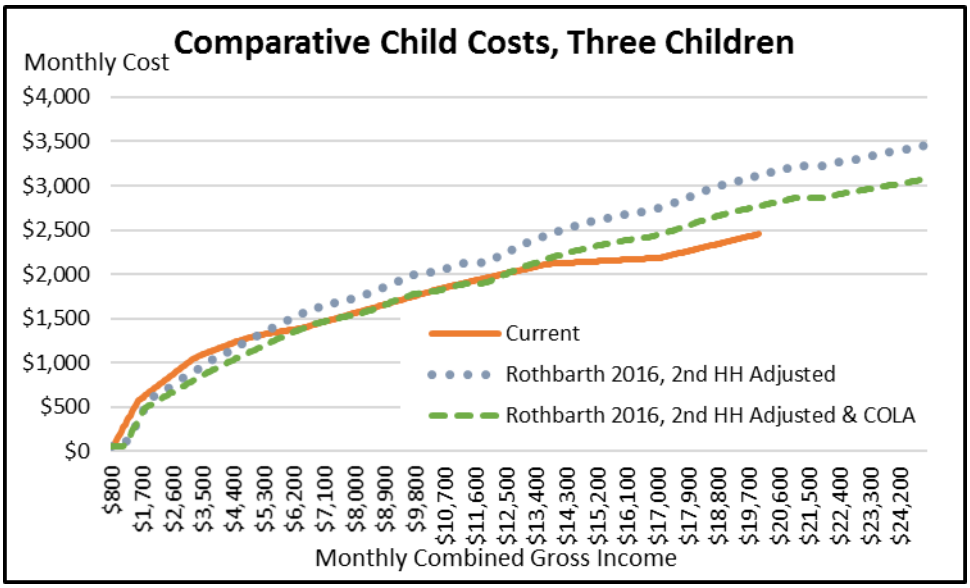

Comparative Child Costs, Three Children
Monthly Cost
$4,000
$3,500
$3,000
$2,500
$2,000
$1,500
$1,000
$500
$0
Current
Rothbarth 2016, 2nd HH Adjusted
Rothbarth 2016, 2nd HH Adjusted & COLA
$800
$1,700
$2,600
$3,500
$4,400
$5,300
$6,200
$7,100
$8,000
$8,900
$9,800
$10,700
$11,600
$12,500
$13,400
$14,300
$15,200
$16,100
$17,000
$17,900
$18,800
$19,700
$20,600
$21,500
$22,400
$23,300
$24,200
Monthly Combined Gross Income

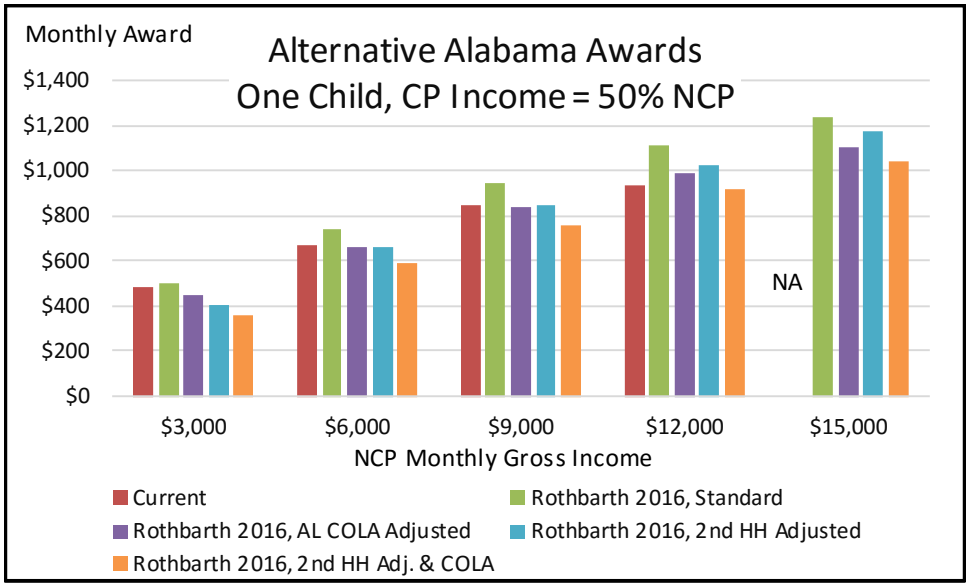
CHAPTER VIII

Charts: Alternative Alabama Awards

Exhibit 15.

Alternative Alabama Awards, One Child, CP Income =50% NCP

Comparisons (left to right):
Current Rule 32, Rothbarth 2016 Standard, Rothbarth 2016 AL COLA,
Rothbarth 2016 with 2nd HH Adjustment, Rothbarth 2016 with 2nd HH Adj. & COLA



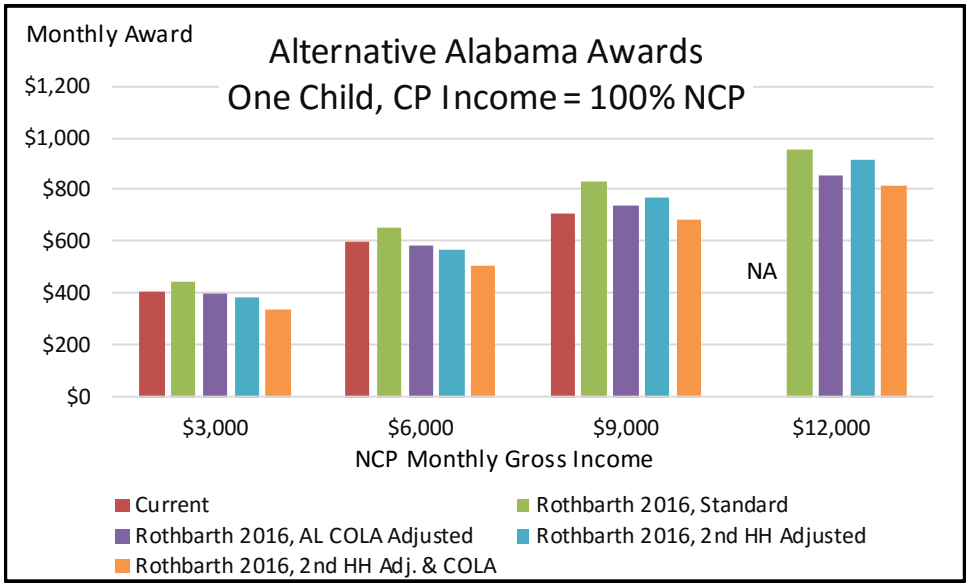
Alternative Alabama Awards
One Child, CP Income = 50% NCP

NCP Monthly Gross Income	Current	Rothbarth 2016, Standard	Rothbarth 2016, AL COLA Adjusted	Rothbarth 2016, 2nd HH Adjusted	Rothbarth 2016, 2nd HH Adj. & COLA
$3,000	$486	$502	$447	$403	$359
$6,000	$673	$738	$657	$658	$585
$9,000	$850	$940	$836	$849	$755
$12,000	$939	$1,110	$987	$1,027	$913
$15,000	NA	$1,239	$1,102	$1,175	$1,045

Exhibit 16.

Alternative Alabama Awards, One Child, CP Income =100% NCP

Comparisons (left to right):
Current Rule 32, Rothbarth 2016 Standard, Rothbarth 2016 AL COLA,
Rothbarth 2016 with 2nd HH Adjustment, Rothbarth 2016 with 2nd HH Adj. & COLA



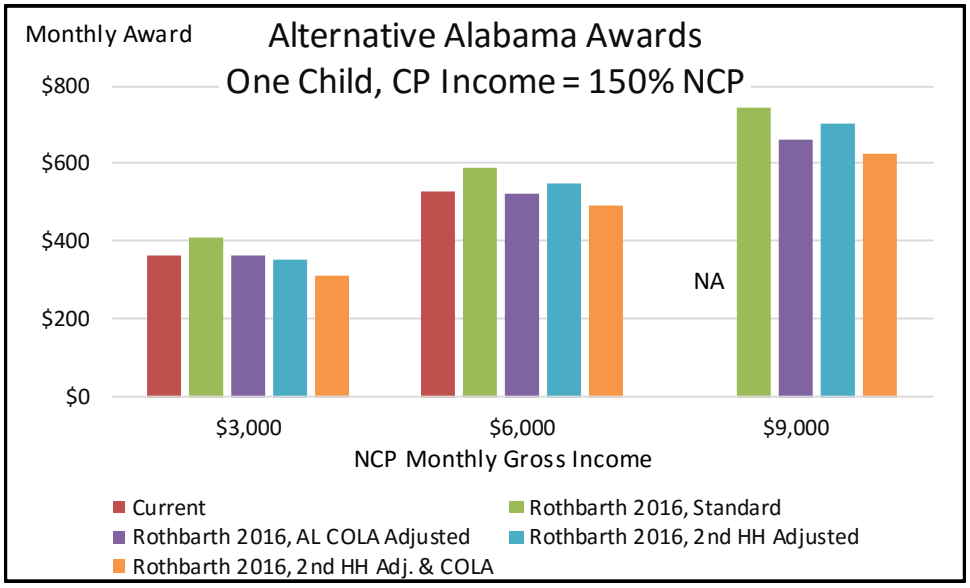
Alternative Alabama Awards
One Child, CP Income = 100% NCP

NCP Monthly Gross Income	Current	Rothbarth 2016, Standard	Rothbarth 2016, AL COLA Adjusted	Rothbarth 2016, 2nd HH Adjusted	Rothbarth 2016, 2nd HH Adj. & COLA
$3,000	$409	$446	$397	$382	$340
$6,000	$596	$652	$580	$569	$506
$9,000	$704	$833	$741	$770	$685
$12,000	NA	$958	$852	$913	$812

Exhibit 17.

Alternative Alabama Awards, One Child, CP Income =150% NCP

Comparisons (left to right):
Current Rule 32, Rothbarth 2016 Standard, Rothbarth 2016 AL COLA,
Rothbarth 2016 with 2nd HH Adjustment, Rothbarth 2016 with 2nd HH Adj. & COLA



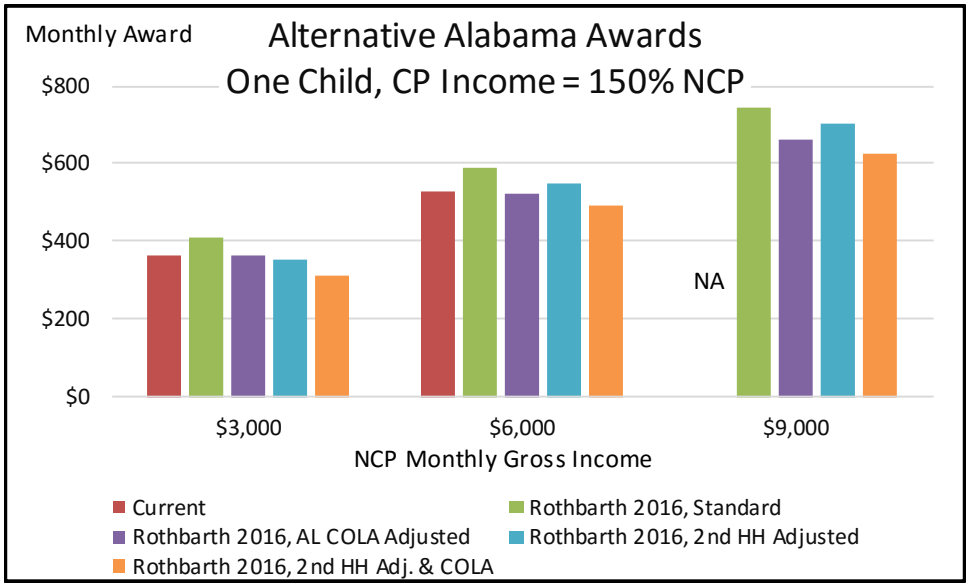
Alternative Alabama Awards
One Child, CP Income = 150% NCP

NCP Monthly Gross Income	Current	Rothbarth 2016, Standard	Rothbarth 2016, AL COLA Adjusted	Rothbarth 2016, 2nd HH Adjusted	Rothbarth 2016, 2nd HH Adj. & COLA
$3,000	$364	$409	$364	$351	$312
$6,000	$526	$590	$524	$551	$490
$9,000	NA	$743	$661	$705	$627

Exhibit 18.

Alternative Alabama Awards, Two Children, CP Income =50% NCP

Comparisons (left to right):
Current Rule 32, Rothbarth 2016 Standard, Rothbarth 2016 AL COLA,
Rothbarth 2016 with 2nd HH Adjustment, Rothbarth 2016 with 2nd HH Adj. & COLA



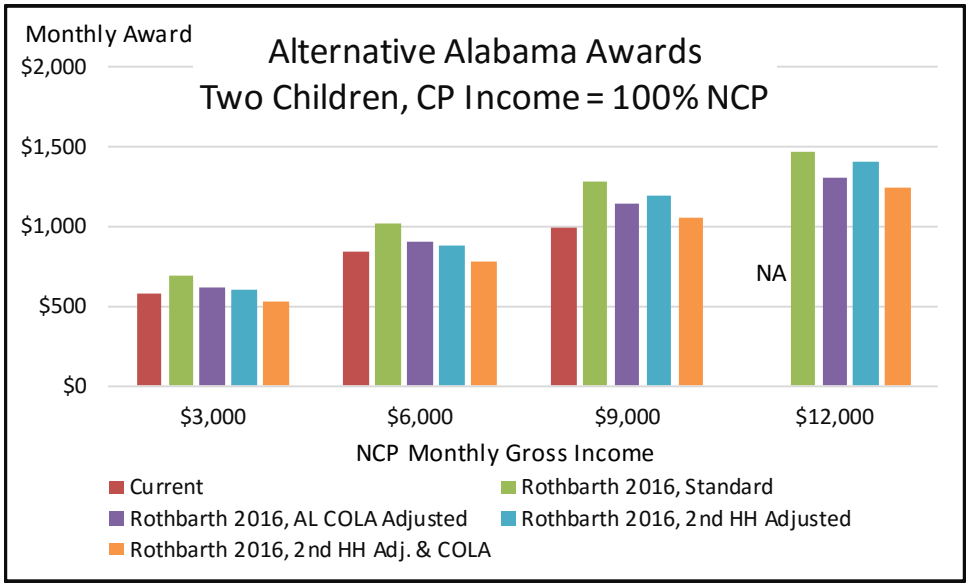
Alternative Alabama Awards
Two Children, CP Income = 50% NCP

NCP Monthly Gross Income	Current	Rothbarth 2016, Standard	Rothbarth 2016, AL COLA Adjusted	Rothbarth 2016, 2nd HH Adjusted	Rothbarth 2016, 2nd HH Adj. & COLA
$3,000	$701	$788	$701	$634	$564
$6,000	$959	$1,146	$1,019	$1,023	$910
$9,000	$1,207	$1,451	$1,291	$1,318	$1,173
$12,000	$1,321	$1,708	$1,519	$1,585	$1,410
$15,000	NA	$1,899	$1,689	$1,806	$1,607

Exhibit 19.

Alternative Alabama Awards, Two Children, CP Income =100% NCP

Comparisons (left to right):
Current Rule 32, Rothbarth 2016 Standard, Rothbarth 2016 AL COLA,
Rothbarth 2016 with 2nd HH Adjustment, Rothbarth 2016 with 2nd HH Adj. & COLA



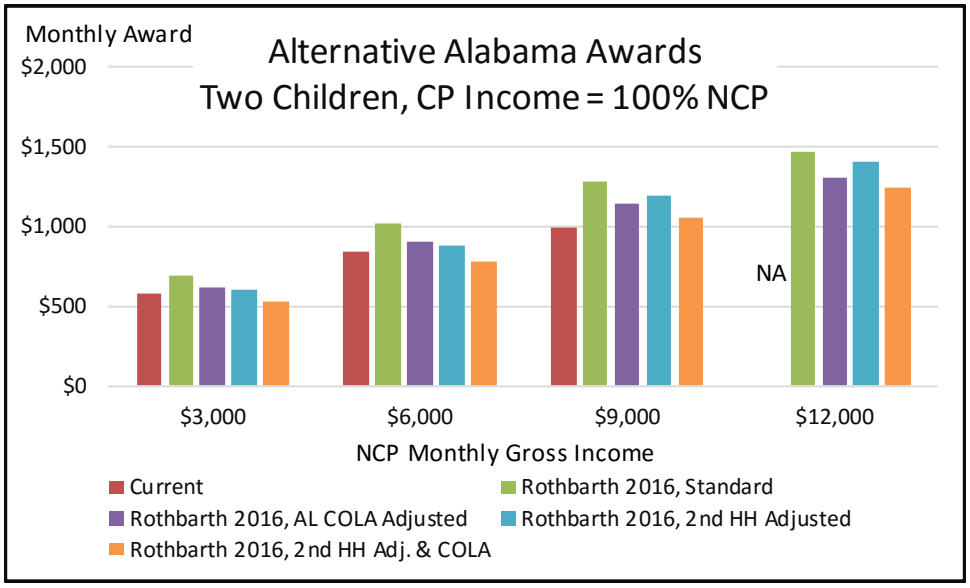
Alternative Alabama Awards
Two Children, CP Income = 100% NCP

NCP Monthly Gross Income	Current	Rothbarth 2016, Standard	Rothbarth 2016, AL COLA Adjusted	Rothbarth 2016, 2nd HH Adjusted	Rothbarth 2016, 2nd HH Adj. & COLA
$3,000	$586	$697	$620	$599	$533
$6,000	$848	$1,015	$903	$884	$786
$9,000	$991	$1,281	$1,140	$1,189	$1,058
$12,000	NA	$1,467	$1,305	$1,402	$1,247

Exhibit 20.

Alternative Alabama Awards, Two Children, CP Income =150% NCP

Comparisons (left to right):
Current Rule 32, Rothbarth 2016 Standard, Rothbarth 2016 AL COLA,
Rothbarth 2016 with 2nd HH Adjustment, Rothbarth 2016 with 2nd HH Adj. & COLA



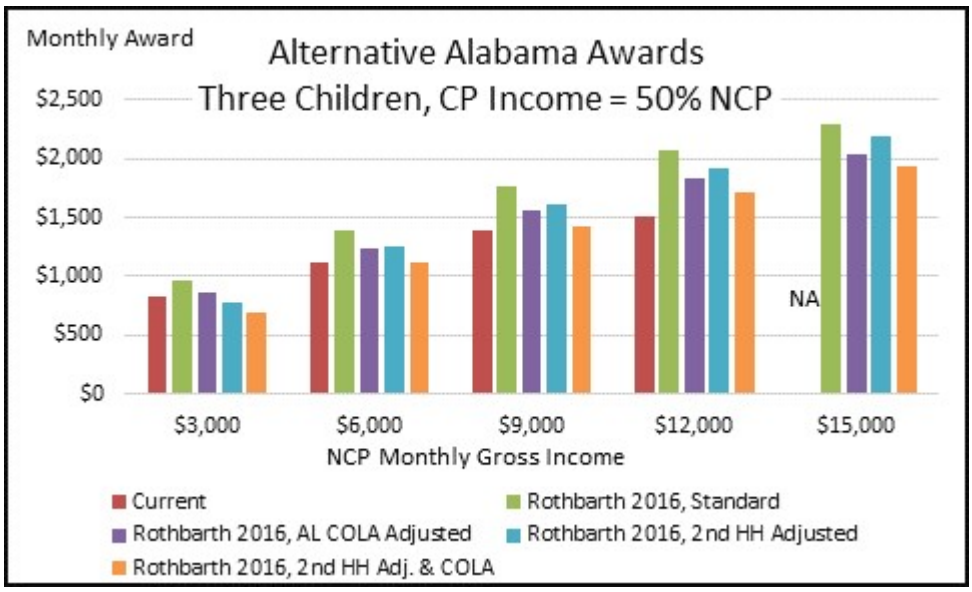
Alternative Alabama Awards
Two Children, CP Income = 150% NCP

NCP Monthly Gross Income	Current	Rothbarth 2016, Standard	Rothbarth 2016, AL COLA Adjusted	Rothbarth 2016, 2nd HH Adjusted	Rothbarth 2016, 2nd HH Adj. & COLA
$3,000	$519	$637	$567	$549	$488
$6,000	$744	$911	$810	$853	$759
$9,000	NA	$1,139	$1,014	$1,084	$964

Exhibit 21

Alternative Alabama Awards, Three Children, CP Income =50% NCP

Comparisons (left to right):
Current Rule 32, Rothbarth 2016 Standard, Rothbarth 2016 AL COLA,
Rothbarth 2016 with 2nd HH Adjustment, Rothbarth 2016 with 2nd HH Adj. & COLA



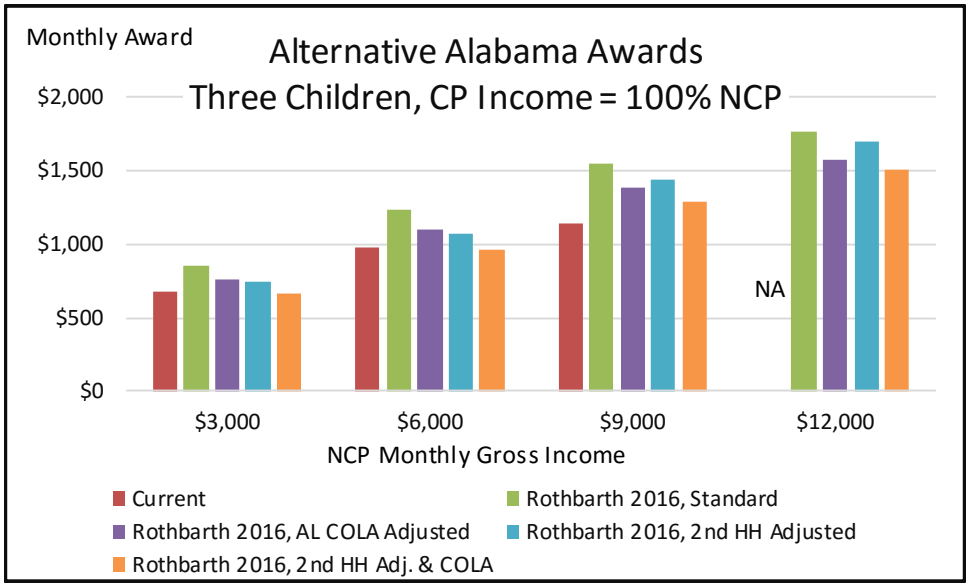
Alternative Alabama Awards
Three Children, CP Income = 50% NCP

NCP Monthly Gross Income	Current	Rothbarth 2016, Standard	Rothbarth 2016, AL COLA Adjusted	Rothbarth 2016, 2nd HH Adjusted	Rothbarth 2016, 2nd HH Adj. & COLA
$3,000	$701	$973	$866	$785	$698
$6,000	$959	$1,398	$1,243	$1,250	$1,112
$9,000	$1,207	$1,759	$1,565	$1,607	$1,429
$12,000	$1,321	$2,067	$1,839	$1,921	$1,709
$15,000	NA	$2,287	$2,035	$2,181	$1,941

Exhibit 22.

