THE ECONOMIC COST OF RAISING CHILDREN

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Setting Child Support Guidelines

- The Family Support Act of 1988 conditioned federal funding for state welfare programs on the creation of Child Support Guidelines.

- While states are free to determine their own Guidelines, the law contains an important federal directive:

  > "As part of the [quadrennial] review of a state's guidelines..., a state must consider economic data on the cost of raising children."*

- This study follows from that directive. It questions the existing methods used which underlie existing guidelines, and proposes a new approach.

* 45 C.F.R. ¶302.56(h) (2007).

Measuring the Cost of Raising Children

- Two important issues arise:

  a) With fixed household budgets, spending more on children means spending less on adults, so apart from their enjoyment of their children, the adults in a household must be worse off.

     Some economists therefore argue that these adult losses fundamentally reflect the cost of raising children.

     – to measure Child Costs, one needs therefore to determine adult welfare losses from the expenditures foregone.

  b) A major share of household expenditures are made for Household Collective Goods, where all members share the benefits.

     Some economists therefore argue that one should divide those expenditures by the number of people in the household to determine outlays for an individual member.

A New Method and New Results

- In our research paper, my colleagues and I dispute both sets of conclusions. Our research paper is entitled: “The Monetary Cost of Raising Children.” by William S. Comanor, Mark Sarro and and R. Mark Rogers.

- We approach the problem of measuring Child Costs differently and propose a new set of results.

- Our results raise serious questions regarding the methods used currently to set existing child support guidelines.

Consider a Real-world Example that Reflects the Different Methods

- Suppose a married couple live alone in a two-bedroom apartment, and use the second bedroom as a den.

- Then a child is added to the household and the den is transformed into a nursery. What is the housing cost attributable to the child?

- There are three answers given to that question, which reflect the different methods:

  a) Equivalent Scales method.
  ─ underlies most child support guidelines

  b) Average Household Expenditures
  ─ represented by U.S. Dept. of Agriculture in their annual surveys of expenditures on children.

  c) Marginal Household Expenditures
  ─ proposed here.

The Equivalent Scales (ES) or Rothbarth Method (1)

- Starts with identifying “adult only” goods. Most studies use tobacco, alcohol or adult clothing.
  - in the example, which is limited to housing costs, it is the den.
- According to the ES method, Child Costs are determined by the adults’ welfare foregone from the absence of the den due to the presence of children.
  - this method asks how much the adults would need to be paid to just compensate them for the loss of the den.
  - and this additional compensation is the true housing cost of children; not the cost of the den but the required compensation.
- However, this required compensation is unknown so this method uses proxies and makes strong assumptions for this purpose.

The Equivalent Scales (ES) or Rothbarth Method (2)

  - these proxies require the assumption that the same welfare standards can be applied to households with children as to childless households.
  - that both sets of households value the den at the same level.

- While Child Costs can be derived in this manner, it does so by "making unacceptably strong assumptions" which other economists reject.*
  - in essence, this method requires that the same preferences prevail in households with and without children; it thereby conflicts with common observation that preferences change when children arrive.
- Despite its common use, the Equivalent Scale method should be rejected.

* Martin Browning, "Children and Household Economic Behavior," Journal of Economic Literature, September 1992, pp. 1442-1443.

The Department of Agriculture Method based on Average Household Expenditures (1)

- Employed in annual reports published by the U.S. Department of Agriculture.*
  - derived from annual surveys of household expenditures conducted by the U.S. Census Bureau.

- A critical issue is how to deal with Household Collective Goods such as Housing, Food and Transportation.
  - the USDA employs different means for different expenditure categories.

- Prior to 2008, the USDA authors simply divided housing expenditures by the number of people in the household, and still do that for transportation.

* See, for example, Mark Lino, Expenditures on Children by Families, 2011, Center for Nutrition Policy and Promotion, USDA, June 2012.

The Department of Agriculture Method based on Average Household Expenditures (2)

- More recently, the USDA authors revised their approach.
  - recent reports define children's housing costs as "the average cost of an additional bedroom."*

- Applied to my den-nursery example, a single child's housing costs are now determined by the rental difference between a two-bedroom and a one-bedroom unit.

- While sometimes that approach can represent actual expenditures, not so in my example when the child's bedroom was formerly used as a den.

* Ibid, p. 8.

