The Pitfalls of Using a Child Support Schedule Based on Outdated Data*

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Abstract. A strong rationale for updating child support guidelines arises from changes over time in the measurement of expenditures on children, as well as changes in the empirical relationship between expenditures on children and the income of parents. Such changes affect the accuracy of the numerics upon which states' child support guidelines are based. This study evaluates an alternative child support guideline that was proposed for Virginia and draws lessons for other states that similarly base their guidelines on older survey data. Regression results show that over time, the child expenditure and household income relationship has changed considerably. Furthermore, the largest increases in expenditures attributable to children have occurred for lower- and middle-income households.

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1. Introduction

While the Family Support Act of 1988 requires all states to assess their child support guidelines at least once every four years, states are not mandated to actually change their guidelines following the assessment. A number of economic changes could warrant the updating of a state's child support guidelines. Among such changes, today the majority of obligors are fathers who are more involved in child rearing than they were 20 years ago. In addition to paying child support, many obligors spend money on their children during parenting time. This increase in father involvement and spending provides a rationale for implementing adjustments to child support schedules. As another example, a worsening in labor-market opportunities for less-skilled men has led to dramatic increases in arrearages.[1] Including a downward adjustment for low-income obligors in child support schedules can help to reduce arrears caused by child support awards that surpass the ability of low-income obligors to pay.[2]

Another rationale for updating child support guidelines arises from changes that have occurred in the measurement of expenditures on children, as well as changes in the empirical relationship between expenditures on children and the income of parents. These changes affect the accuracy of the numerics upon which states' child support guidelines are based. To better understand the implications of these changes, our study examines the costs involved when states use schedules based on statistical relationships from outdated survey data. The study evaluates an alternative child support guideline that was proposed for the Commonwealth of Virginia and then draws lessons for other states that similarly base their guidelines on older estimates of child-rearing expenditures. The alternative schedule for Virginia proposes that total child support awards as a share of monthly income be raised at all income levels except for the lowest end of the income distribution.

Virginia's child support schedule has not been updated since the mid-1980s. The schedule is based on a study of child-rearing expenditures published in 1984 that used the 1972-1973 Consumer Expenditure Survey (CES), the best household data available at the time. Because the Bureau of Labor Statistics has made significant improvements in the quality and comprehensiveness of its data collection, Virginia's current schedule is no longer tied to the best quality data from the CES. Like Lino (2001), we find that average total expenditures on children have risen in past decades and have changed in composition. However, the child-expenditure and income relationship upon which Virginia's schedule is based may also have changed since the 1970s, a hypothesis that is tested in this study. Regression results show that the relationship between spending on children and household income has indeed changed over time, a result that expands upon Lino's earlier work. This change would imply that Virginia and ten other states with older guidelines are no longer generating child support orders that are linked to accurate estimates of the child-expenditure and income relationship. Statistical evidence in this study provides a strong economic rationale for developing a new child support schedule in Virginia and in other states with similar guideline structures.

2. Underlying Models and Measurement Issues

Federal legislation requires all states to have formal guidelines for calculating the dollar value of child support awards. These child support guidelines must take into account the earnings of the nonresidential parent, they must base support obligations on numerical criteria, and they must include the child's health care costs into the calculations. No particular method to determine state guidelines is mandated, so states must make decisions about the underlying model and measurement issues surrounding the definition of income and child-rearing costs.[3] States have chosen versions of three underlying models, known as the "Percentage of Obligor Income" model, the "Income Shares" model, and the "Melson Formula" model. The Percentage of Obligor Income model entails the most basic calculations of the three models, in which the non-custodial parent pays a certain share of his/her income to the custodial parent. The share rises with the number of children, and for some states the share also changes as the income level of the obligor changes. In contrast, the Income Shares model is more detailed. Underlying this model is the idea that the child should obtain the same percentage of total income that the child would have obtained if the parents were together. In calculating the child support amount, the income of both the mother and father is combined to proxy for the total income of an intact family. This income calculation is then linked to estimates of child-rearing expenditures by intact families with the same income level and number of children. In the final basic step for converting estimates of child expenditures into a schedule of child support payments for non-custodial parents, the estimated child support amount is divided between the two parents according to their respective income shares. Finally, the Melson Formula model is similar to the Income Shares model except that both parents are allowed a reserve amount to cover their own subsistence needs and to sustain employment.

No matter which model is chosen, states must make decisions regarding the measurement of income and expenditures on child-rearing. According to Beller and Graham (1993), to measure income most states use either adjusted gross income (income adjusted for prior support orders and health insurance) or net income (income with these same adjustments plus deductions for taxes, mandated retirement contributions, and union dues), and a few remaining states use gross income. A number of states also build into their schedules a self-support reserve that protects the ability of the obligor to meet his/her basic subsistence needs and to facilitate employment. Using such a mechanism, if the combined gross monthly income is less than a certain threshold, then the guideline is not used to compute the child support order. Instead, a fixed minimum award is applied to the non-custodial parent. At the other end of the income distribution, very high income levels are sometimes treated with an income cap, declining percentages, or non-cash transfers in the application of child support guidelines.

There is less agreement among policy makers and academics about the best estimates of child-rearing costs. These estimates come from a number of studies that vary in the underlying methodology as well as the survey year used in the estimations. In a survey of this literature, Beller and Graham point to two indirect approaches—the Engel method and the Rothbarth method—and the direct approach for estimating child-rearing costs. The Engel method is based on the idea that families who spend the same share of their total consumption expenditures on food are equally well off. In computing child-rearing costs, two families, one with no children and one with one child, are assigned equal proportions for food spending in the total budget. Then the cost of raising the first child is the increase in spending required to keep the one-child family spending the same budget share on food. The approach is similar for families with more children. The most important assumption this approach must satisfy is separability in consumption; that is, families will not change the way they divide their spending across food and other consumption items as they have children. The Rothbarth method is similar in notion and underlying assumptions, except that the equalizing factor across families is the budget share devoted to adult goods. Deaton and Muellbauer (1986) argue that the separability assumption causes the Engel estimator to overestimate child-rearing costs (families with children are overcompensated in computations to keep the food share equal) and while the Rothbarth estimator underestimates child-rearing costs (families with children are under compensated in computations to keep the adult-goods share equal). Finally, the direct approach for estimating child-rearing costs involves directly adding up different categories of spending on children. A few categories, such as child care or children's clothing, can be measured by actual spending on children, while most other categories, such as health care or housing, are measured by estimates of spending attributable to children.