Alternative Alabama Awards, Three Children, CP Income =100% NCP

Comparisons (left to right):
Current Rule 32, Rothbarth 2016 Standard, Rothbarth 2016 AL COLA,
Rothbarth 2016 with 2nd HH Adjustment, Rothbarth 2016 with 2nd HH Adj. & COLA



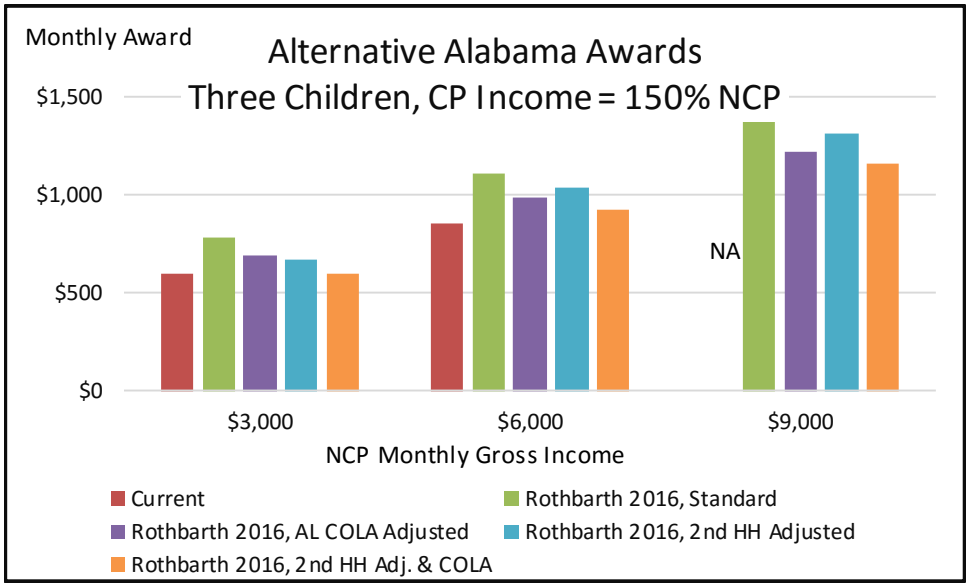
Alternative Alabama Awards
Three Children, CP Income = 100% NCP

NCP Monthly Gross Income	Current	Rothbarth 2016, Standard	Rothbarth 2016, AL COLA Adjusted	Rothbarth 2016, 2nd HH Adjusted	Rothbarth 2016, 2nd HH Adj. & COLA
$3,000	$682	$856	$762	$739	$658
$6,000	$982	$1,238	$1,101	$1,077	$958
$9,000	$1,135	$1,551	$1,380	$1,441	$1,282
$12,000	NA	$1,766	$1,571	$1,693	$1,506

Exhibit 23.

Alternative Alabama Awards, Three Children, CP Income =150% NCP

Comparisons (left to right):
Current Rule 32, Rothbarth 2016 Standard, Rothbarth 2016 AL COLA,
Rothbarth 2016 with 2nd HH Adjustment, Rothbarth 2016 with 2nd HH Adj. & COLA



Alternative Alabama Awards
Three Children, CP Income = 150% NCP

NCP Monthly Gross Income	Current	Rothbarth 2016, Standard	Rothbarth 2016, AL COLA Adjusted	Rothbarth 2016, 2nd HH Adjusted	Rothbarth 2016, 2nd HH Adj. & COLA
$3,000	$602	$779	$693	$675	$601
$6,000	$856	$1,104	$982	$1,036	$922
$9,000	NA	$1,372	$1,221	$1,309	$1,164

CHAPTER IX
Comparison of State Child Costs and Awards

Basics on Underlying Studies for States Compared

The current Rule 32 child support guidelines for Alabama are compared to child costs and awards for the states of Colorado, Georgia, Mississippi, South Carolina, and Tennessee. Except for Colorado, these states are neighboring states or in the Southeast. Colorado was included due to it being in the opposite direction of Alabama in terms of cost of living. Colorado's child cost schedule is based on David Betson's 2010 study but is adjusted upward to reflect costs of living that are higher than the U.S. average. It should be noted that the Colorado cost schedule is based on a 2010 study. Alabama's child cost tables in this study are based on spending patterns from the same 2010 study but updated to March 2016 price levels.

Also, from the four sets of 2016 child cost estimates for Alabama consideration from this study, the standard Rothbarth with an Alabama COLA is included in these comparisons. Florida is not included in the comparisons because its child support calculations are based on a cost table using net income with separate calculations for net income for the custodial parent and the noncustodial parent. There is no standardized conversion table for gross to net income. All other states either use gross income based cost tables or have a simple net income calculation (Mississippi uses net income but only considers the obligor's net income in the presumptive calculation.

Current Alabama Rule 32

The current Rule 32 cost schedule is based on a 2001 study by David Betson using the Rothbarth methodology with data from 1996-99 from the Consumer Expenditure Survey. Spending patterns were realigned to reflect Alabama's income distribution as reflected in the state's relative low median income.

Standard Rothbarth, 2016, with Alabama COLA

The standard Rothbarth 2016 with an Alabama cost of living adjustment is this report's version of four sets of cost tables that comes closest to the methodology used in the current Rule 32 schedule. Spending pattern data are from the Betson 2010 study updated to March 2016 using an adjustment based on the Consumer Price Index. The Alabama cost of living adjustment, using data from the Council for Community and Economic Research for the first quarter of 2016. This Alabama COLA reduced the cost schedule based on national data by 11 percent.

Colorado

The cost schedule for Colorado is based on David Betson's 2010 study, with CES data

from 2004 through the first quarter of 2009. This schedule is adjusted upward slightly to reflect that Colorado's housing costs are about 15 higher than the national average. The impact of this is less than 15 percent since housing averages about 41 percent of total household outlays, indicating an average boost to the total child cost schedule of about 6 percent—although this amount is higher at lower incomes and lower at higher incomes. There were no changes in spending patterns to reflect changes in price levels since the Colorado schedule was developed shortly before the report to Colorado was released July 2011.

Georgia

The Georgia guidelines schedule was promulgated in January 2007 and is based on the most current economic data available in 2005. Georgia switched from a percentage-of-obligor income guidelines to an income shares guidelines model in 2005, effective January 1, 2007. The existing schedule is based on the average of two measurements of child-rearing expenditures: one based on the "Rothbarth" methodology and the other based on the "Engel" methodology. Both the Engel and Rothbarth measurements used to develop the existing Georgia schedule are from a 2001 study by Professor David Betson, University of Notre Dame, using 1996-99 expenditures data from families.[22] The Engel based estimates are notably higher than those using the Rothbarth methodology. The averaging with the Engel methodology numbers results in Georgia's notably high child costs in its presumptive schedule.

Mississippi

Mississippi does not use the Income Shares methodology but instead uses Wisconsin style fixed percentages applied to an obligor's net income. The percentage stays the same across all income levels but rises with the number of children. The percentages applied to obligor net income are: one child, 14 percent; two children, 20 percent; three children, 22 percent; four children, 24 percent; and five or more children, 26 percent.

South Carolina

South Carolina's child support cost schedule was most recently updated in 2014, using David Betson's Rothbarth methodology. According to *South Carolina Child Support Guidelines, 2014 Edition*, p. 1:

> The Income Shares Model calculates child support as the share of each parent's income which would have been spent on the children if the parents and children were living in the same household. The shares are based on the amount of money ordinarily spent on children by their families living in the United States and adjusted to South Carolina cost of living levels.

[22] Betson, David M. (2001). "Chapter 5: Parental Expenditures on Children." in Judicial Council of California, Review of Statewide Uniform Child Support Guideline. San Francisco, California. This study initially included data from 1994-98 but was expanded to include 1994-99.

Tennessee

Tennessee's cost schedule was last updated in 2008 based on a 2005 study by Policy Studies, Inc. which relied upon Betson's 2001 Rothbarth based study. As such, Tennessee's child support cost table is quite dated.

General Findings of State Comparisons

The standard Rothbarth 2016 estimates are notably higher that all compared states except for Colorado. Both Colorado and the standard Rothbarth 2016 use relatively up to date data and use national data. Colorado has a modest upward adjustment for its higher costs for housing which are partially offset by a modest rise in consumer prices since 2010.

Current Rule 32 and South Carolina are relatively low due to use of both old data and being adjusted for low relative incomes in each state on average. The standard Rothbarth with an Alabama COLA adjustment is similar to the current Rule 32 numbers at moderate incomes since the COLA adjustment has more impact at all income levels while the income redistribution methodology has little impact at low incomes. The Alabama COLA adjusted series is higher than the current Rule 32 data at high incomes, reflecting the 2010 Betson study which produced notably higher estimates at high incomes—especially for three or more children.

Mississippi does not use a cost table since it uses the percent of obligor income methodology. Applied to obligor net income, Mississippi's formulas produce relative lower awards at modest incomes and higher awards at high incomes due to the use of fixed percentages.

Exhibit 24.

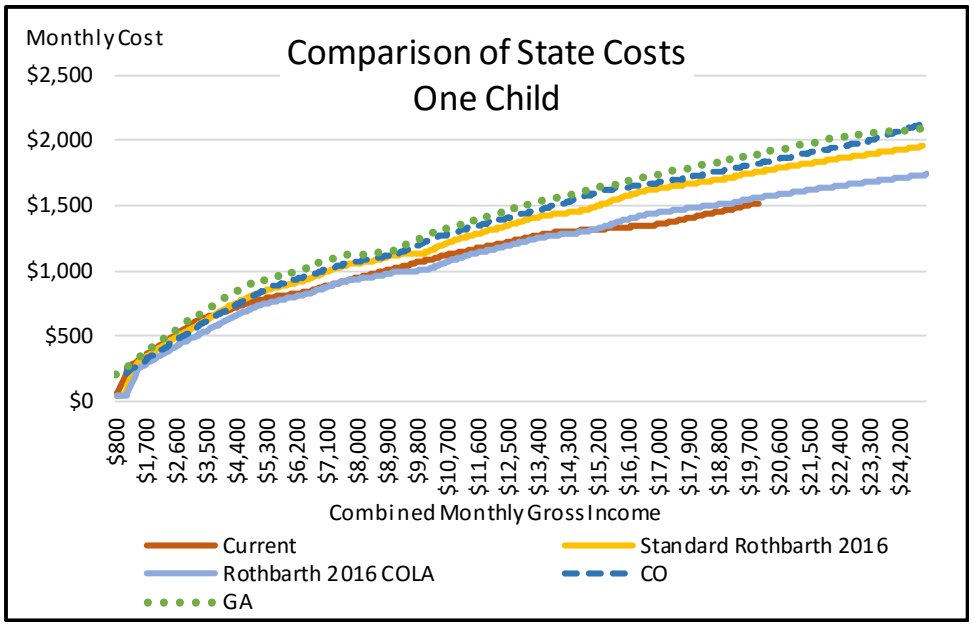


Exhibit 25.

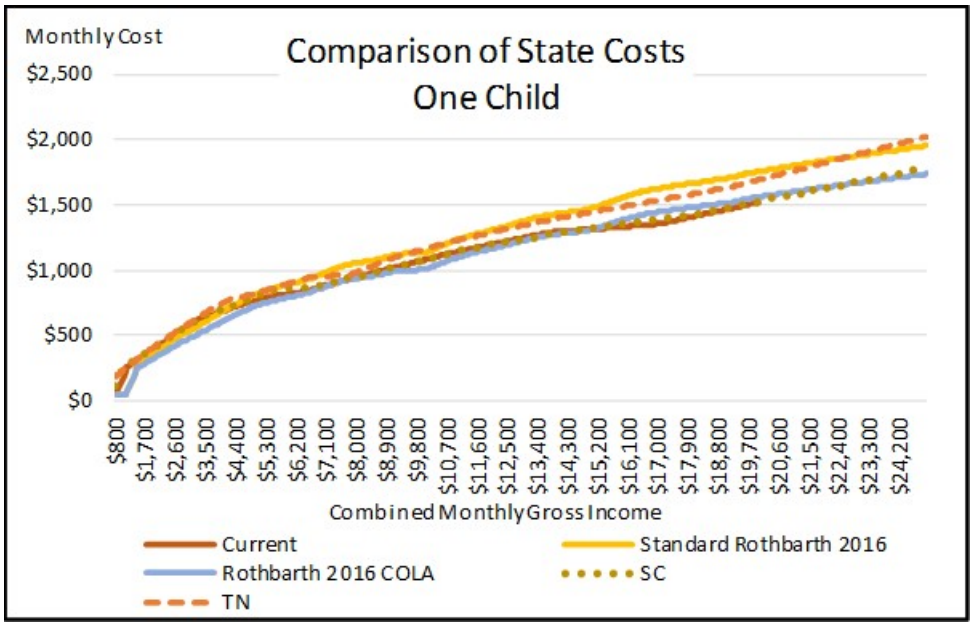
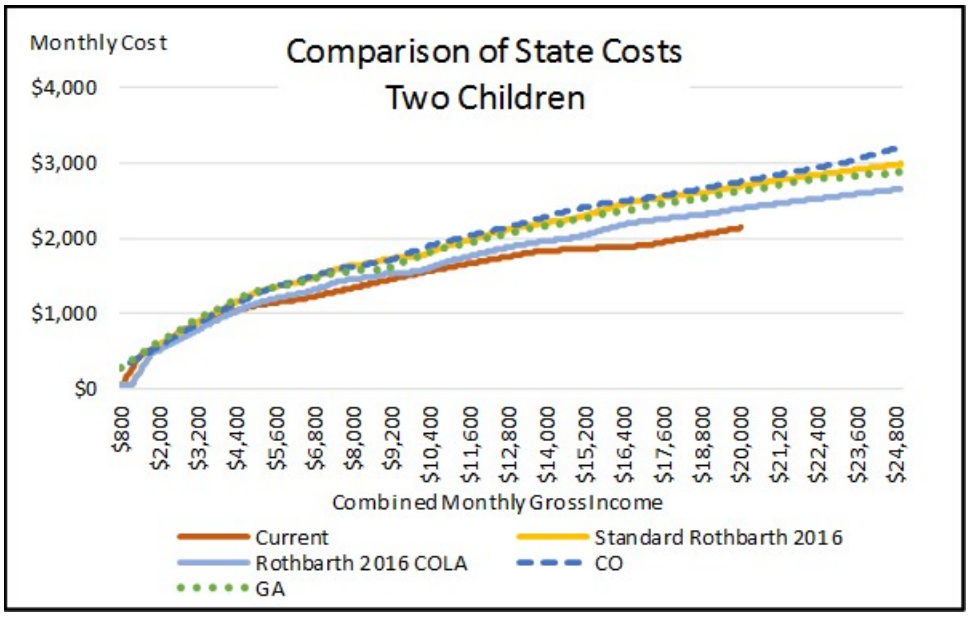


Exhibit 26.



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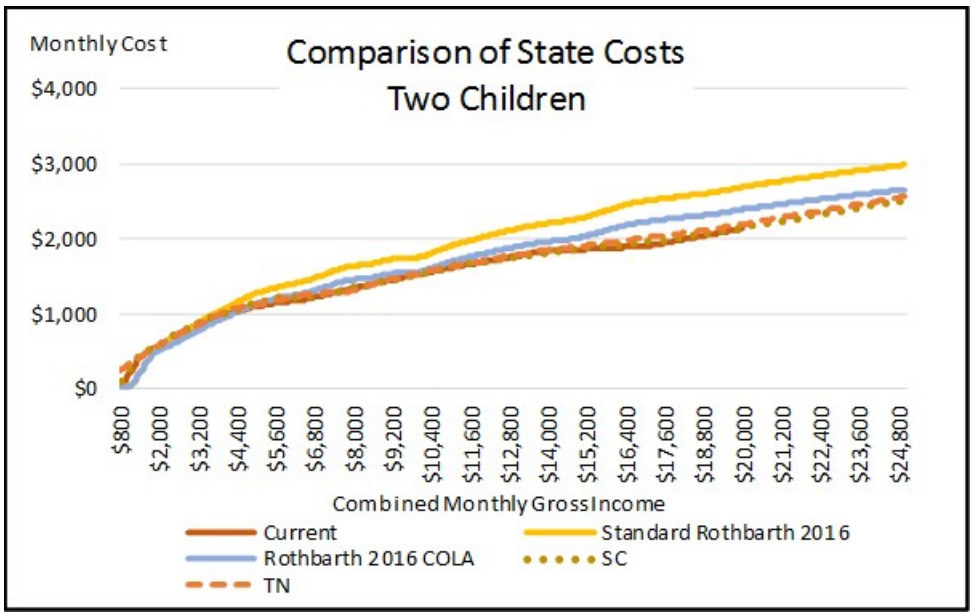

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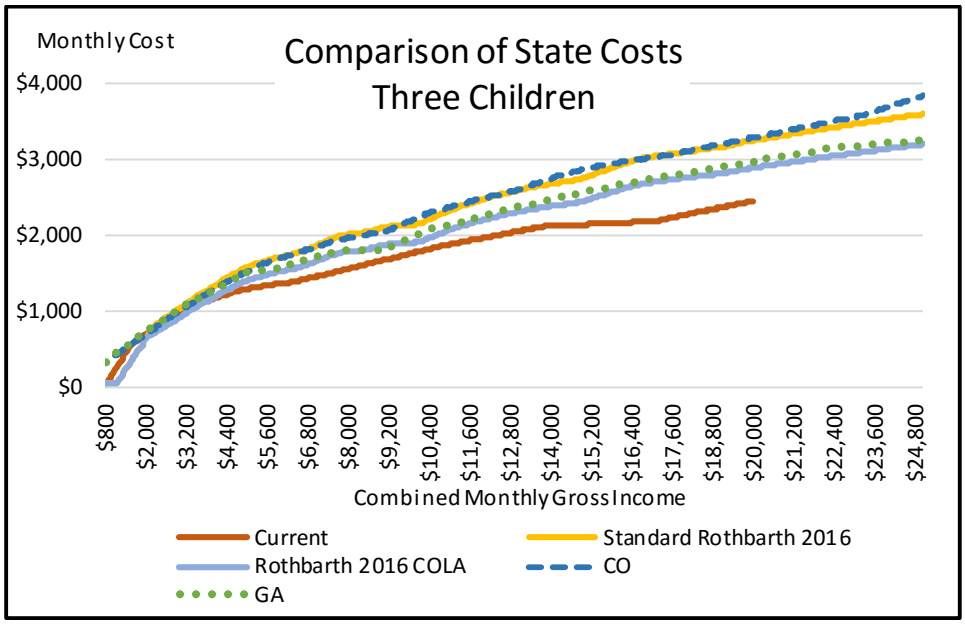

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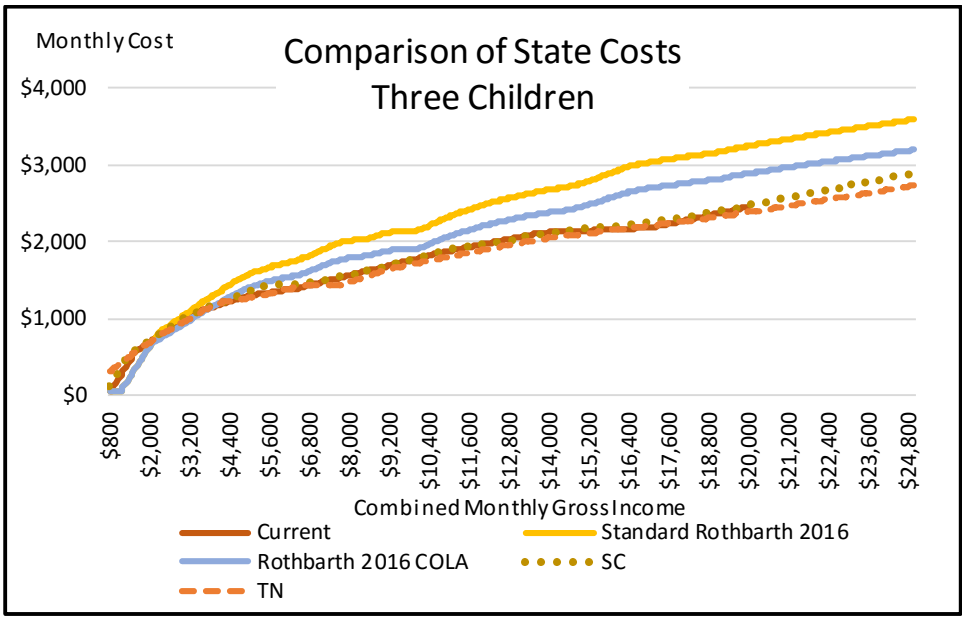
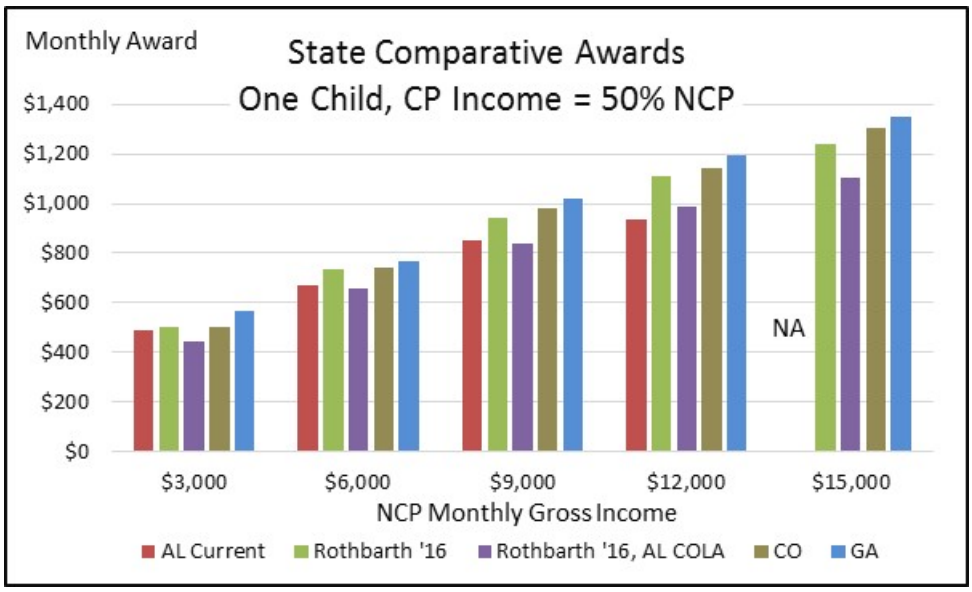


Exhibit 30.