The Department of Agriculture Method based on Average Household Expenditures (3)

- The best critique of the USDA approach comes not from an economist but from a reporter. She observes:

  > "The biggest expense on the [USDA] list is housing, which I think is kind of silly in my case because my husband and I would probably live in the same size house regardless of whether we had a son or not... My son is not really adding to our housing costs."*

- In this case, monetary costs would be zero even though the reporter and her husband would lose the use of a den.

* Miranda Marquit, "Kids and Money: How Much Does it Cost to Raise Your Child?" www.bargaineering.com, October 4, 2011.

An Economic Approach based on Marginal Expenditures (1)

- The approach adopted here follows the framework first proposed by Gary Becker, who won a Nobel Prize for work in this area.*

- Becker emphasized that the relevant costs "are determined by marginal, not average costs of production."**

- Following this approach, we measure these costs as those borne for child rearing that would not have been borne otherwise.
  - this method applies to both household collective goods as well as purely private goods; housing as well as children's clothing.

* Gary S. Becker, A Treatise on the Family, Harvard U. Press, 1981.
** Ibid, p. 8.

An Economic Approach based on Marginal Expenditures (2)

- In the den-nursery example, monetary housing costs are zero like those of the reporter quoted above.
  - costs measured in this manner equal the adult outlays foregone due to the presence of children.
  - what we do not determine are the welfare costs to the adults from not making any foregone outlays.
- Our object is to compare expenditure patterns between comparable households with and without children.
- Within each expenditure category, we determine how much more households with one child, two children and three or more children spend as compared with comparable childless households.

An Economic Approach based on Marginal Expenditures (3)

- We use the same government data source as does the USDA reports, although for four years: 2006 through 2009.

- We divide our sample into 5 sub-categories:
  a) Married households: incomes above $101,120
  b) Married households: incomes between $55,860 and $101,120
  c) Married households: incomes below $55,859
  d) Single households: incomes above $55,859
  e) Single households: incomes below $55,859

An Economic Approach based on Marginal Expenditures (4)

- Average incomes and sample sizes:
  a) Married households: $168,221 3927
  b) Married households: $76,307 3927
  c) Married households: $36,726 3927
  d) Single households: $94,344 1564
  e) Single households: $27,207 5710

- Additional explanatory variables:
  – household income
  – child age variable
  – urban / rural location
  – U.S. section: Northeast, South, Midwest, West

An Economic Model: Empirical Findings on Housing Expenditures

- Empirical results are reported in Table 1, and here are a few of the more interesting findings.

- Estimated coefficients for the presence of children are statistically significant with one important exception: an only child in a single household does not on average lead to higher housing costs.
  - perhaps this illustrates the den-nursery issue.

- No indication in these data that total housing outlays, in single or low income married households, for three children are any greater than for two children.
  - increased costs going from one to two children, but not from two to three children in these cases.

Table 1

Table 1: Housing Costs

Income Group	Constant	Income	Child Age	Number of Children: Kids1	Number of Children: Kids2	Number of Children: Kids3+	Urban	Northeast	Midwest	West	R2	N
Married Households												
Low	-324.67	0.11**	14.51	969.81**	1438.92**†	1319.86**	1284.67**	1319.15**	226.79	1061.28**	0.18	3,927
	(-1.25)	(22.25)	(0.52)	(5.57)	(8.05)	(6.61)	(6.48)	(7.62)	(1.49)	(7.00)		
	1207.02**	0.11**	12.93	994.75**	1521.93**†	1345.54**					0.15	3,927
	(6.25)	(22.46)	(0.46)	(5.63)	(8.39)	(6.64)						
Middle	-948.38	0.10**	-129.94**	1133.05**	1852.55**†	2162.91**	2096.85**	1541.71**	778.98**	2228.23**	0.08	3,927
	(-1.36)	(12.55)	(-3.20)	(4.14)	(6.85)	(6.31)	(5.30)	(5.45)	(3.05)	(8.58)		
	1703.80**	0.10**	-132.44**	1188.15**	1920.14**†	2282.15**					0.06	3,927
	(2.81)	(12.78)	(-3.21)	(4.29)	(7.00)	(6.58)						
High	-1979.81	0.07**	-247.39**	2660.91**	4110.62**†	4493.77**	4639.86**	2603.14**	239.63	2650.34**	0.20	3,927
	(-1.62)	(28.08)	(-3.26)	(5.06)	(8.09)	(6.82)	(4.09)	(4.88)	(0.45)	(5.26)		
	3495.86**	0.08**	-240.59**	2757.54**	4211.62**†	4588.28**					0.19	3,927
	(6.40)	(28.48)	(-3.14)	(5.21)	(8.24)	(6.91)						
Single Households												
Low	352.71*	0.12**	-51.65	1045.79**	1402.35**	1134.08**	655.88**	388.70**	-205.88**	490.09**	0.27	5,710
	(1.89)	(41.95)	(-0.86)	(3.83)	(5.25)	(3.44)	(3.86)	(3.46)	(-2.00)	(4.43)		
	1039.01**	0.13**	-47.29	1045.78**	1398.59**	1117.00**					0.26	5,710
	(11.43)	(42.42)	(-0.79)	(3.82)	(5.21)	(3.38)						
Middle / Hiigh	1725.59	0.07**	411.10	-495.17	4720.49**†	2181.66	1463.99	2057.13**	-121.39	2542.14**	0.18	1,564
	(1.12)	(15.09)	(1.18)	(-0.29)	(2.91)	(0.92)	(0.99)	(3.38)	(-0.19)	(4.60)		
	4211.57**	0.07**	327.59	-148.13	4952.19**†	2794.19					0.16	1,564
	(8.74)	(15.16)	(0.93)	(-0.09)	(3.03)	(1.17)						