By 1990 over thirty states, including Virginia, had based their guidelines on the Income Shares model. For most of these states, the estimates of child-rearing expenditures were initially calculated from work in Espenshade (1984), based on the Engel method and data from the 1972-73 Consumer Expenditure Survey (CES). Subsequently a number of states have updated their child support guidelines to reflect more recent estimates of child-rearing costs. These recent estimates are drawn mostly from work in Betson (1990) using a range of methods applied to CES data from 1980 to 1986. Some states have also drawn from annual reports by the U. S. Department of Agriculture using the direct approach to add up categories of spending attributable to children.

In 2003 there were still 11 states, including Virginia, which based their guidelines on the earlier Espenshade estimates (Venohr and Griffith, 2003). However, these older guidelines may no longer generate realistic child support orders. In recent decades, the Consumer Expenditure Survey's sample size has grown and the level of detail has improved, providing better expenditure and income data. Concepts and definitions have changed so much that Bureau of Labor Statistics officials warn users to exercise caution in comparing current survey data with data from earlier surveys, especially with years prior to 1984. The next section addresses whether changes over time in the relationship between child expenditures and income may have compounded these data problems underlying the older state guidelines.

3. Estimating Expenditures on Children

This section describes a schedule of child support that was developed for the Quadrennial Child Support Review Panel of the Commonwealth of Virginia.[4] The schedule is grounded in current economic research on child-rearing expenditures on children. New estimates of child-rearing expenditures are developed using micro data on husband-wife households from the 2000 Consumer Expenditure Survey (CES). The sample inclusion criteria include having some positive amount of household income for the past year and reporting one to three children under age 18 living in the home.[5] These criteria yield 1,987 households with one child, 2,557 households with two children, and 990 households with three children. Data are used for households with gross monthly incomes that range from $1200 to $8500. This range of the income distribution represents 76 percent of all Virginia married-couple households with one to three children below 18 years of age.[6] Due to the CES's focus on lower and middle income families, the Bureau of Labor Statistics cautions researchers in making statistical inferences on the expenditures of households with gross incomes in excess of $8,500.

This study estimates a household's expenditures on children using the direct approach of adding up different categories of actual expenditures, in a three-step procedure. The first step involves identifying the total expenditures on food, housing, clothing, transportation, education, miscellaneous expenditures, and non-extraordinary health expenditures.[7] Sample means from the 2000 CES show that housing, variable transportation, and food expenditures comprise 70 percent of total household expenditures. Of note, expenditures on housing in the CES are underestimated because the Bureau of Labor Statistics treats mortgage principal payments as savings rather than expenditures. Since a large portion of an obligor's direct expenditures on children is likely to be in housing, the CES's treatment of mortgage payments generates lower expenditures on children. This downward bias can be thought of as a discount that all homeowners receive. Higher-income obligors tend to own more expensive homes, so this treatment of the housing data generates a larger discount for higher-income obligors.

The second step to estimating a household's expenditures on children is to determine in each expense category the proportion of expenditures attributable to children. For some categories, such as clothing, the CES data are reported separately for children, so 100 percent of these expenditures can be attributed to children. But for other categories, such as housing, transportation and food, assumptions must be made regarding the proportion due to children. The most common approaches can be summarized as: 1) the "representative" approach, in which allocations are based on averages calculated for children and adults based on federal studies; 2) the "per capita" approach, in which household expenditures are divided by the number of family members; and 3) the "average use" approach, in which allocations are based on the amount of a certain commodity that households with different numbers of children are observed to use on average, compared to households without children. As discussed in a Virginia state government technical report on the costs of raising children (JLARC 2001), the choice of which assumption to use in estimating expenditures on children could lead to large differences for two major categories: housing and transportation. These differences in turn have an impact on estimated income shares that are used to compute child support guidelines, especially for middle and higher-income households. For those expenditure categories requiring a choice in allocation method, we compare alternative expenditure results and explain why a particular method is chosen.

With respect to housing, we estimate expenditures for four subcategories of housing costs: shelter, utilities, household operations and household equipment, and furnishings. Housing is an excellent example of the difficulty in assigning an expenditure amount attributable to children. As shown in Table 1, if the per capita proportions are used, then 33 percent of expenditures in a one-child household are attributable to that child, compared to only one percent for the average use proportion. The one percent figure is computed by JLARC (2001) from American Housing Survey data as the percentage difference between the estimated house size of a dual-parent household with one child (1776 square feet) and the estimated house size of a dual-parent household with no children (1758 square feet). The other figures for average use in housing are constructed using the same method. Across household sizes, the per capita approach generates larger expenditures on children than the average use approach; in effect, the per capita approach provides an upper bound on the share of housing expenditures attributable to children while the average use approach provides a lower bound. To estimate housing expenditures on children, our preferred approach is to apply the per capita proportions shown in Table 1 mainly because the approach is more equitable in its assumption that each household member shares equally in the use of the home.

Following the method in JLARC (2001), there are two types of transportation costs: fixed vehicle and variable costs. Fixed vehicle costs capture spending on new and used cars and trucks, vehicle financing, and vehicle insurance. This expense component captures the entry price for operating a vehicle. The estimated share of fixed vehicle costs that can be attributed to having children following the average use approach is 8.0 percent. Variable transportation costs capture spending on gas and oil, licenses, other vehicles, maintenance and repairs, and public transportation. This component captures the incremental expenses of operating a vehicle. As shown in Table 1, the fraction of costs that can be attributed to children is 33 percent in a one-child household using the per capita approach, compared to 24 percent with the average use approach. Again, the average use proportions are well below the per capita proportions across household size. To estimate the transportation costs attributable to children, we alternatively apply the per capita proportions to all transportation expenditures (the per capita approach), and we apply the average use proportions to the fixed transportation subcategory (the "average use in vehicles" approach). Because neither approach offers a clear *a priori* advantage, regression results are presented using both approaches.

The proportion of food expenditures attributable to children is based on four official U.S. Department of Agriculture food plans for May 2002. This approach is similar to the treatment of food expenditures in JLARC (2001). To compute this figure, for each food plan we take an average across gender and ages of the estimated monthly food costs for children, resulting in the monthly food cost for an average child under each plan. Each plan also contains the average monthly food costs for an adult male and female. Hence for each plan we can compute total household spending on food for dual-parent households of different sizes, and from there we can construct the proportion of average household expenditures on food that are attributable to children. These proportions are fairly consistent across plans. For example, the proportion of food expenditures attributable to children ranges from 28.4 percent to 29.5 percent for dual-parent households with one child. The average of the four plans for each dual-parent household size is multiplied by household expenditures on food. The resulting product is the estimate of food expenditures on children.