Alternative Awards by State, One Child, CP Income =50% NCP

Comparative Awards: (left to right) Current Rule 32, Rothbarth 2016 Standard, Rothbarth 2016 AL COLA, Colorado, and Georgia



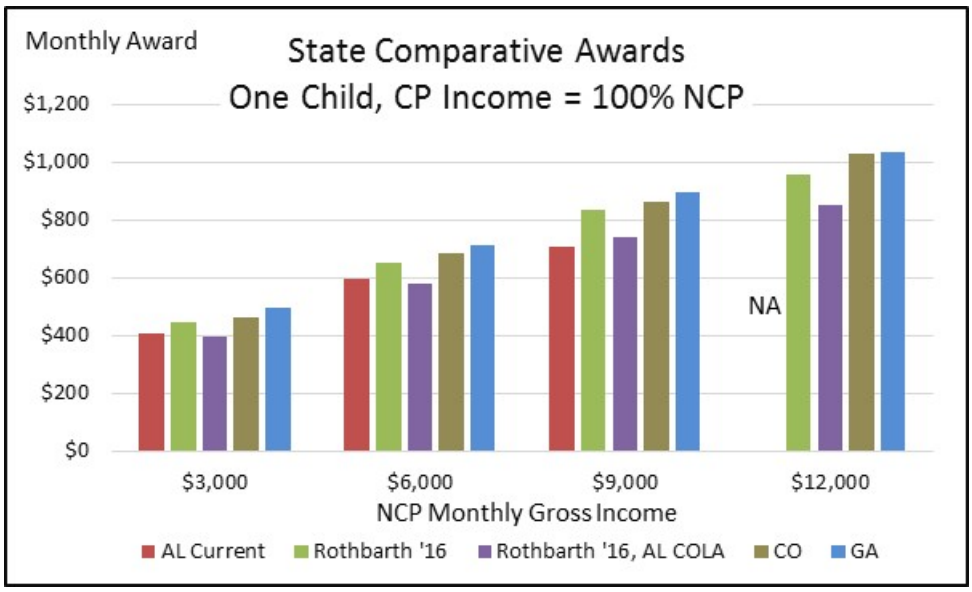
One Child, CP Income = 50% NCP

NCP Monthly Gross Income	Current	Rothbarth 2016, Standard	Rothbarth 2016, AL COLA Adjusted	Colorado	Georgia
$3,000	$486	$502	$447	$503	$569
$6,000	$673	$738	$657	$745	$767
$9,000	$850	$940	$836	$981	$1,021
$12,000	$939	$1,110	$987	$1,146	$1,193
$15,000	NA	$1,239	$1,102	$1,303	$1,350

Exhibit 31.

Alternative Awards by State, One Child, CP Income =100% NCP

Comparative Awards: (left to right) Current Rule 32, Rothbarth 2016 Standard, Rothbarth 2016 AL COLA, Colorado, and Georgia



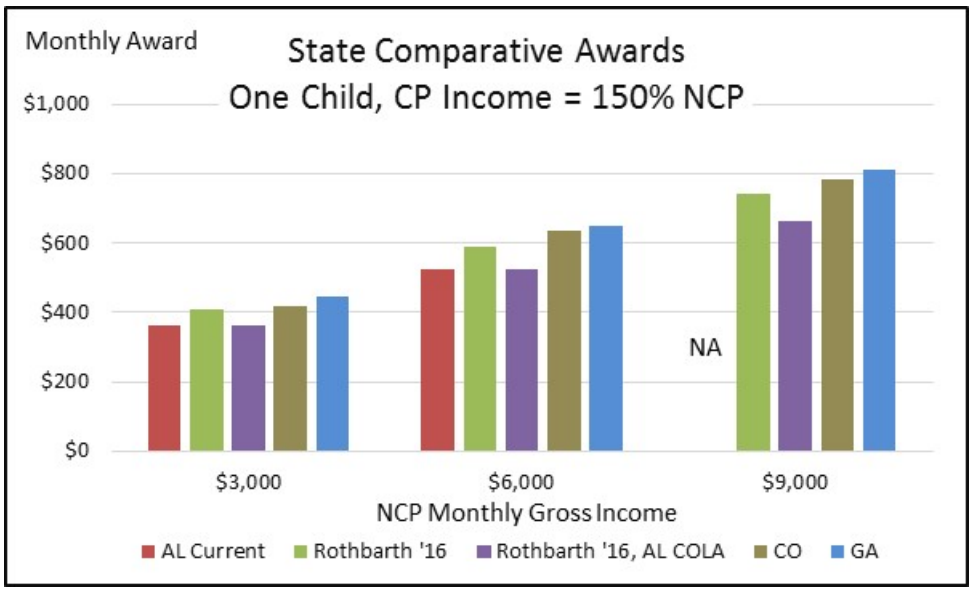
One Child, CP Income = 100% NCP

NCP Monthly ross Income	Current	Rothbarth 2016, Standard	Rothbarth 2016, AL COLA Adjusted	Colorado	Georgia
$3,000	$409	$446	$397	$460	$494
$6,000	$596	$652	$580	$686	$714
$9,000	$704	$833	$741	$860	$895
$12,000	NA	$958	$852	$1,027	$1,034

Exhibit 32.

Alternative Awards by State, One Child, CP Income =150% NCP

Comparative Awards: (left to right) Current Rule 32, Rothbarth 2016 Standard, Rothbarth 2016 AL COLA, Colorado, and Georgia



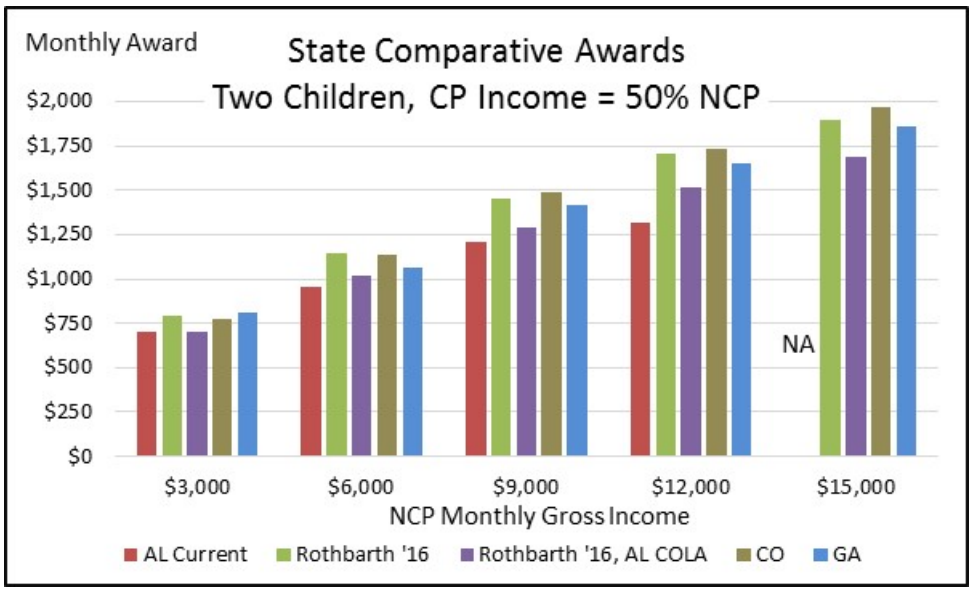
One Child, CP Income = 150% NCP

NCP Monthly Gross Income	Current	Rothbarth 2016, Standard	Rothbarth 2016, AL COLA Adjusted	Colorado	Georgia
$3,000	$364	$409	$364	$416	$443
$6,000	$526	$590	$524	$634	$649
$9,000	NA	$743	$661	$782	$810

Exhibit 33.

Alternative Awards by State, Two Children, CP Income =50% NCP

Comparative Awards: (left to right) Current Rule 32, Rothbarth 2016 Standard, Rothbarth 2016 AL COLA, Colorado, and Georgia



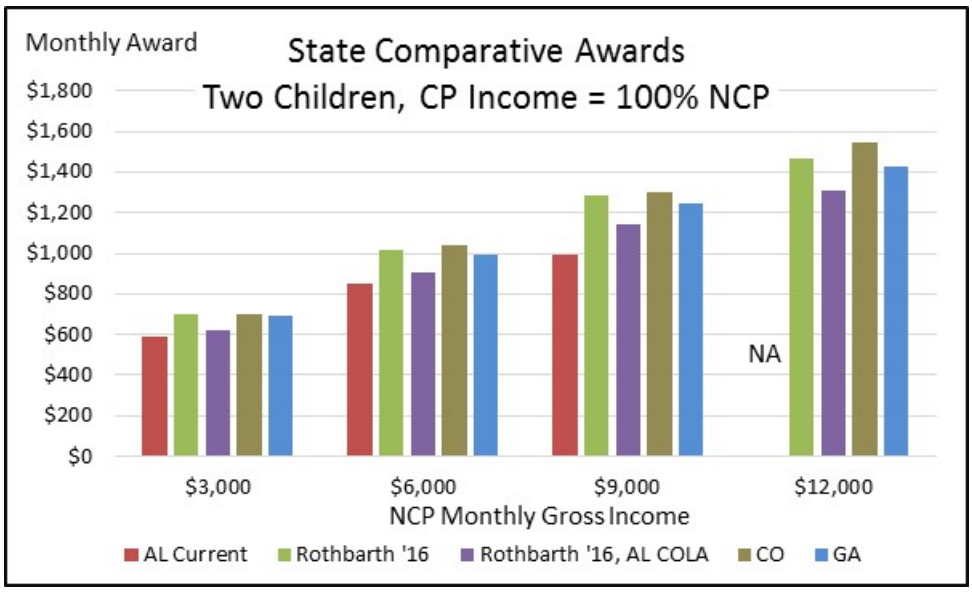
Two Children, CP Income = 50% NCP

NCP Monthly Gross Income	Current	Rothbarth 2016, Standard	Rothbarth 2016, AL COLA Adjusted	Colorado	Georgia
$3,000	$701	$788	$701	$771	$806
$6,000	$959	$1,146	$1,019	$1,131	$1,064
$9,000	$1,207	$1,451	$1,291	$1,485	$1,418
$12,000	$1,321	$1,708	$1,519	$1,730	$1,655
$15,000	NA	$1,899	$1,689	$1,963	$1,861

Exhibit 34.

Alternative Awards by State, Two Children, CP Income =100% NCP

Comparative Awards: (left to right) Current Rule 32, Rothbarth 2016 Standard, Rothbarth 2016 AL COLA, Colorado, and Georgia



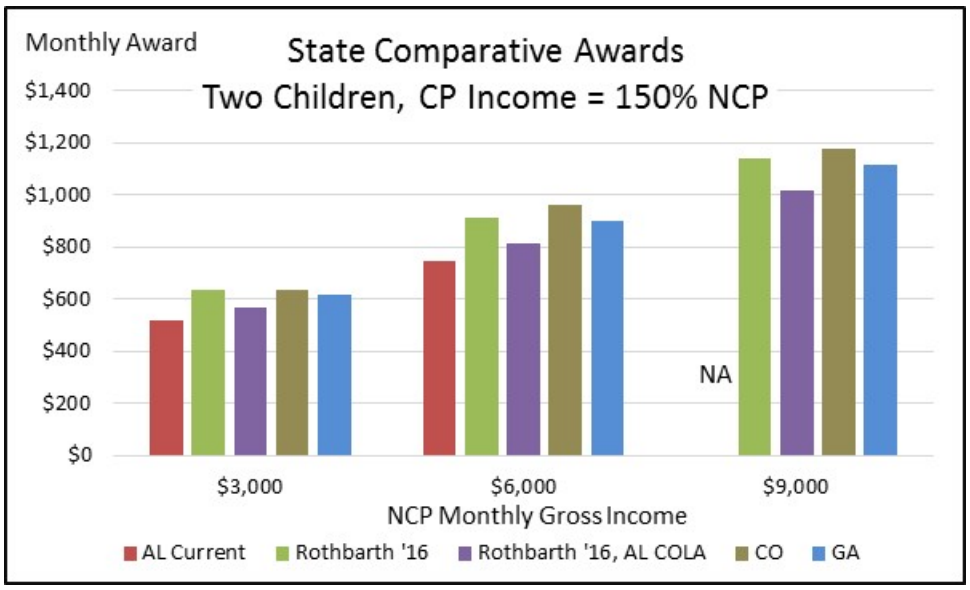
Two Children, CP Income = 100% NCP

NCP Monthly Gross Income	Current	Rothbarth 2016, Standard	Rothbarth 2016, AL COLA Adjusted	Colorado	Georgia
$3,000	$586	$697	$620	$702	$692
$6,000	$848	$1,015	$903	$1,038	$991
$9,000	$991	$1,281	$1,140	$1,298	$1,241
$12,000	NA	$1,467	$1,305	$1,547	$1,424

Exhibit 35.

Alternative Awards by State, Two Children, CP Income =150% NCP

Comparative Awards: (left to right) Current Rule 32, Rothbarth 2016 Standard, Rothbarth 2016 AL COLA, Colorado, and Georgia



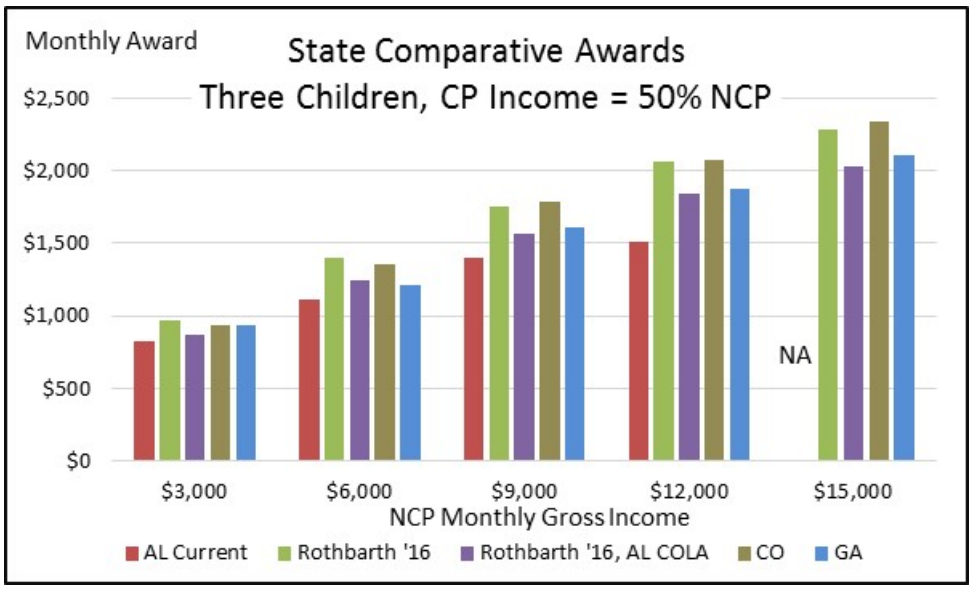
Two Children, CP Income = 150% NCP

NCP Monthly Gross Income	Current	Rothbarth 2016, Standard	Rothbarth 2016, AL COLA Adjusted	Colorado	Georgia
$3,000	$519	$637	$567	$634	$618
$6,000	$744	$911	$810	$958	$902
$9,000	NA	$1,139	$1,014	$1,178	$1,117

Exhibit 36.

Alternative Awards by State, Three Children, CP Income =50% NCP

Comparative Awards: (left to right) Current Rule 32, Rothbarth 2016 Standard, Rothbarth 2016 AL COLA, Colorado, and Georgia



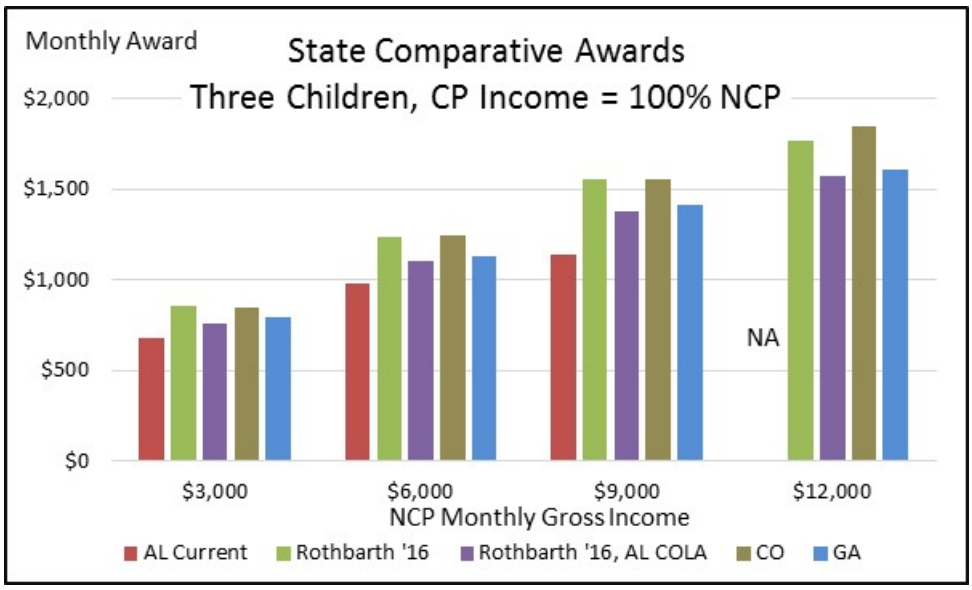
Three Children, CP Income = 50% NCP

NCP Monthly Gross Income	Current	Rothbarth 2016, Standard	Rothbarth 2016, AL COLA Adjusted	Colorado	Georgia
$3,000	$823	$973	$866	$937	$933
$6,000	$1,111	$1,398	$1,243	$1,361	$1,211
$9,000	$1,396	$1,759	$1,565	$1,782	$1,612
$12,000	$1,513	$2,067	$1,839	$2,069	$1,879
$15,000	NA	$2,287	$2,035	$2,343	$2,105

Exhibit 37.

Alternative Awards by State, Three Children, CP Income =100% NCP

Comparative Awards: (left to right) Current Rule 32, Rothbarth 2016 Standard, Rothbarth 2016 AL COLA, Colorado, and Georgia



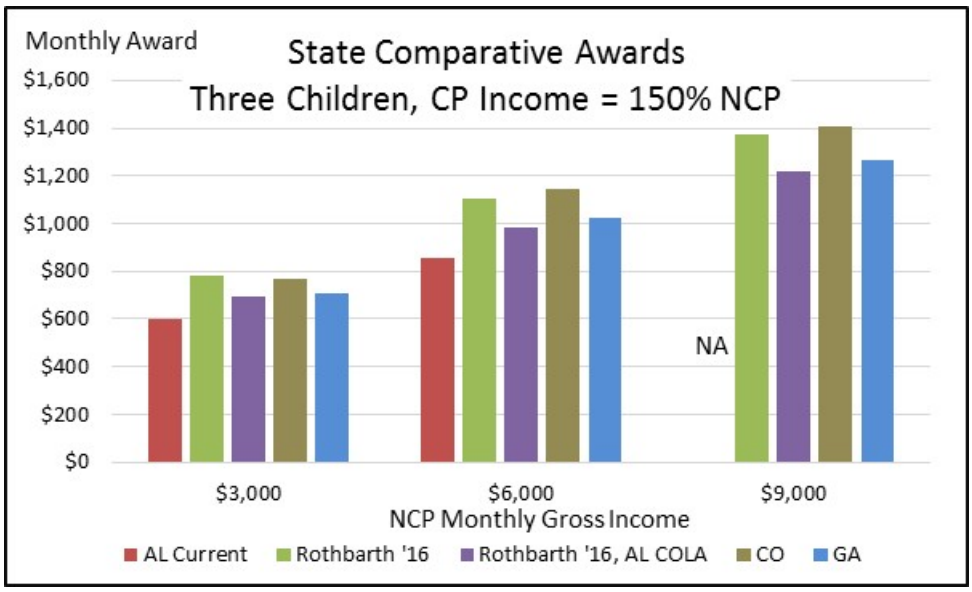
Three Children, CP Income = 100% NCP

NCP Monthly Gross Income	Current	Rothbarth 2016, Standard	Rothbarth 2016, AL COLA Adjusted	Colorado	Georgia
$3,000	$682	$856	$762	$848	$794
$6,000	$982	$1,238	$1,101	$1,245	$1,127
$9,000	$1,135	$1,551	$1,380	$1,552	$1,410
$12,000	NA	$1,766	$1,571	$1,846	$1,606

Exhibit 38.