Clothing expenditures are divided into clothes and footwear and other apparel products and services (such as dry cleaning, repairs, and alterations). Clothes expenditures are reported for infants up to age 16 in the Consumer Expenditure Survey. Thus, 100 percent of these expenditures are attributed to children. However, expenditures for 16 and 17 year olds are not separately reported from expenditures for adult men and women in the household. To address this issue, we identify households with children 16 and 17 years of age and pro-rate the clothing expenditures for men and women aged 16 and older on a per capita basis.[8] Footwear and other apparel products and services are not reported separately for children. Proportions based on the per capita approach are used for this expense category.

Due to its simplicity in generating per person expenditure estimates, the per capita approach is applied to all remaining expense categories, which include such items as entertainment, personal care items, and reading materials. Note that entertainment expenses comprise entrance fees and admissions costs for various events, clubs, and memberships, as well as spending on equipment, including video games. Exceptions to this per capita approach occur for education expenditures, which are fully identifiable for children in the Consumer Expenditure Survey, and for expenditures on a sub-category that includes pets, toys and playground equipment. For these exceptions we assume that 100 percent of expenditures are attributable to children.

Results for average quarterly expenditures on food, clothing, health care, child care, and miscellaneous items are reported in Table 2 as absolute numbers and in Figure 1 as relative shares. Food expenditures comprise by far the largest single category, followed by child care costs and education. Note that actual quarterly child care costs are considerably higher than the reported results for those households who have preschool children and both parents working traditional shifts, and similarly for households who must pay for after-school care. The reported child care results average these households together with all other households who have children over the age of five who make little use of paid child-care services or after-school care.[9]

To help demonstrate that the 2000 Consumer Expenditure Survey better portrays family expenditure patterns than the 1972-73 Consumer Expenditure Survey, we perform the same procedure for estimating expenditures on children using the 1972-73 Consumer Expenditure Survey. In particular, the 1972-73 calculations for total household expenditures are converted into real 2000 dollars. Then, to estimate child-related expenditures, we use the 2000 weights and shares. The resulting expenditures on children are then compared to the 2000 expenditures in Figure 1, which shows results for a one-child household. The figure has a similar format to that in Lino (2001), a study which finds a significant increase in real expenditures on children between 1960 and 2000. Figure 1 shows that in real dollar terms, average quarterly expenditures attributable to children have risen considerably over time, from $1,223 in 1972-73 to $1,680 in 2000. Consistent with Lino's comparison for 1960 and 2000, one of the key factors behind this increase is the jump in child care expenses, both in absolute and relative terms. Greater use of child care services, in turn, is driven by the surge in women's labor force participation during the period.

Spending on entertainment has also risen in both absolute and relative terms as structured activities for children have become more widespread over time and as technological change has produced a wider variety of audio and visual equipment. We also note a sizeable jump in spending on pets and toys, an expenditure item that was small enough in the 1970s data to be classified within the miscellaneous category. These increases in items relating to recreation are consistent with results in Jacobs and Shipp (1990), who argue that such spending continues to grow as new electronic toys and gadgets become increasingly available and as participatory and spectator sports become increasingly popular. Spending on education has also risen in absolute terms as school tuition increases have outpaced inflation. In contrast to these expenditure jumps, spending on food for children has dropped noticeably in both absolute and relative terms. This result for food is consistent with longer-term declines in household food expenditures that are consistent with Engel's law: as income increases, the share of expenditures for food declines (Jacobs and Shipp 1990). Comparisons over time in quarterly expenditures on children for two-child and three-child households, not reported, yield similar conclusions.

The third step to estimating a household's expenditures on children is to evaluate the statistical relationship between household expenditures on children and combined gross income. To do so, for each household size, we regress the logarithm of average monthly child-rearing expenditures on the logarithm of average monthly gross income, as follows:

$$\ln(Expenditures_i) = \alpha_0 + \alpha_1 \ln(Income_i).$$

Note that estimates will vary in magnitude when the per capita and average use approaches are alternatively used to calculate housing and transportation costs attributable to children. Because the per capita approach generates higher estimated expenditures on children, schedules based on the per capita relationships will be uniformly higher than schedules based on the average use relationships. We estimate a variety of specifications using the different per capita and average use assumptions in Table 1, and report results for two alternatives: (1) per capita approach applied to all housing and transportation costs, and (2) per capita approach applied to housing and variable transportation costs, and the average use approach applied to fixed transportation costs.

Panel A of Table 3 presents the regression estimates for husband-wife households with one, two, and three children using the 2000 Consumer Expenditure Survey. The coefficient estimates are interpreted as elasticities. For example, the estimated coefficient $\alpha_1 = 0.235$ (with the average use in vehicles approach) for a one-child household implies that a 10 percent increase in gross income is associated with an approximate 2.35 percent increase in expenditures on the child. Results are similar in magnitude and precision across the two approaches, with a higher expenditure-income elasticity for one-child households compared to households with more children. The table shows that differences exist between the constants in the per capita and average use models. These differences imply that the per capita expenditure-income profiles will be 6 to 10 percent higher at all income levels when compared to the average use relationships.

To test the hypothesis that the underlying relationship between child-related expenditures and household income has changed over time, we re-estimate the expenditure-income regression for intact households of one, two, and three children using the 1972-73 CES data. The regression coefficients are presented in Panel B of Table 3. Results show that over time, the regression line has changed considerably. The constant (intercept) has increased, indicating an upward shift in the child expenditure and household income relationship. In addition, the elasticities have fallen, from a range of 0.42 to 0.49, to a range of 0.18 to 0.24.

To convert the statistical relationship between child-rearing expenditures and gross income into a schedule of total child support awards, one needs to predict expenditures on children at a succession of income levels. To do so, we evaluate the regression model for a large range of steadily increasing income levels and then take the exponential of each value. The average use in vehicles approach is used for one and two children, and the per capita approach is used for three children. For example, for a one-child household ($\alpha_0 = 4.839$ and $\alpha_1 = 0.235$) with a monthly gross income of $5,000, the predicted monthly expenditure on that child would be $934. To predict child-rearing expenditures, we apply this data transformation to all monthly gross income levels ranging from $1,200 to $8,500 in increments of $50.