Alternative Awards by State, Three Children, CP Income =150% NCP

Comparative Awards: (left to right) Current Rule 32, Rothbarth 2016 Standard, Rothbarth 2016 AL COLA, Colorado, and Georgia



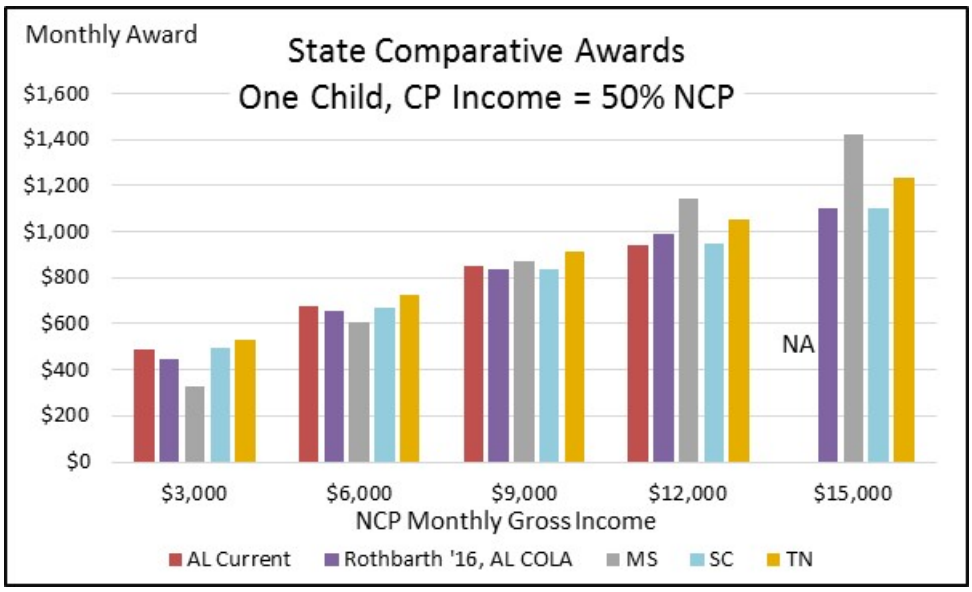
Three Children, CP Income = 150% NCP

NCP Monthly Gross Income	Current	Rothbarth 2016, Standard	Rothbarth 2016, AL COLA Adjusted	Colorado	Georgia
$3,000	$602	$779	$693	$765	$707
$6,000	$856	$1,104	$982	$1,148	$1,026
$9,000	NA	$1,372	$1,221	$1,406	$1,263

Exhibit 39.

Alternative Awards by State, One Child, CP Income =50% NCP

Comparative Awards: (left to right) Current Rule 32, Rothbarth 2016 AL COLA, Mississippi, South Carolina, and Tennessee



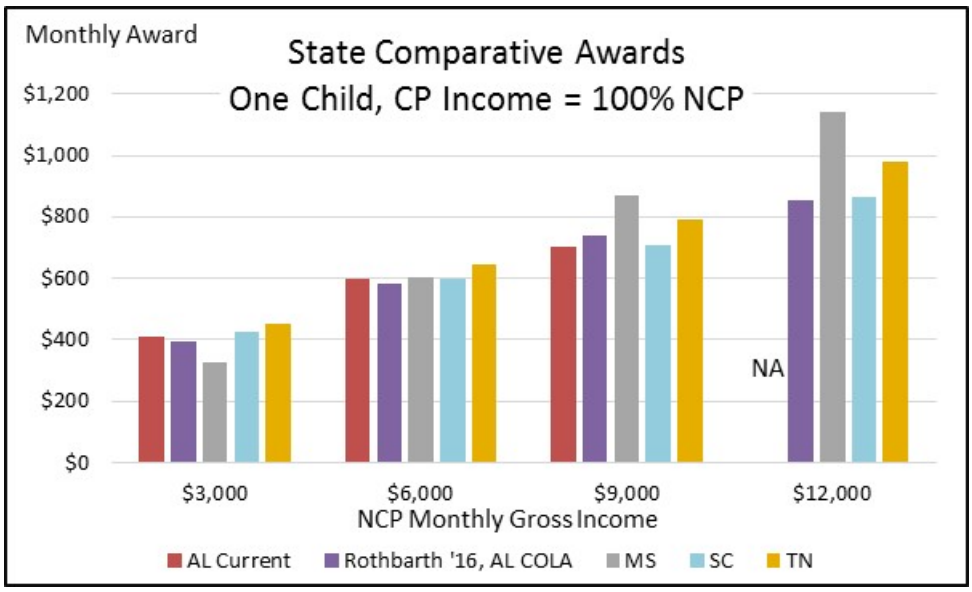
One Child, CP Income = 50% NCP

NCP Monthly Gross Income	Current	Rothbarth 2016, AL COLA Adjusted	Mississippi	South Carolina	Tennessee
$3,000	$486	$447	$327	$499	$527
$6,000	$673	$657	$604	$673	$723
$9,000	$850	$836	$870	$840	$915
$12,000	$939	$987	$1,144	$947	$1,055
$15,000		$1,102	$1,425	$1,103	$1,237

Exhibit 40.

Alternative Awards by State, One Child, CP Income =100% NCP

Comparative Awards: (left to right) Current Rule 32, Rothbarth 2016 AL COLA, Mississippi, South Carolina, and Tennessee



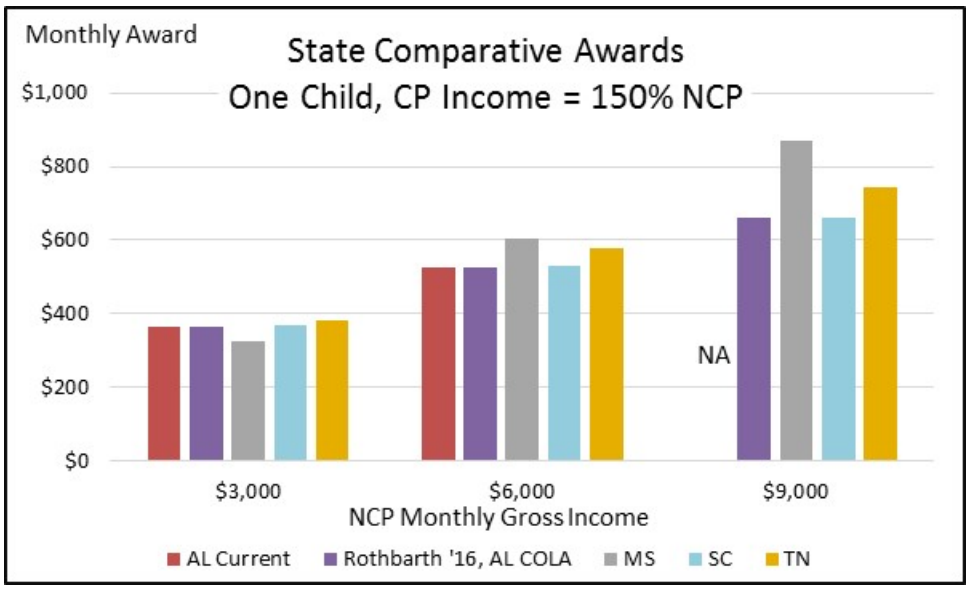
One Child, CP Income = 100% NCP

NCP Monthly Gross Income	Current	Rothbarth 2016, AL COLA Adjusted	Mississippi	South Carolina	Tennessee
$3,000	$409	$397	$327	$428	$450
$6,000	$596	$580	$604	$597	$644
$9,000	$704	$741	$870	$710	$791
$12,000		$852	$1,144	$866	$978

Exhibit 41.

Alternative Awards by State, One Child, CP Income =150% NCP

Comparative Awards: (left to right) Current Rule 32, Rothbarth 2016 AL COLA, Mississippi, South Carolina, and Tennessee



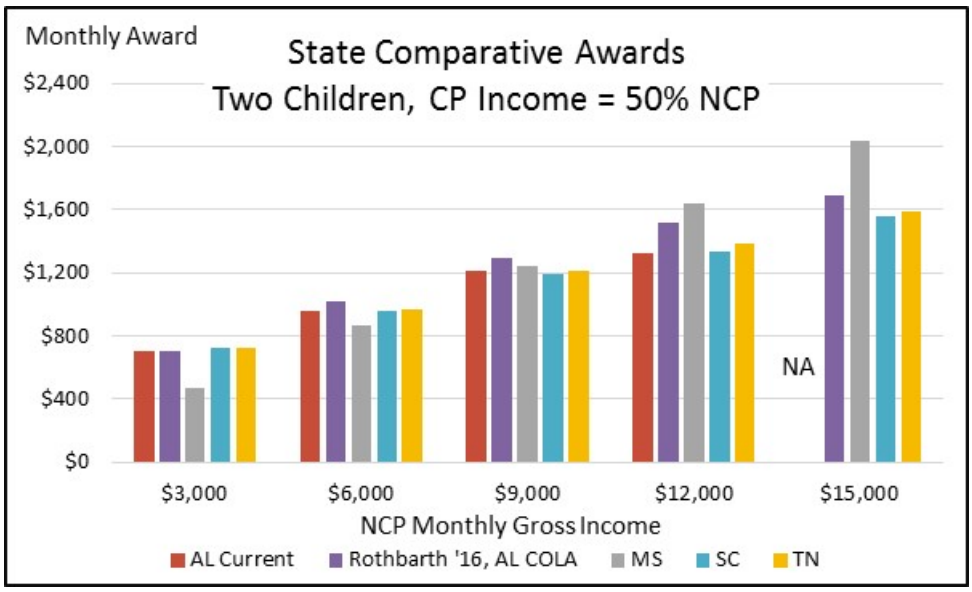
One Child, CP Income = 150% NCP

NCP Monthly Gross Income	Current	Rothbarth 2016, AL COLA Adjusted	Mississippi	South Carolina	Tennessee
$3,000	$364	$364	$327	$367	$384
$6,000	$526	$524	$604	$528	$578
$9,000		$661	$870	$662	$742

Exhibit 42.

Alternative Awards by State, Two Children, CP Income =50% NCP

Comparative Awards: (left to right) Current Rule 32, Rothbarth 2016 AL COLA, Mississippi, South Carolina, and Tennessee



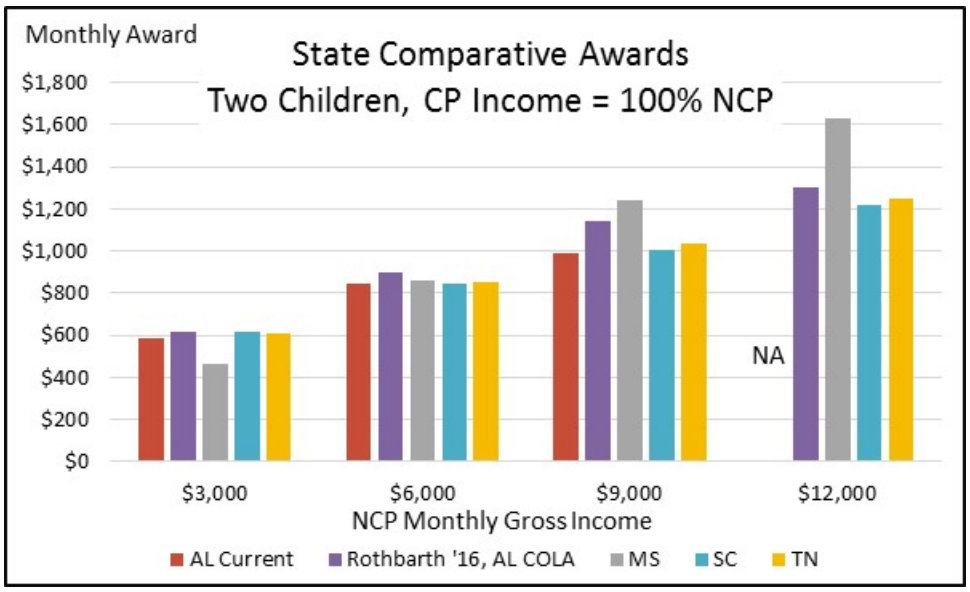
Two Children, CP Income = 50% NCP

NCP Monthly Gross Income	Current	Rothbarth 2016, AL COLA Adjusted	Mississippi	South Carolina	Tennessee
$3,000	$701	$701	$467	$720	$725
$6,000	$959	$1,019	$863	$959	$968
$9,000	$1,207	$1,291	$1,242	$1,193	$1,214
$12,000	$1,321	$1,519	$1,634	$1,337	$1,380
$15,000		$1,689	$2,036	$1,557	$1,587

Exhibit 43.

Alternative Awards by State, Two Children, CP Income =100% NCP

Comparative Awards: (left to right) Current Rule 32, Rothbarth 2016 AL COLA, Mississippi, South Carolina, and Tennessee



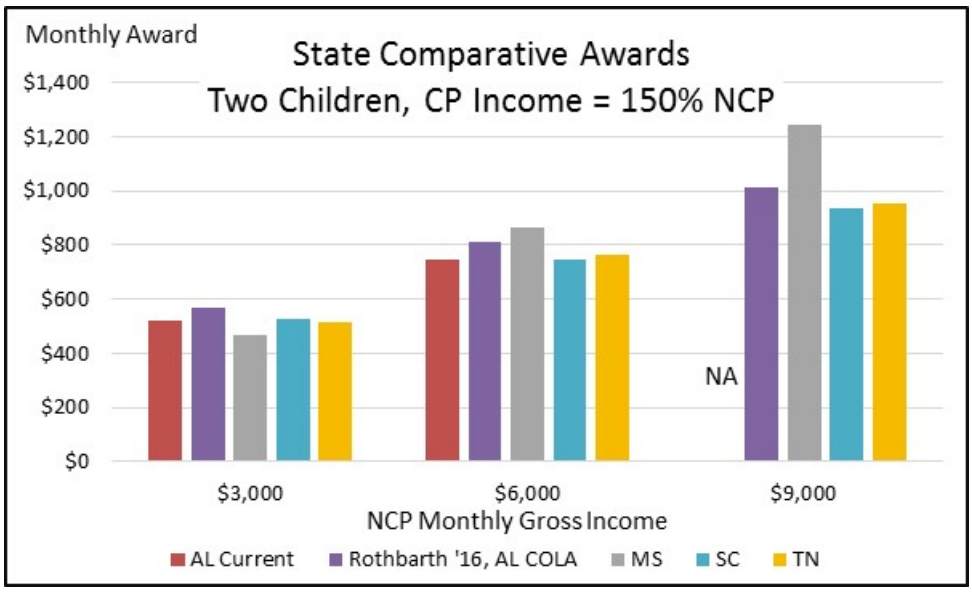
Two Children, CP Income = 100% NCP

NCP Monthly Gross Income	Current	Rothbarth 2016, AL COLA Adjusted	Mississippi	South Carolina	Tennessee
$3,000	$586	$620	$467	$614	$608
$6,000	$848	$903	$863	$849	$855
$9,000	$991	$1,140	$1,242	$1,003	$1,035
$12,000		$1,305	$1,634	$1,223	$1,246

Exhibit 44.

Alternative Awards by State, Two Children, CP Income =150% NCP

Comparative Awards: (left to right) Current Rule 32, Rothbarth 2016 AL COLA, Mississippi, South Carolina, and Tennessee



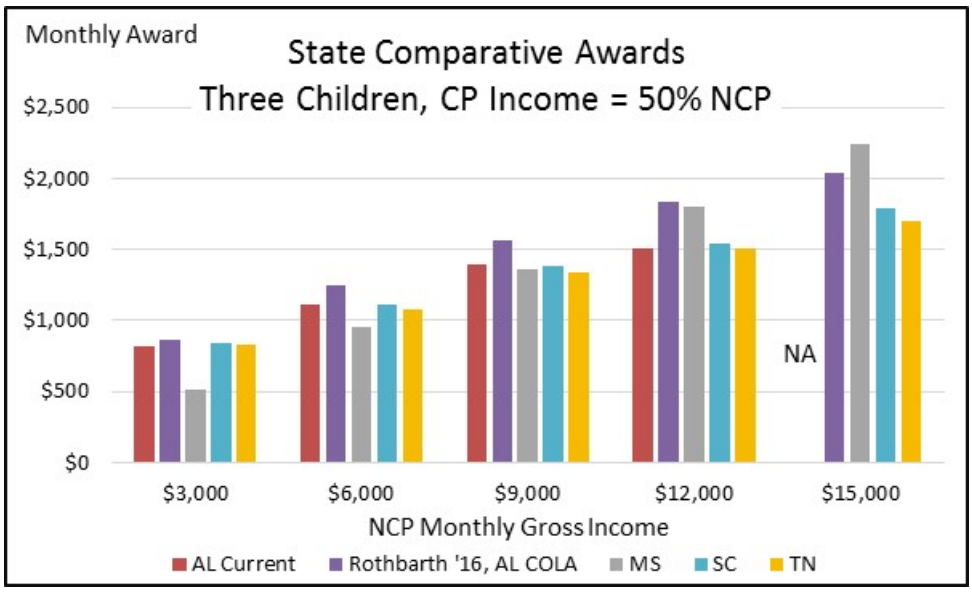
Two Children, CP Income = 150% NCP

NCP Monthly Gross Income	Current	Rothbarth 2016, AL COLA Adjusted	Mississippi	South Carolina	Tennessee
$3,000	$519	$567	$467	$524	$514
$6,000	$744	$810	$863	$749	$763
$9,000		$1,014	$1,242	$934	$952

Exhibit 45.

Alternative Awards by State, Three Children, CP Income =50% NCP

Comparative Awards: (left to right) Current Rule 32, Rothbarth 2016 AL COLA, Mississippi, South Carolina, and Tennessee



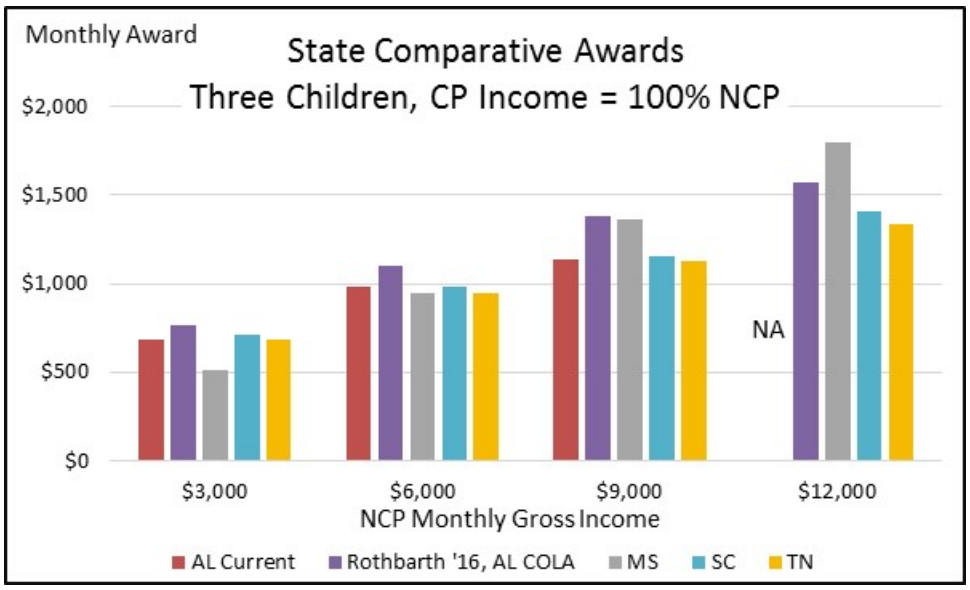
Three Children, CP Income = 50% NCP

NCP Monthly Gross Income	Current	Rothbarth 2016, AL COLA Adjusted	Mississippi	South Carolina	Tennessee
$3,000	$823	$866	$513	$846	$825
$6,000	$1,111	$1,243	$950	$1,113	$1,078
$9,000	$1,396	$1,565	$1,366	$1,381	$1,342
$12,000	$1,513	$1,839	$1,797	$1,537	$1,507
$15,000	NA	$2,035	$2,240	$1,791	$1,705

Exhibit 46.

Alternative Awards by State, Three Children, CP Income =100% NCP

Comparative Awards: (left to right) Current Rule 32, Rothbarth 2016 AL COLA, Mississippi, South Carolina, and Tennessee



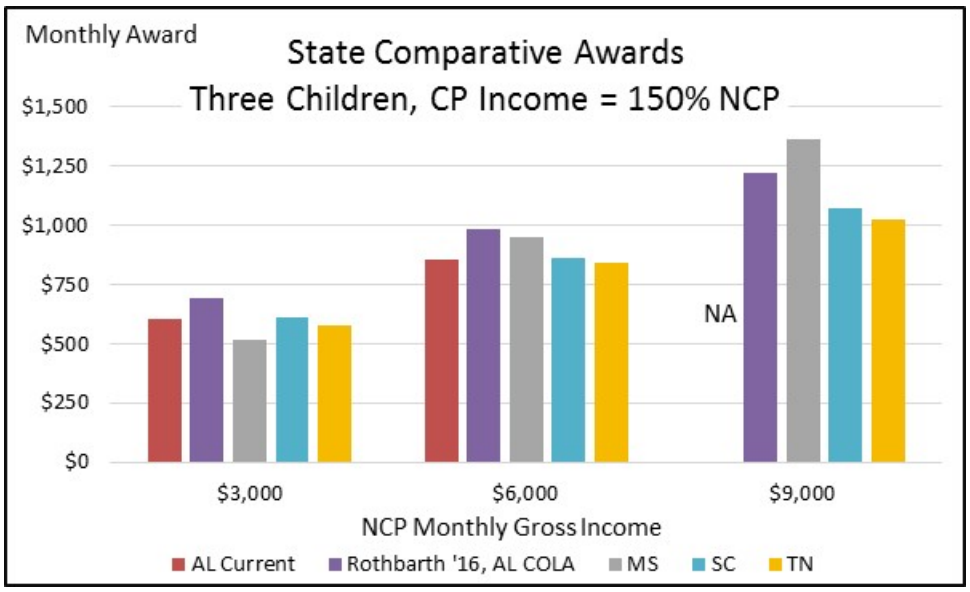
Three Children, CP Income = 100% NCP

NCP Monthly Gross Income	Current	Rothbarth 2016, AL COLA Adjusted	Mississippi	South Carolina	Tennessee
$3,000	$682	$762	$513	$716	$683
$6,000	$982	$1,101	$950	$983	$945
$9,000	$1,135	$1,380	$1,366	$1,153	$1,131
$12,000	NA	$1,571	$1,797	$1,406	$1,331

Exhibit 47.