The results are reported in Figure 2 for one-child, dual-parent households using alternatively the coefficient estimates from the 2000 CES and from the 1972-73 CES. All results are in constant dollars. As predicted, for both years, child expenditures rise with household income. As an indicator of plausibility, the relationship for 2000 falls within the range of the upper bound and lower bound relationships estimated in JLARC (2001) for Virginia using 1997-98 expenditure data. The impact of the behavioral change in the child expenditure and income relationship is striking. The updated schedule shows a strong increase over time in estimated child-related expenditures at the lower and middle parts of the income scale. Hence since the early 1970s, the largest increases in expenditures attributable to children have occurred for lower- and middle-income households.[10] The main explanation for this result is that in the past three decades, real expenditures on children have risen at all levels of the income distribution due to changes in technology and preferences, as argued above. Yet during this period, real incomes have been falling at the lower and middle portions of the income scale. Together, these changes have produced a shift in the child-expenditure and income relationship as observed in Figure 2.

We conducted a number of robustness tests to confirm that the child-expenditure and income relationship has changed over time due to behavioral changes rather than empirical irregularities. First, we re-estimated the child-expenditure and income equations for each major expenditure category and found that the main conclusion (rising intercepts and falling slope coefficients over time) holds for each category of spending on children. Second, we addressed the argument that problems with missing income in the Consumer Expenditure Survey leads to differential sample selectivity across the two years in the analysis. In the 1972-73 CES, close to six percent of dual-parent households with one to three children report zero income but have positive expenditures on children; this proportion rises to 21 percent in the 2000 CES. Although reported income is zero, the CES does report income brackets for these households. We compared total expenditures, child-expenditures, and income brackets for households with positive and zero reported income and found similar distributions in each year, suggesting that selection is random. Furthermore, we re-estimated the statistical relationship between child expenditures and income using median regression analysis applied to the full sample, including observations with zero reported incomes. Means, and thus ordinary linear regressions, are sensitive to outliers such as zero and top-coded values, while median regressions yield estimates that are robust to the inclusion of outliers in the sample. The median regressions yield results that are qualitatively similar in that the intercepts rise and the elasticities fall over time. In particular, using the per capita approach, the child-expenditure elasticities for one-child, two-child, and three-child households are 0.518, 0.473, and 0.437 in 1972-73, and they drop to 0.289, 0.290, and 0.226 in 2000. With the average use approach, the elasticities are 0.518, 0.475, and 0.423 in 1972-73, and they drop to 0.276, 0.354, and 0.230 in 2000.[11] The similarity in median and mean regression results also helps to bolster the case that top-coding is not driving the results.[12]

4. Comparing Child Support Schedules

To facilitate a more realistic comparison between the revised schedule and the existing legislated schedule for Virginia, we include in the revised schedule a self-support reserve that is also built into the existing legislated schedule. In Virginia's legislation, if the combined gross monthly income is less than $600, the 1987 poverty line for a single individual, then the economic data are not used to compute the total child support order. Instead, a fixed minimum award of $65 is applied to the non-custodial parent.[13] Low-income obligors are more likely to have arrears, thus making it harder for them to have a stable record of support payments. The self-support threshold makes it easier for such low-income obligors to support their children financially without creating a disincentive for him/her to pay support. Hence the guideline model and calculations will, in principle, not take the obligor below subsistence-level existence. Virginia does not apply the self-support reserve to the custodial parent. The custodial parent, on the receiving end of the guideline calculations, cannot be taken to a below-subsistence level of existence simply because of the guideline model (even though she/he may already be at that level). To make the revised schedule politically more tractable, we increase the self-support reserve from $600 to $1,108 per month or $13,025 annually, which is equivalent to 150 percent of the February 2002 poverty level for one person. This increase in the self-support reserve ensures that while all parents contribute financially to their children, the order will not cause the obligor to fall below poverty.

To minimize work disincentives that might occur at the self-support reserve's threshold, we slowly phase in the level of total child support just above the cut-off. This process prevents a large discrete jump in the order from $65.[14] At gross incomes just above the self-support reserve, the estimates from the economic data are compared to a series of phased-in costs. For low levels of gross income, we compute the difference between gross income and the self-support reserve, and we multiply this difference by 0.90 for one-child households, 0.91 for two-child households, and 0.92 for three-child households. We compare this obligation to the obligation predicted by the estimated coefficients, and the smaller of the two is included in the updated income shares.[15] By including a range in which the high shares are phased in, this adjustment helps to address the problem of very high estimated income shares at the lowest tail of the income distribution.

The final step in developing an updated schedule for Virginia is to generate estimates of child-rearing expenditures for households with monthly incomes between $8,500 and $15,000, the latter point being the endpoint in Virginia's current schedule. Because the Bureau of Labor Statistics cautions CES users against making statistical inferences on expenditures for households with gross incomes in excess of $8,500, we apply the income share at $8,500 per month to all higher income households.

Results, reported as child-expenditure shares in combined gross monthly income, are illustrated in Figure 3. The current income shares as specified in Virginia's child support guidelines are labeled "Legislated," and the new estimated shares using the 2000 CES are labeled "Updated." The figure indicates that Virginia's legislated shares are well below the updated shares at all income levels except for very low income levels close to $1,200 per month. For example, for a two-child household earning $3,550 in gross income per month, the current schedule sets the order at 22 percent per month, compared to a CES estimate of 36 percent. This difference between the legislated income shares and the CES-estimated income share devoted to children is greatest for low-income households and smallest for higher-income households. The difference also rises as the number of children per household increases. For a household with three children also earning $3,550 per month, the order is set for 28 percent, compared to a CES estimate of 46 percent. These results point to a considerable gap between mandated support levels based on outdated CES data and updated support levels based on recent CES data. Hence the evidence suggests increasing total child support awards as a share of monthly income at all income levels except for the very lowest end of the income distribution.