Alternative Awards by State, Three Children, CP Income =150% NCP

Comparative Awards: (left to right) Current Rule 32, Rothbarth 2016 AL COLA, Mississippi, South Carolina, and Tennessee



Three Children, CP Income = 150% NCP

NCP Monthly Gross Income	Current	Rothbarth 2016, AL COLA Adjusted	Mississippi	South Carolina	Tennessee
$3,000	$602	$693	$513	$609	$575
$6,000	$856	$982	$950	$865	$840
$9,000	NA	$1,221	$1,366	$1,074	$1,023

APPENDIX I

Technical Considerations in Developing a Schedule of Support Obligations

Introduction to Technical Considerations

The development of a schedule of child support obligations is fairly complex in that it requires (1) the use of multiple data sources (e.g., Consumer Expenditure Surveys); (2) decisions about how to treat certain classes of expenditures, notably what is and is not included in the presumptive cost table (e.g., medical care); (3) intermediate calculations (e.g., how to translate expenditures on children to a proportion of net income and how to interpolate various calculation); and (4) assumptions (e.g., how to estimate expenditures on children, computation of taxes in estimating net income, and the best method for estimating child costs at relatively high income). This technical appendix explains the procedures used in developing the table of support proportions (i.e., expenditures on children as a proportion of household net income for various levels of income and numbers of children and, in turn, for dollar expenditures at various gross income levels) and, therefore, the proposed Schedule of Basic Child Support Obligations.

This report provides four different sets of estimates of child costs with each set's key differences in methodology noted. These four methodologies are:

1) Standard Rothbarth estimates using national data from intact families,
2) Standard Rothbarth with an adjustment for the additional expense of second household expenses,
3) Standard Rothbarth estimates with an adjustment for the lower cost of living in Alabama relative to that of the U.S. average, and
4) Standard Rothbarth with an adjustment for the additional expense of second household expenses and with an adjustment for the lower cost of living in Alabama relative to that of the U.S. average.

Technical considerations begin with standard Rothbarth estimates, followed by Rothbarth with a second household adjustment, and then the cost of living adjustment.

Parental Expenditures on Children

Building a schedule of support obligations begins with decisions about how to measure parental expenditures on children. Many economists believe that those expenditures cannot be observed directly, primarily because many expenditures (e.g., shelter, transportation) are shared among household members and are measured on a household basis and not separately for parents and children. For example, in a two-adult, two-child household, one such issue is what proportion of a new car's cost should be attributed to the children?

Since some key child expenditures cannot be measured directly, an indirect method must be defined to estimate those expenditures as a whole. The common element of all the estimation methods primarily used is that they define expenditures to the children based on a comparison of expenditure patterns in households with and without children and which are deemed to be equally well off. This approach in academic literature is known as "income equivalence." This type of approach—despite decades of use—remains controversial in terms of how well the income equivalence method works to estimate child costs. Some economists take the view that income equivalence overstates child costs while others see such estimates as understating child costs. These issues are discussed in a separate section in this report.

Numerous child cost estimation techniques are available and they are described succinctly in a 1990 Lewin/ICF report to the U.S. Department of Health and Human Services. [23] The two techniques that may offer the most sound theoretical bases are the Engel and Rothbarth estimators—though, again, they remain the subject of controversy. The Engel approach estimates child expenditures based on total household expenditures on food. Household consumption of food (and non-food) is the measure of economic wellbeing. Households that consumer a greater share of food are seen as less well off as families spending a smaller proportion on food and a higher proportion on non-food items. Lower income families spend more on basics (including food) and higher income families can afford a greater proportion on non-food items. Economists believe child expenditure estimates using this approach represent an upper bound to those expenditures. More precisely, it is believed that the Engel methodology notably overestimates child costs because children are "food intensive" relative to adults. Having children requires a greater-than-proportional increase in income to restore the level of household spending on non-food items.

The Rothbarth approach, on the other hand, estimates child expenditures based on the level of household expenditures on adult goods (e.g., adult clothing, alcohol, tobacco). The current version of Rothbarth used by David Betson uses only adult clothing as the "target" good that reflects wellbeing. Some economists believe that child expenditures using this approach are seen to represent a lower bound to expenditures. Other economists see the Rothbarth methodology as overestimating child costs. The disagreement is over that impact of having children on spending habits.

The first group argues that having children results in somewhat of an aversion to spending on goods shared with children and a higher wish for spending on adult goods. Essentially, there is a shift in desire for adults to spend on themselves—a "private time" type of argument. This shift theoretically results in a downward bias in estimates of child costs since this shift makes it easier to restore the spending level on adult goods. The other view is that having children reflects parents being somewhat "selfless" and have a preference toward spending on children—boosting the children's happiness. This shift makes it more difficult to restore spending on adult goods and leads to an upward bias in child cost estimates. Neither view has been proven statistically. Economists' views on the bias of the Rothbarth methodology are based simply on assumptions of parental spending behavior before and after having children.

Again, the Lewin/ICF report cited above presents a clear description of the approaches and of their merits and limitations as estimators of child expenditures. The support schedule defined in this report is based on the Rothbarth approach. Specifically, it is based on recent Rothbarth estimates developed by Dr. David Betson, Professor of Economics, University of Notre Dame, using 2004-2009 CEX data.

Data on Household Expenditures[24]

The data used in this study are drawn from the Consumer Expenditure Survey (CE) conducted by the Bureau of Labor Statistics (BLS). The survey is based on quarterly interviews of roughly 7,000 consumer units (families). The data are used for the periodic revisions of the Consumer Price Index as well as other economic research and analysis of the spending patterns of American families. The CE is the only nationally representative sample of American families that collects detailed information on the spending habits of families. As such, it is the only available national survey suited for estimating parental spending patterns.

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[23] Lewin-ICF, *Estimates of Expenditures on Children and Child Support Guidelines* (U.S. Dept. of Health & Human Services, 1990).

[24] This section is taken from "Appendix A, Parental Expenditures for Children: Rothbarth Estimates" as found in *Review of Statewide Uniform Child Support Guideline 2010, A Report to the California Legislature*, June 2011. This Appendix A was authored by David M. Betson as a portion of his contribution to the California report.

Consumer Expenditure Survey Sample Selection Criteria

The data used in this study are from the interview component of the Consumer Expenditure Survey (CEX) beginning in the first quarter of 2004 through the first quarter of 2009. Consumer units are interviewed for five quarters; however, only data from the second through fifth quarterly interviews are reported in the public use files. While the BLS treats each quarterly response as an independent observation, the file used for this analysis is constructed from the BLS quarterly files to reflect a family's annual expenditures. While any unit can have up to four quarterly interviews, some households cannot be located or refuse to be interviewed and hence will have had fewer than four interviews.

This study was intended to focus on the spending patterns on children in families where both parents were present; consequently, the following sample restrictions were made:

- The consumer unit contained a married couple between the ages of 18 and 60 years old;
- The consumer unit contained six or fewer children;
- The consumer unit did not have any other adults (individuals 18 years old or older) present in the unit even if these adults were the children of the couple;
- The consumer unit did not have a change in family size or composition over the period in which the unit was interviewed; and
- Only consumer units with at least three completed interviews were included in the final analysis sample.

These restrictions yielded a sample of 7,846 consumer units where 2,937 observations were childless married couples and 4,909 were married couples with children.

Exhibit 48.

Sample Observations by Number of Children

Number of children	0	1	2	3	4	5 or 6
Number of observations	2,937	1,511	2,235	869	214	80

Source: David M. Betson.

Given the rather small sample sizes for four and more children, most of the following tables will group families with three and more children into a single category for presentation purposes. While families with four and more children will be included in the analysis, estimates for the cost of children will be presented for one through three children only.

Even though the CEX may be the best database to estimate child expenditures, it has some limitations that are important to the development of a schedule of child support obligations, especially a schedule based on an income shares concept. They include:

- ❖ Only a few expenditure items in the CEX (i.e., adult clothing, alcohol, tobacco) are solely "adult" expenditures;

- ❖ It is not possible to distinguish between "necessary" child care expenses (e.g., those incurred to allow someone to work) from "discretionary" expenses;

- ❖ Medical expenses on children cannot be distinguished from expenses on adult household members (they are intertwined in the medical expenses in the CES); and

- ❖ The CEX likely understates total household income due to the nature of the survey methodology of the CEX (individuals report their incomes and spending estimates rather than disinterested third parties).

The first issue is of concern because the Rothbarth technique estimates child expenditures by examining how adult expenditures are affected by the addition of a child to the household; that is, asking how much of total expenditures is displaced (i.e., transferred from the adults to the children) when a child is added to the household. The precision of the technique would be improved if there were more items that were clearly adult expenses. There are theoretical shortcomings with the Rothbarth technique discussed in a separate section in this report. See Appendix II.

The second and third issues are of concern because the support schedule developed for Alabama establishes a "basic" support obligation to which is added the parental share of expenditures for child care and unreimbursed medical expenses. However, "basic" in reference to expenditures on children does not mean minimal spending. It is in reference to the fact that these costs which exclude child care and all but a moderate amount of non-extraordinary spending on medical care. The assumptions used to deal with these limitations are discussed later in this appendix. Importantly, the schedule of basic child costs reflects typical spending on children at varying income levels. Child costs reflect rising standards of living as income grows. But as a technicality, "basic" costs merely exclude child care and a number of medical expenses.

The CEX is much like every survey that attempts to capture income information; that is, there is likely to be underreporting or non-reporting of income. Staff research at the Bureau of Labor Statistics, which administers the survey, suggests that income reported in the CEX is too low relative to expenditures. That is, income is under reported. This problem may be exacerbated if the economy is moving more toward a greater in cash transactions for work. There are, however, no studies to suggest how to adjust income for this underreporting problem and so no adjustment is applied.

Section II: Economic Cost of Child Rearing

Economist Jane Venohr recapped some basics on economic studies on the economic cost of child rearing—including for the 2010 study by David Betson which is the starting point for the four sets of child cost estimates provided in this study for the state of Alabama in 2016. The following are from *Georgia Commission on Child Support Final Report 2014.*

> There are several studies measuring the cost of raising children. Most state guidelines rely on studies of child-rearing expenditures across a range of incomes rather than studies that examine the minimum and basic needs of children. This is because the premise of most state guidelines is that children should share in the lifestyle afforded by their parents. The studies typically develop measurements from examining expenditures data from thousands of families participating in the Consumer Expenditure Survey (CES), the nation's largest and most comprehensive survey of household expenditures. The CES is an ongoing survey that is used for many purposes, including the calibration of the price index used to track inflation.
>
> In all, there are eight studies of child-rearing expenditures that underlie state guidelines schedules and formulae. The studies of child-rearing expenditures vary in the age of the data used, the methodology used to separate the child's share of expenditures from total household expenditures, and other data or methodological issues. Only three of the studies underlying state guidelines have been conducted since Georgia developed its

schedule in 2005.[25] All of these three studies measure child-rearing expenditures using the Rothbarth methodology.

METHODOLOGIES MEASURING COST OF CHILD REARING

Economists do not agree on which methodology best measures actual child-rearing expenditures. Nonetheless, economists generally agree on which methodologies understate and overstate actual child-rearing expenditures. It is widely accepted that any guidelines amount between the lower and upper bounds of credible measurements of child-rearing expenditures are appropriate guidelines amounts. In general, guidelines amounts below the lower bound are deemed to be inadequate for the support of children.

Through a contract with the U.S. Department of Health and Human Services, Lewin/ICF (1990) developed this approach for assessing state guidelines.[26] Since then, several states have used this approach and continue to use it. The most commonly used methodology, the "Rothbarth" methodology, is generally considered the lower bound in the range of available estimates. The Betson-Rothbarth (BR) measurements form the basis of 29 state guidelines, including many states that neighbor Georgia (i.e., Alabama, South Carolina and Tennessee). The most current BR study is from 2010 and uses expenditures data from families surveyed in 2004-2009.[27]

When the Lewin/ICF prepared its original report in 1990, the Engel estimator, which is discussed in greater detail later, was considered the upper bound. At the time, one of the most credible and widely-used studies on child-rearing expenditures was by Thomas Espenshade, who applied the Engel methodology to expenditures data from families surveyed in 1972-73.[28] The Espenshade-Engel estimates formed the basis of most states' original guidelines schedules or formulas and there are a few states that still rely on the Espenshade-Engel estimates.

Betson prepared Engel estimates in 1990 and 2001. However, there has been no recent study of child-rearing expenditures using the Engel estimator. Instead, the most current study considered to be the upper bound is conducted by the United States Department of Agriculture (USDA). Minnesota is the only state to use the USDA study as the basis of its guidelines. With the exception of New Jersey, which is discussed in more detail later, most of the states that do not rely on BR measurements for their guidelines rely on very old studies of child-rearing expenditures dating back to the 1980s.[29]

Both the Rothbarth and Engel methodology are considered "marginal cost" approaches to measuring child-rearing expenditures. The margin is how much more a couple spends when the couple has children. The marginal cost approach compares expenditures

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[25] This includes the 2006 and 2010 studies by David Betson and the 2013 study by Rutgers University conducted for the State of New Jersey.
[26] Lewin/ICF. (1990). Estimates of Expenditures on Children and Child Support Guidelines. Report to U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation. Fairfax, Virginia.
[27] Betson, David M. (2010). "Appendix A: Parental Expenditures on Children." in Judicial Council of California, Review of Statewide Uniform Child Support Guideline, San Francisco, California.
[28] Espenshade, Thomas J. (1984). Investing in Children: New Estimates of Parental Expenditures. Urban Institute Press: Washington, D.C.
[29] Over a dozen states base their guidelines on the following two studies: Jacques van der Gaag (1981). On Measuring the Cost of Children. Discussion Paper 663-81. University of Wisconsin Institute for Research on Poverty, Madison, Wisconsin, and Thomas J. Espenshade. (1984). Investing in Children: New Estimates of Parental Expenditures, Urban Institute Press: Washington, D.C.

between two equally well-off families: (a) married couples with children, and (b) married couples of childrearing age without children. The difference in expenditures between these two families is deemed to be child-rearing expenditures. The Engel and Rothbarth methodologies, which are named by the economists who developed them, use different indicators of equally well off families. The Engel methodology uses expenditures on food, while the Rothbarth methodology relies on expenditures for adult goods (specifically, adult clothes in the Rothbarth estimates that form the basis of state guidelines) to determine equally well-off families.

The USDA estimates child-rearing expenditures individually for several expenditure categories (e.g., food and clothing), then adds them to develop a total. As discussed more in the USDA report, a different methodology is used to measure expenditures for each category.[30] Some categories unique to children can be measured directly (e.g., children's clothing, childcare expenses and education expenses). The child's food costs are measured using the food plans developed by the USDA. The child's transportation is measured by only considering family-related activities, which are 59 percent of total transportation according to research findings. The child's housing expenses are measured from estimating the average additional costs of housing given the number of bedrooms in a home, assuming more bedrooms are required when there is more than one child and controlling for income level. Food, transportation and housing comprise the vast majority of child-rearing expenditures. Economists generally believed that the USDA's previous approach to measuring child-rearing expenditures overstated actual child-rearing expenditures, but economists have not assessed the USDA methodology since it was changed in 2008.

Overview of the Betson-Rothbarth Measurements

In the past two decades, Professor Betson, University of Notre Dame, has conducted four studies estimating child-rearing expenditures. Each study uses expenditures data from the most current CES data available. For Betson's first study, he used CES data from 1980-86.[31] For his second study, he initially used from 1996-98 CES data, but later expanded it to encompass 1996-99.[32] For his third and fourth studies, respectively, he used data from the 1998-2004 and 2004-09 CES.[33]

Some of his studies use other methodologies besides the Rothbarth methodology to measure child-rearing expenditures. Betson's first study was conducted in 1990 and responded to a Congressional mandate to provide information about child-rearing expenditures for states to develop and revise child support guidelines. For this study, he used and compared five different methodologies for measuring child-rearing expenditures and concluded that the Rothbarth estimator produced the most "robust" (i.e., sound and statistically reliable) results and recommended its use for state guidelines. The Rothbarth methodology is a marginal cost approach that compares expenditures of two sets of equally well-off households: one set consists of two-parent families with children and the

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[30] Lino, Mark (2013) Expenditures on Children by Families: 2012 Annual Report. U.S. Department of Agriculture, Center for Nutrition and Policy Promotion. Miscellaneous Publication No. 1528-2012, Washington, D.C.
[31] David M. Betson (1990). Alternative Estimates of the Cost of Children from the 1980-86 Consumer Expenditure Survey, Report to U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation, University of Wisconsin Institute for Research on Poverty, Madison, Wisconsin.
[32] David M. Betson (2001). "Chapter 5: Parental Expenditures on Children," in Judicial Council of California, Review of Statewide Uniform Child Support Guidelines, San Francisco, California.
[33] Regarding the third study, see David M. Betson (2006). "Appendix I: New Estimates of Child-Rearing Costs" in PSI, State of Oregon Child Support Guidelines Review: Updated Obligation Scales and Other Considerations, Report to State of Oregon, Policy Studies Inc., Denver, Colorado.

other consists of couples without children. The difference in their expenditures is presumed to be spent on child rearing. The Rothbarth methodology relies on the percentage of total expenditures devoted to adult goods (i.e., adult clothing in Betson's application) to determine equally well-off families.

Differences in the BR4 Measurements from earlier BR measurements

The findings from the BR4 measurements are that, on average, child-rearing expenditures as a percentage of total household expenditures are 27 percent for one child, 37 percent for two children, and 45 percent for four children.

Besides data years, BR4 differs from earlier BR measurements in two other ways. Earlier BR measurements consider "expenditures" while BR4 considers "expenditures-outlays." Expenditures include the purchase price (and sales tax) on any item purchased within the survey year regardless whether the item was purchased through installments. In contrast, outlays only capture what was actually paid toward that item during the survey period. So, if there were only four out of 20 installment payments made during the survey period, only those four payments are captured.

Unlike expenditures, outlays also capture mortgage principal payments, payments on second mortgages, and payments on home equity loans. Both expenditures and outlays capture interest on the first mortgage among homeowners and rent, utilities, and other housing expenses among renters. The merit of expenditures for use of state guidelines is that it excludes mortgage principal payments. This is consistent with property settlements that have historically addressed equity in the home as part of the divorce settlement. The merit of outlays for use in state guidelines is it is a better reflection of actual family budgeting on a monthly basis.

The second difference is that Betson relied on a newly available measure of income developed by the Bureau of Labor Statistics, the organization that conducts the CES. The under-reporting of income is a problem inherent to most surveys. The new measure attempts to correct under-reporting, particularly at low incomes. The problem was identified from findings from earlier CES that revealed that many low-income families spend considerably more than what they report as income. The new measurement essentially bumps income up for some families, hence reducing the percentage of their income spent on child rearing.

Exhibits 2, 3 and 4 [in Venohr's 2014 report to Georgia] compare BR measurements over time for a range of after-tax income for one, two and three children, respectively. The Exhibits show that families devote a smaller proportion of income to child-rearing expenditures as income rises. The Exhibits also show that BR4 produces smaller amounts at low-incomes and larger amounts at high-incomes than earlier BR measurements. The decrease at low-incomes may be attributable to the refinement to the income measurement, while the increase at high-income may be attributable to the use of outlays since higher income families are more likely to have more and larger installment payments.

Six states (i.e., Colorado, North Carolina, Rhode Island, Vermont, Virginia, and Wyoming) rely on the most recent Betson-Rothbarth (BR4) measurements, 13 other states rely on BR3 measurements, and 10 states, including Georgia, rely on older BR measurements.