These results help to explain why Virginia is one of numerous states that have child support orders that do not sufficiently reflect typical expenditures on children. According to calculations in Pirog, Klotz, and Byers (1998), Virginia's child support orders for most income levels rank slightly above the mean and median child support orders for all 50 states during the 1988-1997 period. However, at most income levels, Virginia joins the vast majority of states that fail to meet even the lower bounds estimates of adequate child support orders that reflect the actual costs of raising children. For example, for a two-child divorced family scenario with a combined monthly income of $4,400, Pirog *et al.* report that Virginia's child support order in 1997 for the non-custodial parent would be $641, slightly above the mean of $624 for all 50 states.[16] Yet this order falls well below $827, Pirog *et al.*'s minimum estimate of what a non-custodial parent should pay to meet the cost of raising children.[17] The fact that Virginia's guidelines are based on data from the 1970s is an important source of this shortfall. Our own updated estimate for this particular level of household income based on the 2000 Consumer Expenditure Survey suggests that the non-custodial parent be awarded an obligation of $796, just under the Pirog *et al*. minimum benchmark but well above the legislated child support order for Virginia.[18]

Thus far the discussion has focused on revisions based on updates to the underlying economic relationship between income and child-rearing expenditures. However, policy discourse is also focusing on the need to revise schedules to reflect the fact that all non-custodial parents need resources to operate and maintain a household. Pressure is also growing to revise schedules to take into account the adverse impact of labor market conditions on the ability of lower-income obligors to financially contribute to their children's welfare. To address these concerns, an easily adjustable "separate household discount" is built into the revised schedule. The discount has two purposes. First, it reserves income for an obligor to spend directly on the child during parenting time. The rationale for doing so is based on expenditures that might occur during the non-custodial parent's visitation time. Second, the discount provides non-custodial parents with income to cover the fixed costs of operating a second household.[19] Adding the discount helps to smooth the updated income shares in Figure 3 by lessening the size of jumps in support that might induce reductions in hours work or the shielding of income. The final proposed schedule is developed using the discount procedure described in the Appendix.

A major problem with the "phase in" approach illustrated for the updated series in Figure 3 is that large increases in the child support order occur in the lower tail of the income range. To address the potential work disincentive that this guideline structure generates, we construct a revised phase in. Starting at the $1,200 income level, we move up the schedule in $50 increments and increase the support levels by no more than $30 until they equal the levels of support predicted by the regression model. More specifically, for one child, we begin with a support level of $83 and increase support by $28 for the first 7 increments and $14 for the next 8 increments. For two children, we begin with a support level of $84 and increase support by $29 for the first 19 increments and $14 for the next 7 increments. For three children, we begin with a support level of $85 and increase support by $29 for the first 30 increments and $20 for the next 5 increments.

The intuition behind this approach is to provide larger discounts for lower income obligors and for obligors with more children, but the approach maintains the inverse relationship between the size of household income and the proportion of household income spent on children. In other words, it reflects the statistical reality that families with less money spend a larger percentage of their income on their children, but it acknowledges that separated families cannot afford to spend as much on their children as they would spend if they lived together.

Results from incorporating a separate household discount and revising the phase-in are reported in Figure 3 as the series labeled "Proposed." Overall, the adjustments generate proposed income shares that generally fall in between the lower bounds of the current Virginia guidelines and the upper bounds of the 2000 CES updated guidelines. For one child at incomes below $1,550, the support order in the proposed schedule is less than the order in the legislated schedule. From $1,550 to $3,600, the proposed schedule's order exceeds the actual order by up to 3 percentage points, and thereafter the difference falls to about two percentage points. The proposed and legislated schedules for two children exhibit a similar pattern. At combined gross income below $1,950, the legislated order exceeds the proposed order. From $1,950 to $3,450, the proposed schedule's order exceeds the legislated order by up to 4.5 percentage points, and at combined gross incomes in excess of $3,450, the proposed schedule's orders are higher than the legislated orders by about two percentage points. A similar conclusion can be made for households with three children.

These changes may appear minor, but in absolute terms the proposed increases are substantial. For example, at the $3,600 monthly income level, the legislated child support award for a one-child household is $507 per month. Our proposed monthly award is $610, a 20 percent increase, and without the separate household discount and revised phase-in, the updated monthly award would be $860, a 70 percent increase. This calculation, and the alternative guidelines depicted in Figure 3, help to illustrate the tradeoffs involved when revisions to guidelines are based on economic criteria alone—as represented by the "Updated" series—versus revisions based on economic and political criteria—as represented by the "Proposed" series. The legislated schedules for Virginia and the ten other states with similar guideline structures are clearly out of line with the economic reality of how much parents are spending on children. Yet advocates of guideline reform face the political reality of resistance to new guidelines that are viewed as too high. In making compromises for Virginia, adding a separate household discount to the proposed guideline served as a politically expedient method to help solve this problem. However, the argument that non-custodial parents incur fixed costs in operating a second household and make child-related expenditures during visitation time gives the method an economic rationale. The challenge is to find additional methods with economic justification for producing revised guidelines that are amenable to all parties.

5. Conclusion

About one fifth of the nation's state governments still utilize child support guidelines that are based on estimates of child-rearing expenditures that were derived using data that is three decades old. Yet during this period, the number of households covered by the Consumer Expenditure Survey and the level of detail have grown, providing better expenditure and income data. In addition, the fundamental relationship between child-related expenditures and parental income has changed. This article has described a new child support payments schedule that was proposed for Virginia, one of eleven states that still uses the 1970s data. The schedule, which is based on CES data for the year 2000, is compared with the actual schedule in place. Results show a large gap in Virginia's legislated income shares and the revised income shares based on the 2000 CES. This gap grows as household income falls and the number of children rises. These findings provide economic and statistical rationales for updating child support schedules that have weaker relationships to statistical estimates of what families actually spend on their children today. The alternative schedule proposed in this study for Virginia raises child support awards as a share of monthly income for parents at all income levels except for those at the lowest end of the income distribution.

During the Virginia legislature's consideration of the proposed schedule, the politics of child support trumped the economics. Even though the schedule was passed unanimously by the state Senate, it could not get out of the General Assembly's subcommittee, with the review panel's structure and decision-making process preventing further progress. Virginia's lack of progress in making substantial revisions to the guideline structure is consistent with a finding in Venohr and Williams (1999) that since the mid-1990s, there has been a marked decline across states in major guideline updates and revisions. More common across states in recent years, and considerably less controversial and politically charged, has been the tendency for states to refine definitions and calculations related to special factors such as shared parenting time, child care services, and low-income obligors.

States like Virginia that still base their schedules on expenditure data from the early 1970s have encountered steady resistance from various stakeholders in approving revised schedules that more accurately reflect the cost of raising children. For example, among these stakeholders, non-custodial parents' advocacy groups have increasingly claimed that child support orders are too high and do not adequately reflect such factors as visitation and shared physical custody. These groups have gained a particularly loud voice in the review process of state guidelines. According to Venohr and Williams, they have been "strong enough to block action to increase the levels of child support orders based on more recent evidence on child-rearing costs," (p. 31). Virginia's experience makes clear that any schedule created in the future must be embraced by all child support constituencies, including non-custodial and custodial parents (particularly those in the lower and middle income brackets), social workers, attorneys, and judges. Gaining this support is quite a challenge given the wide variety of preferences among stakeholders. Barring a convergence of these preferences, change will only occur if the costs of maintaining the status quo, particularly for children, finally exceed some threshold. The experiences of other states over time show that changes in child support policy do happen, particularly with the emergence of new policy ideas and entrepreneurial individuals and groups (Crowley 2003). Further research in this area, particularly on the political dynamics of the reform process across states, will yield valuable ideas for overcoming political factors in the determination of realistic and appropriate child support guidelines.

Appendix: Creating the Separate Household Discount

To include a separate household discount in the proposed guidelines, we take the legislated and updated income shares at the $3,550, $4,550, and $8,500 income levels, calculate proposed shares that are seven-tenths of the distance between the legislated and the updated shares, and then connect these proportions across the entire income scale to create a final proposed schedule.[20] Starting at $3,550 and moving down to $1,200 in $50 increments, the proportions are adjusted upward for each income level and additional child by very small increments. The discounted percentage for a one-child family is increased by .05 percentage points for each $50 decrease in income; the discounted percentage for a two-children family is increased by .10 percentage points for each $50 decrease in income; and the discounted percentage for a three-child family is increased by .12 percentage points for each $50 decrease in income.

The proportions from the median household income (approximately $4,550) to $8,500 are reduced as follows. For one child the proposed proportion falls by 4.2 percentage points from 15.8 percent at $4,550 to 11.6 percent at $8,500. For two children the proposed proportion falls by 6.1 percentage points from 23.4 percent at $4,550 to 17.3 percent at $8,500. For three children the proposed proportion falls by 7.3 percentage points from 29.3 percent at $4,550 to 22.0 percent at $8,500. Over this income range there are 79 increments of $50. To generate a smooth transition across this range, we divide the specified percentage points for each household size equally across these 79 increments.

The discount proportions at $8,500 to $15,000 are reduced as follows. For one child the proposed proportion falls by 2.1 percentage points from 11.6 to 9.5 percent. For two children the proposed proportion falls by 3.5 percentage points from 17.3 percent to 13.8 percent. For three children the proposed proportion falls by 4.9 percentage points from 22.0 percent to 17.1 percent. Over this income range there are 130 increments of $50. To generate a smooth transition across this range, we divide the specified percentage points for each household size equally across these 130 increments. Finally, the discount proportions for different-sized families with gross monthly incomes of $4,050, the mid-point between $3,550 and $4,550, are calculated by averaging the discounted percentages for similar-sized families. Following this procedure provides a smooth transition for incomes between the two endpoints.

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TABLE 1: Housing and Transportation Expenditures Attributable to Children

	Housing		Transportation	
No. Children	Per Capita	Average Use	Per Capita	Average Use
1	33.3	1.0	33.3	24.0
2	50.0	9.5	50.0	44.0
3	60.0	12.4	60.0	38.0

Source: JLARC (2001).

TABLE 2: Average Quarterly Household Expenditures on Food, Clothing, Care, and Other Items in 2000

	Total Household Expenditures			Child-Related Expenditures		
	1 Child	2 Children	3 Children	1 Child	2 Children	3 Children
Food & Beverage						
Food	1599	1810	1836	466	816	1013
Alcohol & Tobacco	161	175	169	--	--	--
Clothing						
Child Clothing	140	187	205	140	187	205
Adult Clothing	231	219	162	--	--	--
Apparel	153	168	158	51	42	32
Care						
Child Care	224	335	190	224	335	190
Health Care	523	531	567	95	163	226
Personal Care	100	104	92	33	26	18
Other						
Education	276	180	227	276	180	227
Personal Insurance	1700	1859	1544	--	--	--
Entertainment	644	859	795	215	215	159
Books	46	53	46	15	13	9
Pets and Toys	126	156	157	126	156	157
Miscellaneous	115	128	144	39	32	29

Source: Calculations are based on the 2000 Consumer Expenditure Survey.

TABLE 3: Coefficient Estimates on the Child Expenditure and Household Income Relationship (Standard Errors in Parentheses)

Panel A: Estimates Using the 2000 Consumer Expenditure Survey

	Per Capita Approach		Average Use Approach	
No. Children	Constant	Log(Income)	Constant	Log(Income)
1	4.902	0.237	4.839	0.235
	(0.107)	(0.013)	(0.113)	(0.014)
2	5.786	0.179	5.679	0.180
	(0.080)	(0.010)	(0.085)	(0.010)
3	5.921	0.180	5.852	0.176
	(0.122)	(0.015)	(0.127)	(0.015)

Panel B: Estimates Using the 1972-73 Consumer Expenditure Survey (in 2000 Dollars)

	Per Capita Approach		Average Use Approach	
No. Children	Constant	Log(Income)	Constant	Log(Income)
1	2.624	0.492	2.475	0.498
	(0.104)	(0.012)	(0.113)	(0.013)
2	3.233	0.460	3.112	0.461
	(0.109)	(0.013)	(0.118)	(0.014)
3	3.789	0.419	3.626	0.425
	(0.135)	(0.016)	(0.145)	(0.017)

Note: The per capita approach and the average use approach are alternatively used to estimate vehicle costs attributable to children.