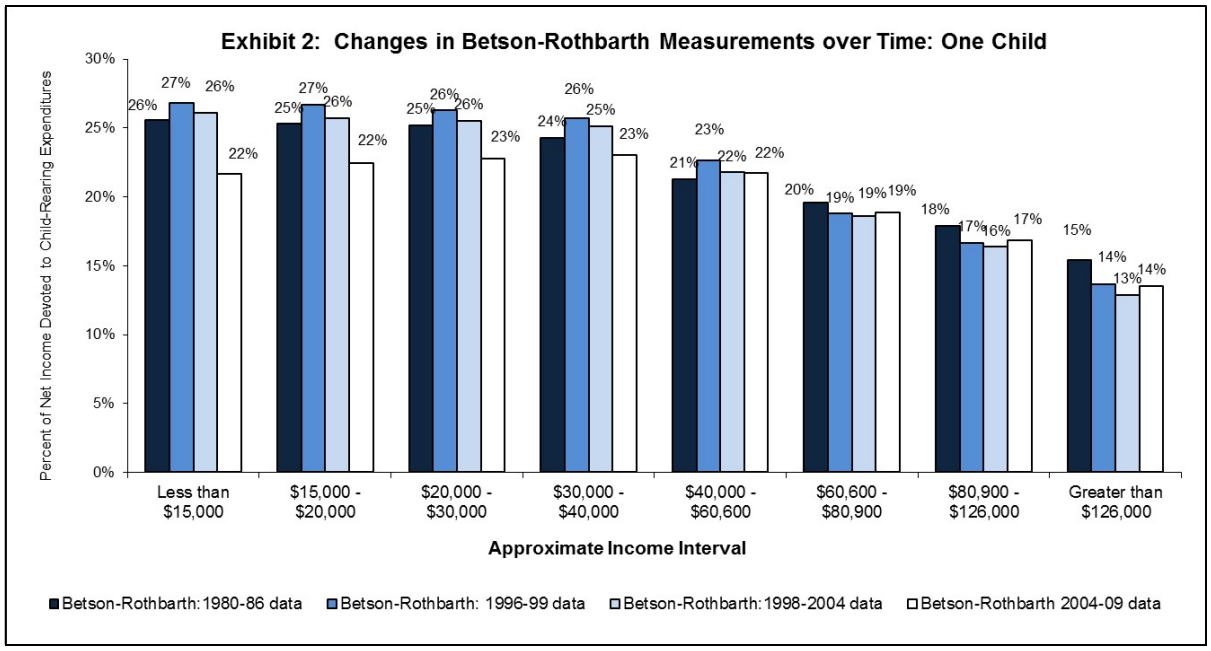


Exhibit 2: Changes in Betson-Rothbarth Measurements over Time: One Child
Percent of Net Income Devoted to Child-Rearing Expenditures
30%
25%
20%
15%
10%
5%
0%
26% 27% 26% 22%
25% 27% 26% 22%
25% 26% 26% 23%
24% 26% 25% 23%
21% 23% 22% 22%
20% 19% 19% 19%
18% 17% 16% 17%
15% 14% 13% 14%
Less than $15,000
$15,000 - $20,000
$20,000 - $30,000
$30,000 - $40,000
$40,000 - $60,600
$60,600 - $80,900
$80,900 - $126,000
Greater than $126,000
Approximate Income Interval
Betson-Rothbarth: 1980-86 data
Betson-Rothbarth: 1996-99 data
Betson-Rothbarth: 1998-2004 data
Betson-Rothbarth 2004-09 data

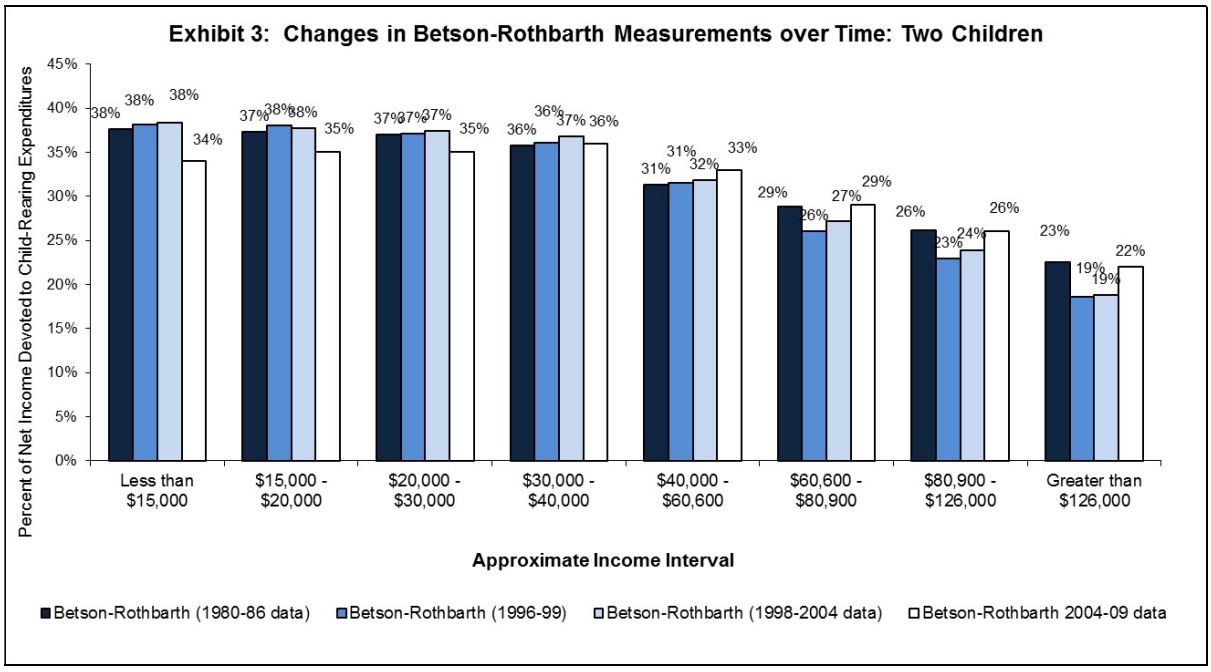
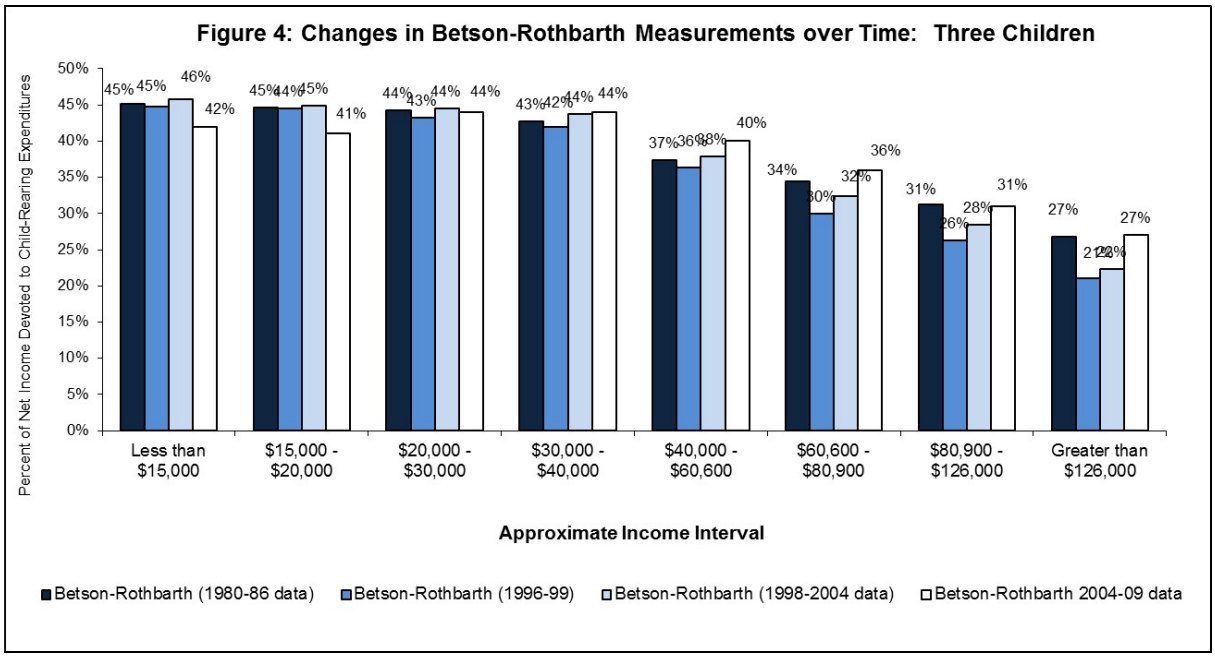


Exhibit 3: Changes in Betson-Rothbarth Measurements over Time: Two Children
Percent of Net Income Devoted to Child-Rearing Expenditures
45%
40%
35%
30%
25%
20%
15%
10%
5%
0%
38% 38% 38% 34%
37% 38% 38% 35%
37% 37% 37% 35%
36% 36% 37% 36%
31% 31% 32% 33%
29% 26% 27% 29%
26% 23% 24% 26%
23% 19% 19% 22%
Less than $15,000
$15,000 - $20,000
$20,000 - $30,000
$30,000 - $40,000
$40,000 - $60,600
$60,600 - $80,900
$80,900 - $126,000
Greater than $126,000
Approximate Income Interval
Betson-Rothbarth (1980-86 data)
Betson-Rothbarth (1996-99)
Betson-Rothbarth (1998-2004 data)
Betson-Rothbarth 2004-09 data



Estimating Child Expenditures for Alabama

The Summary Table for Spending Patterns, Household Total, on Children, on Child Care, and on Medical

The key foundation for determining a cost table using the standard Rothbarth methodology is a summary table of expenditures in households at various brackets for net income. While more than one economist or teams of economists have estimated child costs with the Rothbarth methodology, the version that is primarily in use for child support guidelines if from the research of David M. Betson of the University of Notre Dame. His research has been updated every several years with the latest version released in 2010 for a study conducted for the State of California.

Exhibit 49 below summarizes his results.

- The 2010 national child cost study is based on spending shares of various components as a share (percentages) of net income.

- The goal is to estimate child costs (for one to six children) at various net income levels and translate these spending levels to gross (before tax) income at various levels.

The data Betson used for his computations were from the time period 1996 through 1999. For this report for Alabama, income levels for net income brackets were updated to March 2016 using the Consumer Price Index.

- **For this study for Alabama, net income brackets for household spending patterns were updated to March 2016 using the Consumer Price Index.**

Looking ahead in this technical discussion, the goal is to estimate child costs (for one to six children) at various net income levels and translate these spending levels to gross (before tax) income at various levels. As seen in the table below, brackets for net income are shown with percentages spent on total

household expenditures, the children's share of total spending, and the percentage shares of spending on children (out of total spending) for day care and for medical expenses. Because most states (including Alabama) presumptively look at child costs excluding day care and unreimbursed medical expenses, an early step in the process is to calculate dollar values for the presumptive child costs which exclude these two broad categories (with a minor exception for medical expenses as discussed below).

Using the Rothbarth estimation technique and CEX data from 2004-2009, David Betson computed child expenditures for 1, 2 and 3-child households. These expenditures are related to total consumption expenditures in the expression EC/C, where EC = expenditures on children and C = total consumption expenditures. In order to estimate EC as a share of net income (NI), the share between NI and C must be computed. This can be done from the CEX because of the detailed itemization of expenditures.

Under the approach used to develop the income shares model, net income is derived independently using CEX data on gross income (GI) and on itemized deductions for (1) federal, state and local taxes, including personal property taxes; (2) social security (FICA) taxes; and (3) union dues, which are considered to be mandatory employment expenses. Thus net income (NI) is based on the formula below and is based on the data in the CEX:

NI = GI - taxes - FICA - union dues

In relation to consumption, net income is greater by the amount of spending that is not related to current consumption. This includes, for example, spending on contributions, savings, personal insurance and pensions. Included in the category of non-current consumption are principal payments on a home mortgage (interest payments are counted as household consumption) and changes in net worth (i.e., net change in assets - net change in liabilities). That is, changes in net worth are neither current income nor current spending (consumption).

For low income households, consumption expenditures frequently exceed the net income figure derived by subtracting taxes and other items from gross income. Thus, consumption as a proportion of net income (C/NI) exceeds 100 percent for low income and modest income brackets as seen below. In these instances, the C/NI ratio is set at 1.0 for calculations of overall household spending. For example, in Betson's calculations, consumption expenditures exceeded net income for the lowest seven income ranges (i.e., all households with annual net incomes at and below $47,277 in March 2016 dollars). This outcome may be partially related to reported difficulties of measuring income in the CEX as discussed above. As shown in Exhibit 49 below, the measured ratio of consumption expenditures to net income ranged from 46.8 for households with annual net incomes of $15,759 or less to 0.538 for households with annual net incomes above $168,094.

With the lowest net income bracket showing spending at 4,684.7 percent (yes, that is the correctly stated percent) of net income and six other brackets exceeding 100 percent, these number clearly suggest that spending is overestimated relative to reported income. Even limiting spending to 100 percent of net income in calculations implies overestimation issues for total household spending and, in turn, spending on children as a share of net income.

- The Betson 2010 study likely is based on government data that overestimate spending relative to income.

One should notice that the income bracket for the highest range of net income is an extremely large bracket. As will be discussed separately, the very large bracket for upper income creates uncertainty over the best way to estimate spending on children at very high levels of net income.

Exhibit 49.

The Summary Table for Spending Patterns, Household Total, on Children, on Child Care, and on Medical

Annual Net Income Ranges Upper Bound (March 2016 Dollars)	Annual Net Income, Midpoint (March 2016 Dollars)	Number of Observations	Current Consumption as a % of Net Income	Expenditures on Children as a % of Total Consumption Expenditures (Rothbarth 2004 - 2009 Data)			Child Care $ as a % of Consumption (per child)	Medical $ as a % of Consumption
				1 Child	2 Children	3 Children		
$15,759	$7,879	221	4684.7	21.61	33.68	41.57	0.3446	0.1242
$21,012	$18,386	213	168.7	22.44	34.92	43.04	0.3639	0.2693
$26,265	$23,639	267	140.6	22.66	35.25	43.44	0.4871	0.6430
$31,518	$28,892	321	121.5	22.83	35.51	43.74	0.5066	0.564
$36,771	$34,145	341	114.7	22.97	35.72	43.98	0.6658	0.4876
$42,024	$39,398	427	106.1	23.09	35.89	44.18	0.6429	0.6309
$47,277	$44,651	411	103.9	23.19	36.03	44.36	0.8937	0.6599
$52,530	$49,904	432	96.5	23.25	36.12	44.46	0.9943	0.9044
$57,782	$55,156	403	91.0	23.28	36.17	44.52	1.1487	0.8072
$63,035	$60,409	417	89.8	23.34	36.26	44.62	1.3082	0.6023
$68,288	$65,662	385	88.7	23.40	36.34	44.71	1.2134	0.9437
$73,541	$70,915	411	83.1	23.41	36.35	44.73	1.3289	0.7969
$78,794	$76,168	402	82.5	23.45	36.42	44.81	1.4856	0.8175
$84,047	$81,421	314	76.2	23.44	36.41	44.79	1.4308	0.9152
$94,553	$89,301	668	76.4	23.52	36.51	44.92	1.4754	0.8076
$105,059	$99,807	529	73.6	23.57	36.59	45.01	1.3564	0.9983
$115,565	$110,312	412	72.5	23.63	36.68	45.12	1.8433	0.8424
$126,071	$120,818	321	67.6	23.65	36.70	45.14	1.7049	0.8489
$141,830	$133,951	350	67.0	23.72	36.80	45.26	1.7482	0.8514
$168,094	$154,963	350	61.6	23.76	36.86	45.33	1.8513	0.6834
$1,050,589	$609,342	326	53.8	23.85	37.00	45.49	2.0101	0.7060

Sources: *Quadrennial Review of the Maryland Child Support Guidelines and Schedule of Basic Support Obligations*, submitted to: Maryland Department of Human Resources Child Support Enforcement Administration, Baltimore, Maryland, submitted by Econometrica, Inc., Bethesda, Maryland, November 29, 2012. Also, *CPI Detailed Report, Data for March 2016*, Bureau of Labor Statistics, U.S. Department of Labor, Washington, D.C., Table 24.

Total consumption expenditures are related to net income by the expression C/NI. Expenditures on children are related to consumption by the expression EC/C. Multiplying the two expressions provides a ratio of child expenditures to net income (EC/NI).

$$EC/C \times C/NI = EC/NI$$

Conversion of Gross Income to Net Income

The goal is to express child costs at various combined gross income levels (in incremental brackets) as seen in Rule 32. However, the starting point is the summary table of spending as a percentage of net income. Therefore, gross income (as used in the Rule 32 table) must be converted to net income and then the spending percentages applied to get dollar levels.

Since the table of support proportions is defined in terms of net income, it can be applied regardless of how tax structures change. To use the table to develop a schedule of support obligations, however, requires that the tax structure be defined so that net income can be calculated. It would, of course, be possible to discard the support schedule and use the table of support proportions to compute a support obligation for each individual household. This approach would be able to accommodate the unique tax situation of each household. Yet, it would also involve complexities in terms of the time required to gather all the relevant information and the staff to administer the process.

The support schedule defined in this report represents a general approach to computing support obligations that can be applied quickly and easily. As with other general approaches, however, it has limitations, the greatest being that it requires assumptions about how to measure gross income and how to estimate net income from a given gross income.

Measuring Gross Income

The assumptions made about gross income are that it is all taxable and that it is taxable at the same rate. That is, all income is treated as if it is earned income subject to federal withholding and FICA taxes. Tax rates for 2016 were used to convert gross income to net.

The following sources and assumptions were used to estimate taxes for a given gross income. The percentage tax schedule used by employers to withhold income tax and FICA was the basis for calculating withholding.

- Using the employer schedule, taxes are computed assuming (1) all income is earned by the non-custodial parent (i.e., the tax rates for a single person are used); and 2) two withholding allowances, based on instructions in the employer tax guide. (The use of two withholding allowances simulates the effect of one standard deduction and one exemption allowed when filing personal income tax returns). Income tax and FICA rates defined in the 2004 employer schedule were used to estimate total taxes on a given gross income.

- State income taxes are computed using the formula from Withholding Tax Tables and Instructions for Employers and Withholding Agents, assuming one personal exemption and one standard deduction.

- Beginning in calendar year 1994, the Earned Income Tax Credit is available to single wage earners. However, in 2004, the advanced credit is not available for individuals without qualifying children.

Impact of Assumptions on Net Income

If anything, the generalized approach to computing net income from gross income underestimates total household net income. The reason is that accounting for the income of two parents and/or additional exemptions for children reduces total income taxes and thus increases net income. The result is that total support obligations using the table of support proportions are usually higher when an attempt is made to accommodate the actual tax situation of individual households.

Compensating factors are that the data are from intact families (two parents in the same house) and the CEX likely underestimates income. Use of intact family data means that housing expenses (mortgage or rent and utilities) are split between two parents instead of one parent, meaning more income is left for other consumption, including for children, than if only one parent covers housing expenses. The CEX underestimate of income means that statistical analysis may overestimate spending on children because more income is available than reported in CEX data.

Whether to Realign National Estimates to Alabama's Income Distribution

Alabama's current child support guidelines include an adjustment with then intent to realign the child cost table to reflect Alabama's income distribution that has more households in lower and middle income brackets than the U.S. average. This inclusion of an income distribution adjustment is based on the view that spending on children depends in part on where a family falls within the state's income distribution and not just on spending patterns based solely on the income dollar level (and, of course, the number of children). This adjustment lowered Alabama's child cost table due to moving the gross income brackets more toward use of higher income spending percentages. Spending percentages on children are higher at income levels. Essentially, the U.S. spending patterns are compressed into a narrower income range for Alabama than for the U.S. since Alabama has a smaller percentage of households in upper income brackets than the U.S. average.

However, this view that spending on children depends heavily on income distribution in a given state relative to the U.S. has never been conclusively proven or disproven.

Instead of adjusting the standard Rothbarth cost table for Alabama's income distribution, this report uses a different approach. Two of the four methodologies presented include a cost of living adjustment (COLA) for the lower cost of living in Alabama. Cost of living is a different concept but reflects the fact that costs in Alabama are notably lower than the U.S. average. Applying a COLA has a similar impact on the child cost tables as an income distribution realignment—the cost tables are somewhat lower than without the adjustment. The Alabama COLA is discussed further below.

Treatment of Selected Factors

Specific questions have been raised in other states that have incorporated the Betson-Rothbarth estimates about the treatment of various types of expenditures. Specifically, there have been questions about adjustments for (1) teenage clothing; (2) child care; (3) medical expenses; (4) durable goods, particularly housing; and (5) savings.

Teenage Clothing

Clothing expenditures in the CEX for children beyond the age of 15 years are classified with other adult clothing expenditures. Therefore, it is necessary to estimate expenditures for 16-18 year old children based on clothing expenditure data for other children. The Rothbarth clothing cost estimates for teenagers get smaller as the child ages and actually are negative for 16-18 year old children. To correct for this anomaly, Betson assumed that the costs for children ages 13-18 years were the same as the costs for a 12 year old child.

Child Care

The newly estimated child cost schedules presented in this report exclude the costs of child care. Instead, in the child support calculation, the actual costs are treated as an add on expense to "basic" costs and are prorated between the parents based on their relative proportions of income and added to the basic support obligation. There are several reasons for this approach:

- They represent a large variable expenditure and are not incurred by all households; usually only in households with a working custodial parent and one or more young children.

- Where child care costs occur, they generally represent a large proportion of total child expenditures, particularly in households with children under 6 years of age.

- Treating child care costs separately maximizes the custodial parent's marginal benefits of working. If not treated separately, the economic benefits of working are reduced substantially. One of the principles incorporated into the Income Shares model is that the method of computing a child support obligation should not be a deterrent to participation in the work force.

Since the Consumer Expenditure Survey itemizes child care expenditures, an adjustment can be made directly to expenditures on children. Child care as a proportion of overall household consumption is converted from a percent to dollars. Child care dollars are subtracted from dollar values for total spending on children.

Medical Expenses

Like expenses for child care, the proposed Alabama support schedule presented in this report excludes the child's share of costs for some medical expenses, specifically including the costs of health insurance premiums and extraordinary, or unreimbursed medical expenses. There are two principal reasons these costs are excluded from the model:

- Federal regulations (45 CFR §302.80) require that a state's child support program must establish and enforce medical support orders. Further, Federal regulations (45 CFR §303.31) encourage the state to request that the noncustodial parent carry health insurance that covers the child, if available through the noncustodial parent's employer at a reasonable cost.

- Unreimbursed medical expenses (i.e., those not covered by or that exceed insurance reimbursement) are highly variable across households and can constitute a large proportion of expenditures on a child. Orthodontia, psychiatric therapy, asthma treatments, and extended physical therapy may be among the expenses not covered.

Deciding what proportion of unreimbursed medical expenses might be considered extraordinary is difficult. For the child cost schedule, it is assumed that some unreimbursed medical expenses (e.g., non-prescription medications, well visits to doctors) should be considered routine and not extraordinary. For the purposes of estimating support proportions, extraordinary medical expenses are defined as the amount of expenditures that exceed $250 per family member. Total medical expenses on children (from the Consumer Expenditure Survey) were subtracted from total spending on children. And then the assumed non-extraordinary medical expenses per child per year were added to the cost schedules.

Durable Goods

The largest durable goods expenditures are for housing and transportation. Housing costs are treated in the following manner:

- For housing that is owned or being purchased: only taxes and interest payments are counted as expenditures. Payments of principal are counted as savings.

- For housing that is rented: all rental costs are counted as consumption expenditures.

The purchase price of an automobile is not counted as an expenditure, however the interest payments made on an automobile loan are counted. This approach may underestimate total expenditures, particularly in the situation where the automobile is purchased for cash. The ideal approach to counting such a purchase would be to include as consumption the rental value of the automobile, not the net purchase price. The rental value, however, cannot be defined by the data.

With regard to other durable goods (e.g., television, toaster oven), their purchase prices are counted as consumption expenditures. The interest payments on consumer debt associated with those purchases are also counted as expenditures, since there is no way to link interest payments to individual purchases. Therefore, there is some double counting of expenditures for these durable goods items.

Savings

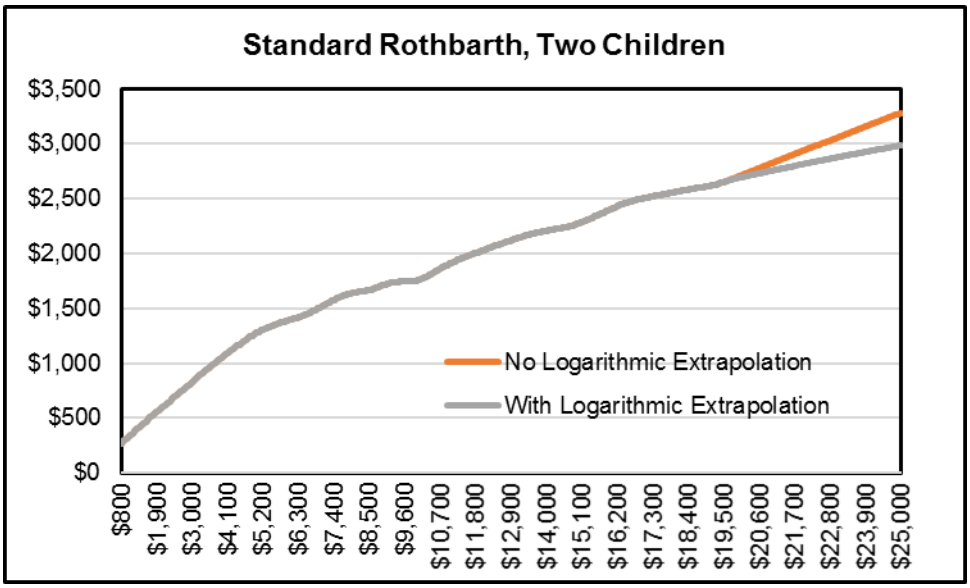
Savings are not counted as consumption expenditures. Rather, they are counted as residual expenditures; that is, part of all non-current consumption spending which is the difference between net income and consumption. Income specifically itemized as savings and retirement contributions fall into this residual category. Also, as noted above, the category includes principal payments on home mortgages and the purchase price of automobiles. Since savings are a residual and therefore not calculated independently, there is no implicit savings rate that is applied to the calculation of expenditures on children as a proportion of net income.

High Income

There is insufficient number of households with high income to measure child-rearing costs among high-income families. The last two income brackets (highest two) have small sample sizes. They could be collapsed into one bracket but that would limit the schedule to combined gross incomes equivalent of about $15,000 net per month and require an extrapolation for incomes above that threshold.
The highest two brackets—especially the highest bracket—are quite wide, meaning that there is no curve between the highest midpoints. This results in dollar estimates for child costs that rise as a flat line in these brackets instead of decelerating (flattening) as seen in other brackets. Essentially, the highest brackets do not follow the pattern as seen in other brackets. This is due to applying straight line extrapolation to upper brackets that have insufficient data for statistically meaningful estimates.

Instead, for high income, cost estimates were compared to changes in income (as reflected in gross income in logarithmic form) and extrapolated on logarithmic income and then converted back to standard income.

Exhibit 50.



This report sees two reasonable options to this problem. First, straight line extrapolation could be used for only a few additional $50 brackets. But this would leave the cost schedule ending somewhere around $17,000 in combined gross income. The second option would be to use what mathematicians call logarithmic extrapolation. That is, costs are fitted to a curve that shows rising costs but at a slowing pace at higher income. This report chose to use logarithmic extrapolation for higher incomes and stopping at $25,000 in combined gross income. The extrapolated cost figures follow the same curved pattern as brackets that are lower.

The large net income brackets at upper levels of net income result in straight line estimates for upper incomes. This results in overestimates for high incomes unless logarithmic extrapolation is used. Additionally, for high income brackets with low sample size, data likely are clustered toward to bottom of each bracket, adding to the overestimation effect.

Adjustments for the Number of Children

Betson's estimates of child expenditures for one, two, and three-child households are based on actual household income and expenditure data for 3,121 two-parent families with at least one child under 18 years of age. He did not compute proportions for households with greater numbers of children because of the small sample sizes in the database. Betson computed his proportions for one, two and three-child households in the following manner:

- Take the midpoint of the annual net income ranges expressed in October 2003 dollars and deflate the amount to 1997 dollars by the Consumer Price Index. The top interval uses the average net income ($241,157 in 2003 dollars) of households in that interval rather than the midpoint.

- Multiply the net income midpoint by the average ratio of consumption expenditures to net income. For income ranges where the ratio exceeded 1.0, expenditures were assumed to equal net income.

- Take the level of annual expenditures and determine what proportion is spent on one, two and three children. Using his Rothbarth estimates, Betson computed the average percentage spent over all the years the children were with their parents. That is, for one child he computed the

average over 18 years. For two and three-child households, he assumed that the children differed in age by two years. Thus, for two-child households, he computed the average over a 16-year period when both children were in the household. Similarly, for three-child households, he computed the average over 14 years.

Adjustments to these data were necessary to extend the support proportions for one, two, and three children to four, five, and six-child households. The equivalency scale recommended by the Panel on Poverty and Family Assistance, a panel assembled by the National Research Council to review measures of poverty is used.[34] The recommended formula is:

$$\text{equivalency scale value} = (\text{Number of adults} + 0.7 \times \text{number of children})^{0.7}$$

The formula actually states that the value in parentheses should be raised to a power of 0.65 to 0.75. An average of 0.70 is used, which is the midpoint of the suggested range.

Using this formula, one arrives at the following equivalency scales: 2.685 for three children; 2.998 for four children; 3.298 for five children; and, 3.587 for six children. In turn, these are converted to multipliers. For example, the multiplier for four children is 1.117 (2.998 divided by 2.685). Based on this method, multipliers for five and six children also are developed. They are displayed in Exhibit ___.

The multipliers were used as constants for all income ranges. The decreasing size of the multiplier as the number of children increases reflects two phenomena: (1) economies of scale as more children are added to the household (e.g., sharing of household items); and (2) reallocation of expenditures. The reallocation occurs as adults reduce their share of expenditures to provide for more children and as each child's share of expenditures is reduced to accommodate the needs of additional children. That is, as there are more people to share the economic pie, the share for each family member must decrease.

Exhibit 51.

Estimating the Rothbarth Proportions to Four, Five and Six-Child Households	
Number of Children	**Rothbarth Multipliers**
4	1.1167 x 3 child proportion
5	1.1000 x 4 child proportion
6	1.0875 x 5 child proportion

The result of the computations and adjustments discussed above is a table of support proportions that relates child expenditures in one to six-child households to various levels of net income. These relationships are displayed in Table I-6 at the end of this appendix.

Translating Gross to Net Income

Since the table of support proportions is defined in terms of net income, it can be applied regardless of how tax structures change. To use the table to develop a schedule of support obligations, however, requires that the tax structure be defined so that net income can be calculated. It would, of course, be

[34] Constance F. Citro and Robert T. Michael, Editors. *Measuring Poverty: A New Approach*, National Academy Press, Washington, D.C. (1995).

possible to discard the support schedule and use the table of support proportions to compute a support obligation for each individual household. This approach would be able to accommodate the unique tax situation of each household. Yet, it would also involve complexities in terms of the time required to gather all the relevant information and the staff to administer the process.

The support schedule defined in this report represents a general approach to computing support obligations that can be applied quickly and easily. As with other general approaches, however, it has limitations, the greatest being that it requires assumptions about how to measure gross income and how to estimate net income from a given gross income.

Measuring Gross Income

The assumptions made about gross income are that it is all taxable and that it is taxable at the same rate. That is, all income is treated as if it is earned income subject to federal withholding and FICA taxes. Tax rates prevailing in 2004 were used to convert gross income to net.

The following sources and assumptions were used to estimate taxes for a given gross income. The percentage tax schedule used by employers to withhold income tax and FICA was the basis for calculating withholding.

- Using the employer schedule, taxes are computed assuming (1) all income is earned by the non-custodial parent (i.e., the tax rates for a single person are used); and 2) two withholding allowances, based on instructions in the employer tax guide. (The use of two withholding allowances simulates the effect of one standard deduction and one exemption allowed when filing personal income tax returns). Income tax and FICA rates defined in the 2016 employer schedule were used to estimate total taxes on a given gross income.

- State income taxes are computed using the formula from Withholding Tax Tables and Instructions for Employers and Withholding Agents, assuming one personal exemption and one standard deduction.

Impact of Assumptions on Net Income

From one angle, the generalized approach to computing net income from gross income underestimates total household net income. The reason is that accounting for the income of two parents and/or additional exemptions for children reduces total income taxes and thus increases net income. The result is that total support obligations using the table of support proportions are usually higher when an attempt is made to accommodate the actual tax situation of individual households.

Compensating factors are that the data are from intact families (two parents in the same house) and the CEX likely underestimates income. Use of intact family data means that housing expenses (mortgage or rent and utilities) are split between two parents instead of one parent, meaning more income is left for other consumption, including for children, than if only one parent covers housing expenses. The CEX underestimate of income means that statistical analysis overestimates spending on children because more income is available than reported in CEX data.

Self-Support Reserve

In addition to the table of support proportions and the table converting gross to net income, an additional factor affects obligations shown in the support schedule. That is, the schedule includes an adjustment for low-income obligors to ensure that net income after payment of the support obligation does not fall below a minimum threshold. The threshold is a self-support reserve so that the obligor is able to maintain a minimum standard of living. The self-support reserve in the four sets of cost tables equals the 2016 poverty guidelines for one person is $990 per month net income. This is notably higher than the 2003

figure of $748 per month net. This explains why the self-support area in the cost tables has risen notably in the 2016 estimates compared to current Rule 32.

The following procedure is used to incorporate a self-support reserve into the support schedule:

Step1: Compute a support obligation using net income and the appropriate proportions from the table.

Step 2: Compute a second obligation using the self-support reserve.

If, after subtracting the self-support reserve from net income, remaining income is less than $50 per month, a minimum order of $50 per month is presumed.

If the remaining income is greater than $50, then compute the following: subtract from net income the amount of the self-support reserve and multiply the difference by a proportion ranging from .90 for one child to .95 for six children (increasing by .01 for each additional child).

Step 3: Compare the amounts from the two computations and take the lower amount as the support obligation.

The multiplication in Step 2 is included to ensure that: (1) the marginal tax rate on increasing earnings is less than 100 percent (i.e., there is a continued incentive to work); and (2) the support obligation increases slightly as the number of children due support increases. This latter factor assumes that obligors with more children should incur a higher obligation than obligors with fewer children.

The effect of the adjustment for a self-support reserve is that obligations using the table of support proportions are phased into the support schedule gradually. For example, in this report the table of support proportions, using the standard Rothbarth methodology, support amounts are fully applied only above $15200 per month for one child, $1,900 per month for two children, $2,250 per month for three children, $2,500 per month for four children, $2,750 per month for five children, and $3,100 per month for six children.

Also in this report the table of support proportions, using the standard Rothbarth methodology with an adjustment for second household expenses, support amounts are fully applied only above $1,100 per month for one child, $1,350 per month for two children, $1,550 per month for three children, $1,700 per month for four children, $1,900 per month for five children, and $2,100 per month for six children.

For both methodologies, when a COLA adjustment is applied the self-support calculation stops at lower gross income levels since the child costs are adjusted downward.

Adjusting the Standard Rothbarth Estimates for the Cost of Living in Alabama

The Alabama cost of living adjustment uses data from the Council for Community and Economic Research (CCER) for the first quarter of 2016.[35] For the Alabama adjustment, data were used for the following metropolitan areas: Anniston-Oxford-Jacksonville, Auburn-Opelika, Birmingham-Hoover, Decatur, Dothan, Florence-Muscle Shoals, Huntsville, and Montgomery.

The CCER uses a benchmark of 100 for the U.S. average cost of living. The above metropolitan cost of living indexes were weighted by shares of combined population. This produced an index for Alabama which was 89.0. This Alabama COLA reduced the standard Rothbarth cost schedule based on national data by 11 percent.

[35] Council for Community and Economic Research, *Cost of Living Index, Comparative Data for 260 Urban Areas*, First Quarter 2016, Vol. 49, No. 1, Arlington, VA.

The COLA method applies equally across all income ranges. This is in contrast to the income redistribution method which has low impact for modest incomes while higher impact at the middle and upper income ranges.

The income redistribution method compresses the spending pattern (higher percentages at low incomes and lower percentages at high incomes) into a smaller income range for Alabama than the U.S. average. While there is room to shift low percentages notably at high incomes, there essentially is little movement in the percentages downward at low incomes because one cannot shift percentages below zero income. This divergent impact largely explains why there is little difference between COLA Rothbarth for Alabama 2016 and the current Rule 32 costs. Current Rule 32 costs were shifted down very little at the low income range while the COLA based 2016 Rothbarth was shifted down notably at all income ranges.

Adjusting the Standard Rothbarth Estimates for Costs Associated with a Second Household

Alabama's current child support cost schedule is based on intact family data as is the schedule proposed by Policy Studies, Inc. in 2004. That is, these cost schedules assume that the parents have available income after paying only one rent (or mortgage) payment and only have only one set of utilities. In contrast for the case before the court, the parents are not in an intact family and support two separate households. The two parents do not have the available, discretionary income assumed in the cost schedules.

To reflect the reduced available income due to maintaining a second household, a simple adjustment for a second household and related expenses is to subtract from combined income (used for "looking up" the child cost in the child cost schedule) the amount of gross income needed for paying for the second set of adult overhead of additional rent and utilities for housing.

Steps in the second household adjustment are the following:

1) Determine the traditional adjusted gross income for both parents;
2) Determine each parent's share of the traditional combined adjusted gross income;
3) Determine appropriate cost of maintaining a second household (mortgage or rent and utilities but not the cost of parenting time—the appropriate cost should vary by income)[36];
4) Subtract the cost of maintaining the second household from net income; and
5) Apply Betson's child cost percentages to mid-points for net income after deducting second household costs (instead of the standard usage of unadjusted net income).

With steps 1 through 5, one has the standard income figure (adjusted gross income) and the BCSO adjusted for the second household discount. These steps are repeated across net income ranges and corresponding gross income brackets.

Data Source for One-Adult Housing Costs

Alabama's child support guidelines implicitly assume typical housing costs for an intact family. How much of total child costs is for housing must be inferred from separate data. A reasonably reliable data source is found with the U.S. Internal Revenue Service. The U.S. Internal Revenue Service establishes standards for allowable living expenses for tax payers with tax arrearages and need to determine how much income is available for paying back taxes on an installment basis. These data are part of the IRS's Collection Financial Standards. These data include allowable living expenses for housing and utilities and vary by income and are established on a county-by-county basis. Exhibit 52 shows a few of Alabama's county data in the IRS's allowable housing allowances.

[36] Non-custodial parenting time costs are an issue that is separate from the cost of an additional housing unit. The second household costs exist even if the non-custodial parent incurs no child costs.

Exhibit 52.

	Housing and Utilities for a				
County	**Family of 1**	**Family of 2**	**Family of 3**	**Family of 4**	**Family of 5 or more**
Autauga County	$1,184	$1,390	$1,465	$1,633	$1,660
Baldwin County	$1,324	$1,555	$1,639	$1,827	$1,857
Barbour County	$978	$1,148	$1,210	$1,349	$1,371
Bibb County	$1,054	$1,237	$1,304	$1,454	$1,477
Blount County	$1,102	$1,294	$1,364	$1,521	$1,545
Bullock County	$1,091	$1,281	$1,350	$1,505	$1,530
Butler County	$998	$1,172	$1,235	$1,377	$1,399
Calhoun County	$1,079	$1,267	$1,335	$1,489	$1,513

Source: U.S. Department of the Treasury, Internal Revenue Service, IRS Collection Financial Standards, Alabama – Local Standards: Housing and Utilities, effective 1/1/2016.

Housing and utilities standards include mortgage or rent, property taxes, interest, insurance, maintenance, repairs, gas, electric, water, heating oil, garbage collection, residential telephone service, cell phone service, cable television, and Internet service.

These one-adult costs are put into a database along with median county income figures from the U.S. Census Bureau. These data are used to statistically estimate one-adult housing costs at $50 increments in income. These estimates are subtracted from combined net income.

A full cost schedule using this approach is included in this report's Attachments. A second cost schedule with both a second household adjustment and Alabama COLA is included.

APPENDIX II

Detailed Analysis: Do the Rothbarth and Engel Child Cost Estimation Methodologies "Bracket" True Child Costs?

Introduction

One issue that frequently is raised during child support guideline reviews and during legislative consideration of changes in child support guidelines is that of determining economically correct presumptive child costs. Typically, the presumptive cost issue is addressed in terms of designing or choosing a cost schedule that indicates "appropriate" child costs at varying income levels and according to the number of children. That is, in a typical presumptive child cost schedule, child costs rise as income rises and child costs rise with the number of children.

The most common method for a state to develop its presumptive child cost schedules is to hire Policy Studies, Inc. (PSI) of Denver, CO. This company was co-founded by Robert Williams, one of the researchers hired by the federal government to update the concept of Income Shares. Robert Williams was the primary author of *Development of Guidelines for Child Support Orders*, a key federal document underlying a federal advisory panel's support for states' use of the Income Shares methodology.[37]

What is not often recognized is that the Income Shares methodology has undergone several significant changes since its emergence on the national scene in the mid-1980s. The original Income Shares cost schedule espoused by PSI was based on the research of Thomas Espenshade.[38] That research was an adaptation of earlier research by Ernst Engel. While a number of Income Shares states implemented variations of the original Engel-based cost schedule, a consensus developed that the Engel-based cost tables were too high. At the same time, David Betson of the University of Notre Dame had developed a slightly different methodology for cost schedules based on the research of Erwin Rothbarth. Additionally, Betson and PSI have changed the Rothbarth methodology from its original design in the early 1990s to a somewhat different technique starting with a 2001 study.

During the academic debate over which methodology, Engel or Rothbarth, is best or most economically "correct" for determining presumptive child costs, a view developed by some policy makers that the Engel methodology established a ceiling on what child costs "really are" and the Rothbarth one established a theoretical floor.

To evaluate whether or not the Engel methodology establishes a ceiling on appropriate child cost schedules and whether the Rothbarth methodology creates a floor, one must examine the actual methodologies and their assumptions. Such a review indicates that the Engel methodology indeed likely overstates child costs and that the claim that Rothbarth underestimates child costs has no credibility. To make the claim that the Rothbarth methodology understates child costs, two highly unlikely assumptions must be made:

1) Parents do not like sharing shared household goods with their children, and
2) Parents get no sense of well-being from their children.

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[37] Robert G. Williams, *Development of Guidelines for Child Support Orders: Advisory Panel Recommendations and Final Report*, Parts II and III, Policy Studies, Inc., Denver, Colorado, under a grant to National Center for State Courts, Williamsburg, Virginia, submitted to U.S. Department of Health and Human Services, Washington, D.C., September 1987.

[38] Robert G. Williams, *Development of Guidelines for Child Support Orders: Advisory Panel Recommendations and Final Report,* pages II-19 through II-20.

More realistic assumptions for the Rothbarth methodology indicate instead that Rothbarth overestimates child costs.

Income Shares Uses an Indirect Methodology for Estimating Child Costs

Contrary to the belief of some policy makers, Income Shares Cost schedules are not based on measures of actual prices for goods and services for children such as the price of a pair of jeans, or the cost of baby formula, or the price of a child's haircut. There are no specific prices by category built into an Income Shares cost table. Child costs are measured indirectly. The rationale for indirect measurement is that a number of goods and services expended on children are also shared by adults in the same household. For example, parents and children share the same living room, television, and kitchen. Even food is bought for the household and then allocated "at the schedule" between the parents and the children—how does one measure that?

The Engel and Rothbarth child cost methodologies look at economic measures of the well-being of the adults (parents) to estimate child costs. That is, how does some measure of adult wellbeing change before and after having children? Then, how much income does it take to restore that measure of adult well being after having the children? These are the questions that these methodologies use in a statistical approach to measure child costs. It is alleged statistical flaws in these methodologies that underlie the claims that they either overestimate or underestimate child costs. Whether these alleged flaws actually exist as claimed determines the credibility of these claims.