FIGURE 1: Changes Over Time in Average Quarterly Expenditures on Children for a One-Child Household

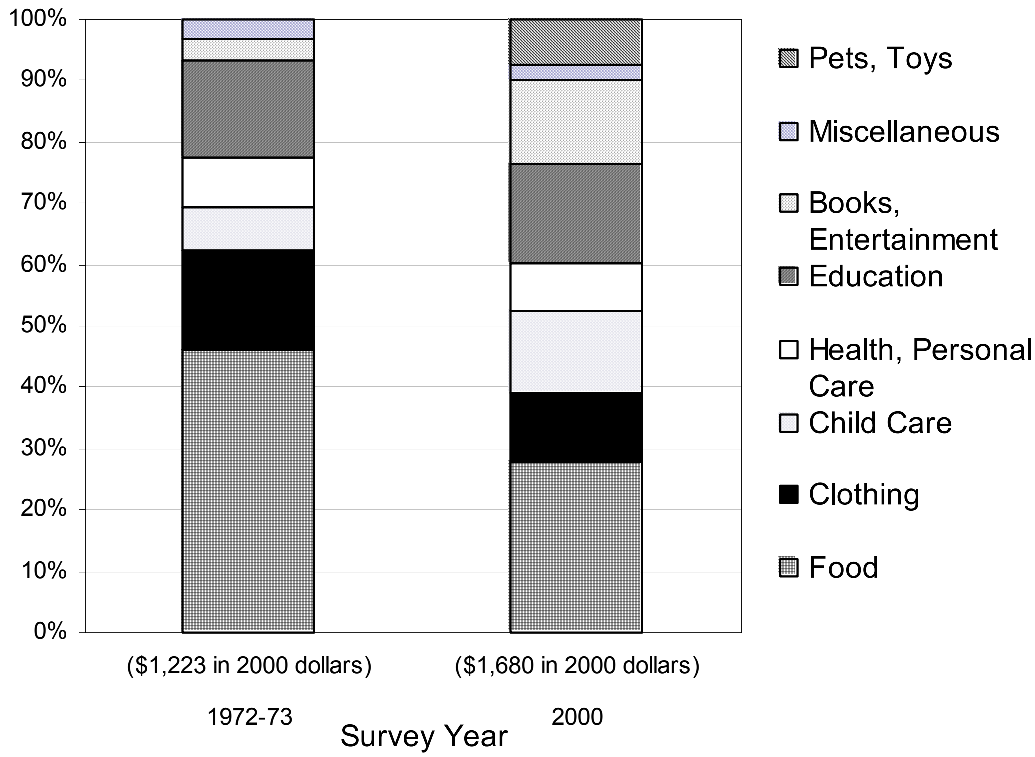
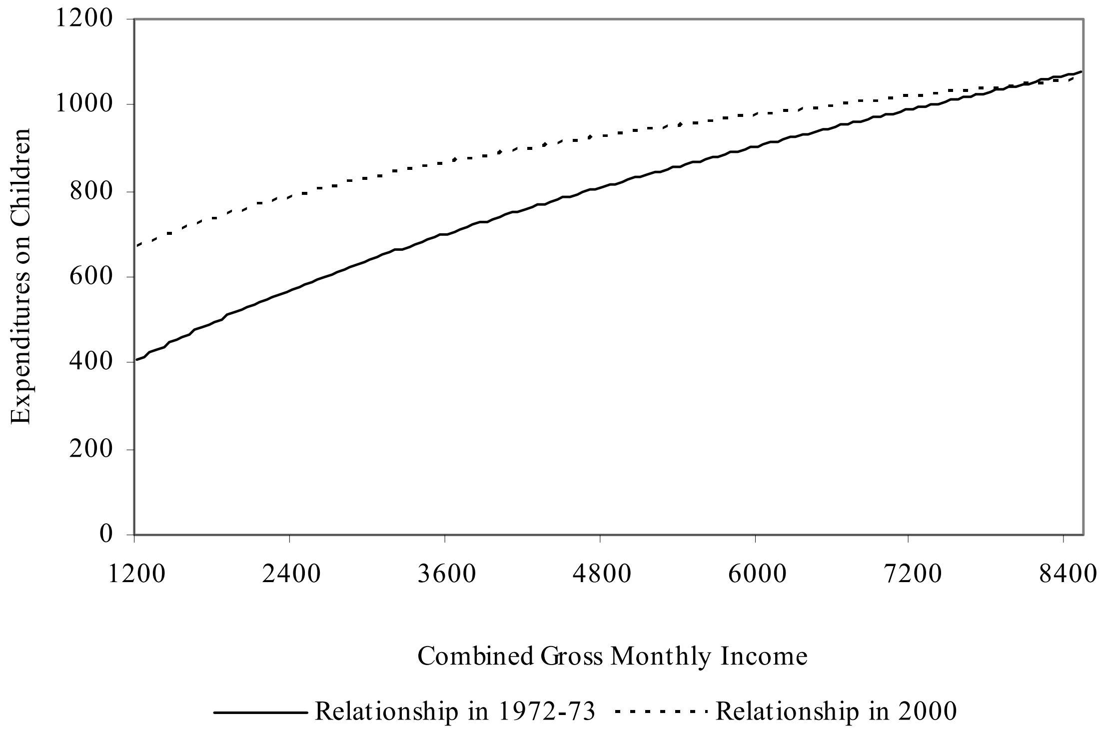


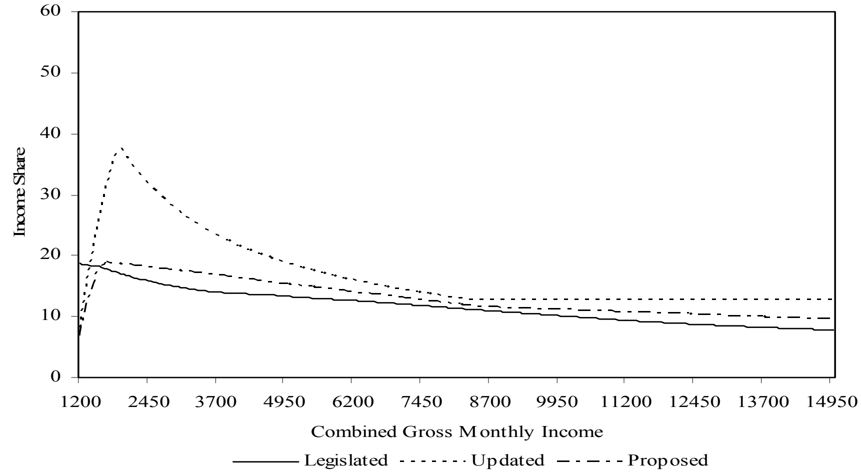
FIGURE 2: Change Over Time in the Child Expenditure and Household Income Relationship