The Engel Methodology

The Engel methodology of estimating child costs was the first incorporated into the Income Shares child support guidelines and cost schedule espoused by Policy Studies, Inc. Engel believed that one could look at a household's spending patterns on food items to determine how economically well off various households were to each other. Because food is a necessity, the higher the percentage of a family's spending is on food, the less economically well off that family is compared to a family that spends a smaller percentage of their total spending on food. The equivalent statement is that the higher the non-food shares of family spending, the higher the family's standard of living.

> In 1895, Ernst Engel developed a methodology to measure the cost of children that was based upon the supposition that the standard of living of the household could be proxied by the share of total expenditures devoted to the consumption of food. Examining budget data, he found that as total household expenditures rose, the share of total expenditures devoted to food fell, i.e., the standard of living rose. He also found that as the family size increased, holding total expenditures constant the food share rose, i.e., the standard of living fell. Combining these two empirical facts, Engel felt that he had sufficient justification to declare that food shares were inversely related to standards of living.[39]

The corollary to this analysis is that when families of different sizes have the same share of spending on food, then those families are equally well off. This is the same as saying that when different families have the same share of total spending on non-food items, they are equally well off. Child costs are defined as the difference in total spending for two families of different size (with number of children being the difference in size) when both families spend the same share of their budget on food.

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[39] David M. Betson, *Alternative Estimates of the Cost of Children from the 1980-86 Consumer Expenditure Survey*, Department of Economics, University of Notre Dame, Notre Dame, Indiana 46556, September 1990, pp. 11-12.

The Engel approach is explained by David Betson [Figure 2 in Betson's discussion is Exhibit 53 in this document]. Referring to the below figure:

> If we let Θ(X, K) denote the relationship between the share of total expenditures spent on food, total expenditures (X), and the number of children (K), the Engel approach would compute the cost of a child (CC_E), where CC_E must satisfy the following relationship:
>
> $$\Theta(X, K=1) = \Theta(X - CC_E, K = 0)$$
>
> Figure 2 [in Betson's document but Exhibit 40 here] depicts the determination of the cost of a child under the Engel methodology. The two curves, representing the relationship between total expenditures and the share of total expenditures spent on food, are downward sloping, the share curve for a couple with a child (FS = 3) lying above the share curve for the household composed of two adults without a child (FS = 2). Both of these relationships correspond to the assumption that the budget share spent on food is inversely related to total expenditures and hence to the standard of living to the household. If the household with a child has total expenditures X_3 [point (1)], then Θ_3 will be spent on food. A couple with X_3 dollars of total expenditures without a child, however, will enjoy a higher standard of living [point (2)]. For this couple to enjoy the same level of living as the couple with the child, they would only require X_2 dollars of total expenditures [point (3)]. The difference in levels of total expenditures, $X_3 - X_2$, represents the cost of the child, CC_E.[40]

In simplified terms, the child cost is the difference in total expenditures in families with and without the added child and in which both spend the same share of total expenditures on food.

Now that the theoretical model of the Engel approach to estimating child cost has been established, what is the basis for believing that the Engel approach overestimates child costs? Basically, the problem lies with a built-in assumption that adults (parents) and children consume the same shares of food relative to shares of non-food items out of the total household budget.
From the Lewin report:

> The validity of the Engel estimator [of child costs] is critically dependent on the assumption that the percentage of the family's expenditures on non-food items that should be attributed to the family's children is the same as the percentage of the family's food expenditures that is attributable to the family's children. There is reason to believe that this assumption is invalid; children are probably relatively "food-intensive." That is to say, the percentage of the family's food that is consumed by children is probably greater than the percentage of non-food items consumed by children. If this is the case, then the Engel estimator <u>overestimates</u> [emphasis original] the true expenditures on children.[41]

Essentially, children have spending that is more basics than that of adults. Adults buy non-essential goods for the household that would be bought with or without children. Adults' food shares are typically smaller than children's food shares. Conversely, children are food intensive—food is a bigger share of what is spent on children. The outcome of this is that if children have a natural tendency to consume food as a greater proportion of total spending (as is generally believed), then the Engel methodology will

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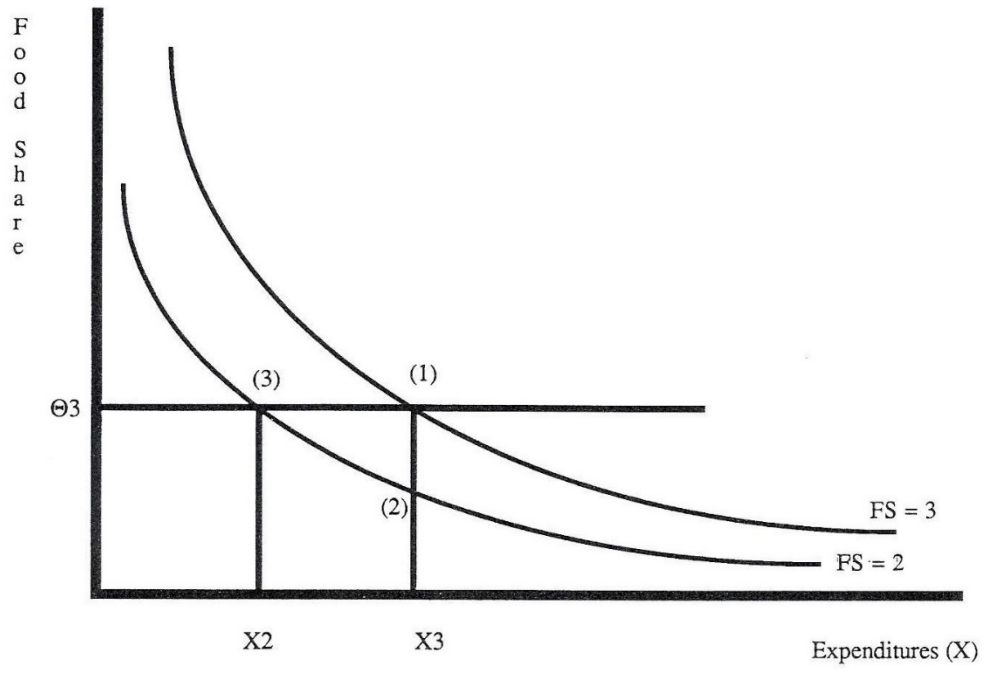
[40] David M. Betson, *Alternative Estimates of the Cost of Children from the 1980-86 Consumer Expenditure Survey*, Department of Economics, University of Notre Dame, Notre Dame, Indiana 46556, September 1990, p. 12.
[41] Burt S. Barnow et al., *Estimates of Expenditures on Children and Child Support Guidelines*, Submitted to Office of the Assistant Secretary for Planning and Evaluation, U.S. Department of Health and Human Services, Submitted by Lewin/ICF, Washington, D.C., October 1990, page 2-28.

require even greater levels of income to boost the family's overall spending on non-food items back to pre-child shares. This leads to overestimating child costs.

Exhibit 53.



Engel Methodology: Using Food Shares as an Inverse Proxy for the Household's Standard of Living

Source: David M. Betson, *Alternative Estimates of the Cost of Children from the 1980-86 Consumer Expenditure Survey*, Department of Economics, University of Notre Dame, Notre Dame, Indiana 46556, September 1990, Figure 2, following page 12.

Dr. David Betson of the University of Notre Dame has added his voice to those finding the Engel methodology excessively high.

> The Engel approach theoretically is believed to provide an upper bound estimate on the cost of raising children. The use of economies of scale in food consumption to estimate the average economies in other goods seems on the surface unrealistic in today's society. But given the high estimates that result from this methodology, even when compared to the per capita method, the estimates from the Engel method should be discounted.[42]

[42] David M. Betson, *Alternative Estimates of the Cost of Children from the 1980-86 Consumer Expenditure Survey*, Department of Economics, University of Notre Dame, Notre Dame, Indiana 46556, September 1990, pp. 55-56.

It is generally accepted that children are "food intensive" and as a result the Engel methodology overestimates child costs.

The Rothbarth Methodology

After it became apparent that the Engel-based guidelines imposed too great a burden on the child support obligor and also had serious flaws in its theoretical underpinnings, a methodology begun by Erwin Rothbarth gained favor and was adopted by Policy Studies, Inc. in its child cost studies. The version adopted by Policy Studies, Inc. was researched by David Betson of the University of Notre Dame. The Rothbarth methodology is similar to that of Engel and is an indirect estimation technique.

The Rothbarth methodology is based on measuring a household's economic well-being based on the level of spending on selected goods consumed only by the adults in the household. The higher a household's spending level is on these adult goods, then the higher the household's economic well-being. The differences in Rothbarth and Engel methodologies are primarily: 1) that Rothbarth focuses on household changes in purely adult goods while Engel focuses on changes in changes in the jointly consumed good of food, and 2) Rothbarth looks at changes in the level (dollar amounts) of spending on target goods while Engel evaluates changes in percentage shares of the selected good.

With Rothbarth, for a given level of income, as children are added to the family, the amount of household spending on adult goods falls. So, the questions become how much income is needed to restore that level of spending on those adult goods and what is the difference in total household spending? When households of two different sizes (with children being the difference in size), child costs are the difference in total spending when both households spend the same amount on those adult goods.

The Betson approach is explained by David Betson [Figure 1 in Betson's discussion is Exhibit 41 in this document]. Referring to the below figure:

> [A]nother reasonable approximation to measuring expenditures on children is to observe how much adults reduce spending on themselves. Hence, we could measure the expenditures on a child by observing how the household reduced its spending on pure adult goods (A).
>
> We can reformulate this observation into an estimation of the cost of children by first assuming that the parents' standard of living can be proxied by how much is spent on adult goods. As we have already assumed, expenditures on adult goods should fall with the number of children in the household and hence is related to the reduction in the standard of living of the parents. However, holding the number of household members constant while increasing household income would raise both the standard of living of the adults and expenditures made on adult goods. Thus, to estimate the cost of the children in the household, we would first observe the level of expenditures made on adult goods in the household with children. We would then ask what level of income the parents would need so that they would spend the same amount on adult goods when the children were not present. The difference between the actual total expenditures of the household and this hypothetical level would represent the cost of the children. This approach to cost estimation was proposed by Erwin Rothbarth and in the literature has been given his name.[43]

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[43] David M. Betson, *Alternative Estimates of the Cost of Children from the 1980-86 Consumer Expenditure Survey*, Department of Economics, University of Notre Dame, Notre Dame, Indiana 46556, September 1990, pp. 9-10. Additionally, Betson's footnote number six appears at the end of the final paragraph in this quote. This footnote reads as follows:

Betson continues with the explanation of the Rothbarth methodology:

> Let $E_A(X, K)$ represent the relationship between the level of expenditures on adult goods and the household's level of total expenditures on all goods (X) and the number of children (K). Given the knowledge of this relationship, the Rothbarth approach would compute the cost of one child to be equal to CCR, where CCR solves the following relationship, holding the level of the standard of living constant:
>
> $$E_A(X, K = 1) = E_A(X - CC_R, K = 0)$$
>
> Figure 1 [in Betson's document but Exhibit 41 here] illustrates the Rothbarth methodology for the case of one child. The two curves in the figure represent the relationship between total expenditures (X) and expenditures on adult goods for a household of a couple without children (FS = 2) and a couple with a child (FS = 3). Note that the relationship is upward sloping, representing the positive relationship between expenditures on adult goods and the adults' standard of living. Second, the figures are constructed so that the curve for the household without children lies above the curve for the household with a child representing the assumption that for a given level of total expenditures, an additional person lowers the standard of living of the household. Now if the household with a child has total expenditures X_3, it will spend A_3 on adult goods [point (1)]. If the child was not present in the household, the adults would reach a higher standard of living (spend more on adult goods) [point (2)]. For them to achieve [the] same standard of living of living in the absence of the child as with the child, Rothbarth assumes that the household should spend not more but the same amount, A_3, on adult goods [point(3)]. The level of total expenditures for a household without children that is consistent with spending A_3 dollars on adult goods is X_2. The difference between these two level[s] of total expenditures ($X_3 - X_2$) is equal to the cost of the child (CCR).[44]

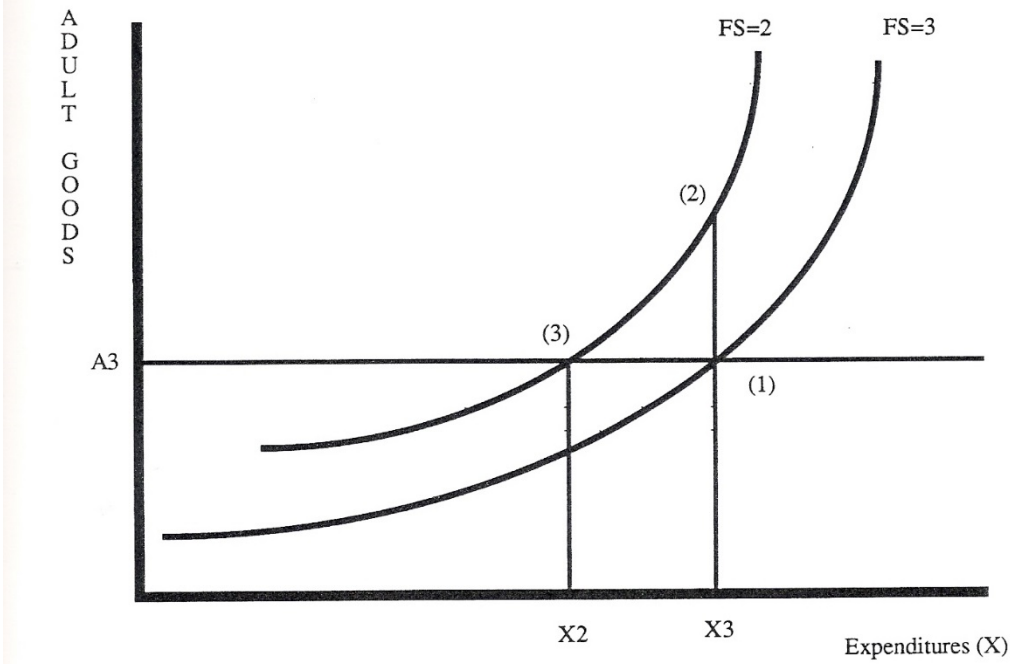
One sees that the Rothbarth measure of child costs is based on comparing consumption levels of purely adult goods with and without children and the amount of income needed to restore pre-children spending levels. The alleged reason that the Rothbarth methodology understates child costs is that children affect adult use of shared household goods. Since adults have less use of shared goods, they change preferences to adult goods.

Erwin Rothbarth, "Note on a Method of Determining Equivalent Income for Families of Different Composition." In War Time Pattern of Saving and Spending, edited by Charles Madge, Cambridge, Cambridge University Press, 1943.

[44] David M. Betson, *Alternative Estimates of the Cost of Children from the 1980-86 Consumer Expenditure Survey*, Department of Economics, University of Notre Dame, Notre Dame, Indiana 46556, September 1990, pp. 10-11.

[A]dults in households with children may have a tendency to substitute away from those goods which involve a large degree of sharing and into those goods that need not be shared (i.e., adult goods). In sum, adults in households with children, particularly those with large numbers of children, have an economic incentive to spend a disproportionately smaller percentage of their total expenditures on goods that are consumed by both children and adults, and a larger share on adult goods. While this type of "selfishness" strikes many observers (especially parents) as unlikely, it is, nonetheless, a possibility that should ideally be considered.[45]

Exhibit 54.



The Rothbarth Methodology: Using Adult Goods as a Proxy for the Household's Standard of Living

Source: David M. Betson, *Alternative Estimates of the Cost of Children from the 1980-86 Consumer Expenditure Survey*, Department of Economics, University of Notre Dame, Notre Dame, Indiana 46556, September 1990, Figure 1, following page 10.

This undocumented theoretical belief is again restated by Barnow in the Lewin study for U.S. HHS in 1990:

[45] Burt S. Barnow et al., *Estimates of Expenditures on Children and Child Support Guidelines*, Submitted to Office of the Assistant Secretary for Planning and Evaluation, U.S. Department of Health and Human Services, Submitted by Lewin/ICF, Washington, D.C., October 1990, pp. 2-25 through pp. 2-26.

> The Rothbarth estimator, on the other hand, is likely to underestimate [emphasis original] expenditures on children. The Rothbarth estimator does not account for the possibility that the presence of children in a household may lead to substitution from goods that must be shared with children toward goods consumed only (or mostly) by adults. If such substitution does occur, the Rothbarth estimator will indicate that relatively low levels of additional income are needed to restore the level of adult expenditures to that which would have prevailed in the absence of children.[46]

The required assumption in this claim is that adults behave in a "selfish" manner—preferring to maintain pre-child levels of consumption of adult goods. It requires that adults not like sharing shared goods with children. It is this expected "selfish" conduct that allegedly biases the statistical outcome of the Rothbarth methodology.

Importantly, Barnow, et al raise the issue that the Rothbarth methodology may actually overestimate child costs if adults do not behave selfishly related to sharing shared goods with children. From footnote 37:

> There is, of course, the possibility that adults behave "selflessly," and that the substitution mechanism works in the opposite manner of that which is outlined here. In this case, the validity of all the estimation procedures discussed here is called into question.[47]

What does this mean using real life examples? Shared goods are such as bath rooms, living rooms, and the television. Based on the current version of the Rothbarth methodology, the claim that Rothbarth understates child costs means that parents realize they have to share the living room with their children and therefore decide to buy more adult clothes instead. The shift in preferences then biases the estimate of how much income is needed to restore pre-children spending on adult clothes—it takes less income to restore pre-children spending on adult clothes. However, there is no empirical study that validates the alleged theory behind Rothbarth estimates of child costs being "low" due to a shift in preferences to adult clothes after having children.

In fact, if one believes that after having children, the parents have a preference to spend more time with shared goods, then the Rothbarth methodology overestimates child costs. That is, if parents decide they want to spend Friday or Saturday nights with the children watching videos, then that likely leads to the Rothbarth methodology overstating child costs because there is now a parental bias toward the shared goods and away from adult clothing. It therefore takes more income to restore the pre-children level of spending on adult clothes.

What does this mean in terms of every day application? This issue has to do with how parents react to having children and then wanting to share the shared goods (and services) or not with the children. The argument that the Rothbarth methodology sets a floor for child cost estimates is based on the statistical need for an economic "fact" that parents do not want to share with their children the shared goods of the household. The Rothbarth methodology requires that parents have an aversion to sharing the shared goods with children in order for the claim to be valid that the Rothbarth methodology is an underestimate for child costs. If parents are selfless and actually want to share the household shared goods with

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[46] Burt S. Barnow et al., *Estimates of Expenditures on Children and Child Support Guidelines*, Submitted to Office of the Assistant Secretary for Planning and Evaluation, U.S. Department of Health and Human Services, Submitted by Lewin/ICF, Washington, D.C., October 1990, page 2-29.
[47] Burt S. Barnow et al., *Estimates of Expenditures on Children and Child Support Guidelines*, Submitted to Office of the Assistant Secretary for Planning and Evaluation, U.S. Department of Health and Human Services, Submitted by Lewin/ICF, Washington, D.C., October 1990, page 2-26.

children, the "floor" argument for Rothbarth not only is invalid but Rothbarth then becomes an overestimate for child costs.

One can claim that the Rothbarth methodology understates child costs only if one also claims that parents do not want to share household shared goods with children. If parents want to share household shared goods with children, then the Rothbarth methodology overstates child costs.

Rothbarth Assumes that the Parents Get No Sense of Well-Being from Their Children

Another key assumption in the claim that the Rothbarth methodology underestimates child costs that is that parents do not get enjoyment from having children.

> Finally, it is important to note that some researchers have argued that the standard approaches [such as Engel and Rothbarth] used to estimate expenditures on children are fundamentally flawed because the decision to have children usually is voluntary. [Added note: This would hold true in samples of intact families used for these studies.] If adults decide to have children and if they behave rationally, then the adults' well-being should be at least as much as when they were childless. … All the methods for estimating expenditures on children [inclusive of Engel and Rothbarth] are based on the assumption that adding a child does not increase the well-being of the adults in the family.[48]

If indeed parents do enjoy having children this creates an upward bias in the Rothbarth methodology and one cannot claim that the Rothbarth methodology underestimates child costs. Given that the Rothbarth studies use data from intact families, it is more likely that parents gain well-being from having children than not gaining such satisfaction.

Summary of Engel and Rothbarth "Bracketing" Issues

Indeed, child costs schedules based on the Engel methodology are generally recognized as being excessive and above actual child costs. The economic rationale for this belief is realistic and credible—that children are more food intensive that adults.

The claim that Rothbarth is a floor for child cost is based upon two very questionable assumptions.

To make the claim that the Rothbarth methodology understates child costs, two highly unlikely assumptions must be made:

1) **Parents do not like sharing shared household goods with their children, and**
2) **Parents get no sense of well-being from their children.**

If these assumptions do not hold true, the Rothbarth methodology likely overstates child costs. This author believes that it is more likely that parents do like to share shared household goods with their children and also that parents do get a sense of well-being from their children. These are more realistic

[48] Burt S. Barnow et al., *Estimates of Expenditures on Children and Child Support Guidelines*, Submitted to Office of the Assistant Secretary for Planning and Evaluation, U.S. Department of Health and Human Services, Submitted by Lewin/ICF, Washington, D.C., October 1990, page 2-32.

assumptions.[49] Based on these more credible assumptions, the Rothbarth methodology likely overstates child costs. Importantly, embracing more realistic assumptions opens wide the door for true child costs to lie below the estimates produced by the Rothbarth methodology.

While it is reasonable to state that true child costs lie below Engel estimates, there is no sound economic basis for making the claim that true child costs must lie above Rothbarth estimates.

[49] One might object to these assumptions by this author since child support guidelines are applied to families that are not intact. However, the estimation of child costs in the Incomes Shares methodology (Engel and Rothbarth) is based on data from intact families. Even in non-intact families (which do not affect the Income Shares estimates), it is more likely that this author's assumptions still hold true for the most part.