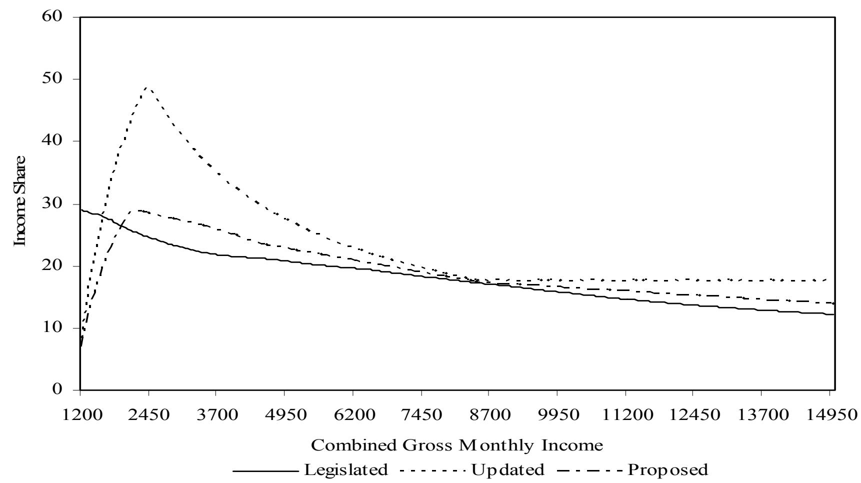
Note: The relationship represents one-child households. Patterns for two-child and three-child households are similar.

FIGURE 3: Comparison of Child Support Guidelines by Number of Children

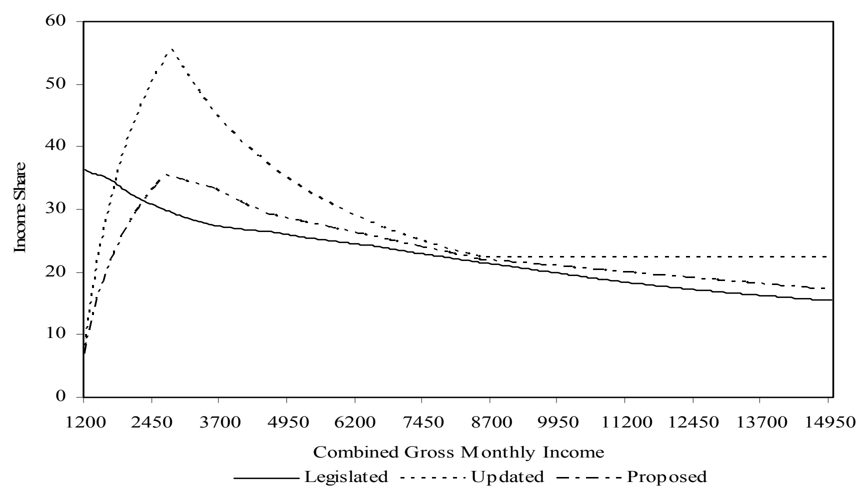
Panel A: One Child



Panel B: Two Children



Panel C: Three Children



Endnotes

[1] The literature on structural changes in the United States labor market is voluminous. See, for example, Katz and Krueger (1999) and Welch (2001).

[2] See, for example, Holzer, Offner and Sorenson (2003) and Sorenson and Zibman (2001).

[3] See Beller and Graham (1993) and Venohr and Williams (1999) for full descriptions of these alternative methods.

[4] The full report by Rodgers (2002) can be found at www.dss.state.va.us/pub/pdf/dcsepanel_final.pdf.

[5] Sample sizes for husband-wife households with more than three children are too small to generate reliable results.

[6] This 76 percent figure is computed from the 2000 decennial census micro-data file for Virginia.

[7] In Virginia, support for extraordinary health expenditures, child care costs, and health insurance premiums for the child are treated as add-ons after the initial level of support has been calculated.

[8] An alternative method is to compare households with 16 and 17 year old children to households with no children in this age group and then attribute the difference to clothing expenditures for 16 and 17 year olds. Applying this method to data from the 2000 CES yields quarterly clothing costs for children that are slightly higher than those reported in the text. In particular, child clothing costs using the reported method versus the alternative method are $140 and $143 for one-child households, $187 and $194 for two-child households, and $205 and $219 for three-child households.

[9] This averaging issue helps to explain why Virginia and numerous other states treat child care costs as an add-on in their guidelines.

[10] Since the 1970s there has been an increase in single-parent households. However, the methodological underpinnings of the guidelines constrain us to use the child-expenditure and income relationship for dual-parent households. Although our estimates of α_1 could be biased due to sample selection, there is little conclusive evidence to suggest that the dissolution of dual-parent households has been non-random across the income distribution. For more discussion of marital dissolution and household income, see Bedard and Deschenes (2003) and Bramlett and Mosher (2002).

[11] All estimates are statistically significant at the 1% level. Complete estimation results and computations are available upon request.

[12] For example, in the 2000 CES, about 3% of dual-parent households with one to three children are top-coded.

[13] This $65 figure in Virginia's legislation is consistent with the range suggested in Williams (1987)

for the obligor self-support reserve, allowing for cost of living increases. Williams's review of the economics literature supports the idea that low-income obligors be allowed a self-support reserve.

[14] Note that while the $65 minimum payment at the self-support threshold is applied only to the non-custodial parent, all subsequent levels of total child support divided between the custodial and non-custodial parents according to their respective shares in total income.

[15] The adjustment affects one-child households with gross incomes below $1450, two-child households with gross incomes below $2450, and three child households with gross incomes below $2850. The 0.90, 0.91, and 0.92 adjustment factors have their origins in state-level child support panel discussions.

[16] The scenario assumes that the father contributes 60 percent of the income and the mother 40 percent.

[17] The benchmarks used in Pirog, Klotz, and Byers also assume that intact families in the CES should be used to generate the estimated costs of raising children. Similar conclusions that child support awards across states fall short of the actual cost of raising children in earlier years are found in Lino (1998) and Beller and Graham (1993).

[18] This $796 figure is computed by taking our updated total child support estimate of $1,327 for the $4,400 income level and multiplying it by Pirog *et al.*'s assumed non-custodial contribution of 60 percent.

[19] We define fixed costs as expenditures on shelter, household equipment, and fixed transportation.

[20] Although there is a solid economic rationale for the idea of a separate household discount, and the application of such a discount is found in numerous states, there is very little empirical evidence to help determine the size of this discount. To derive the seven-tenths figure as a proxy for the cost of maintaining a separate household, we took expenditures on major categories that are considered redundant across the two households, as a share of total expenditures on children.