T-statistics are shown in parentheses.
** Significant with 90% confidence. **Significant with 95% confidence.*
†Different from Kids1 with 95% confidence. ‡Different from Kids2 with 95% confidence.

An Economic Model: Empirical Findings for Food Costs

- Empirical results are presented in Table 2.

- Except for low income, married households, there is no indication in expenditure data that the first child leads to increased expenditures on food.
  - succeeding children lead to higher expenditures, but not the first.
  - this is evidence on how households actually behave.

Table 2

Table 2: Food Costs

Income Group	Constant	Income	Child Age	Number of Children: Kids1	Number of Children: Kids2	Number of Children: Kids3+	Urban	Northeast	Midwest	West	R2	N
					Married Households							
Low	1358.19**	0.04**	65.30**	274.82**	473.73**†	792.94**‡	163.73*	18.50	-245.58**	24.49	0.12	3,927
	(10.89)	(16.34)	(4.92)	(3.29)	(5.53)	(8.28)	(1.72)	(0.22)	(-3.36)	(0.34)		
	1467.22**	0.04**	66.02**	289.35**	494.88**†	795.81**‡					0.11	3,927
	(16.10)	(16.24)	(4.97)	(3.47)	(5.78)	(8.33)						
Middle	1766.53**	0.02**	112.69**	-123.10	486.89**†	1017.33**‡	283.28*	163.08	-269.98**	188.78*	0.07	3,927
	(6.54)	(8.13)	(7.15)	(-1.16)	(4.63)	(7.64)	(1.84)	(1.48)	(-2.73)	(1.87)		
	2019.85**	0.02**	112.85**	-99.21	499.21**†	1029.29**‡					0.06	3,927
	(8.68)	(8.16)	(7.13)	(-0.93)	(4.74)	(7.73)						
High	1462.64**	0.02**	171.35**	34.80	741.37**†	1376.56**‡	1168.77**	358.69**	-495.94**	114.78	0.12	3,927
	(3.65)	(18.47)	(6.87)	(0.20)	(4.45)	(6.37)	(3.14)	(2.05)	(-2.87)	(0.69)		
	2518.46**	0.02**	171.05**	63.98	777.46**†	1383.92**‡					0.11	3,927
	(14.11)	(18.88)	(6.84)	(0.37)	(4.66)	(6.38)						
					Single Households							
Low	884.61**	0.04**	97.37**	112.21	565.52**†	973.76**‡	146.22**	-47.84	-220.74**	95.38**	0.19	5,710
	(10.86)	(28.13)	(3.73)	(0.94)	(4.85)	(6.78)	(1.97)	(-0.98)	(-4.92)	(1.98)		
	959.68**	0.04**	100.75**	115.38	566.57**†	977.08**‡					0.18	5,710
	(24.24)	(28.54)	(3.85)	(0.97)	(4.85)	(6.78)						
Middle / Hiigh	1827.86**	0.01**	321.80**	-610.27	513.93†	1548.30**	315.47	415.57**	-206.50	359.19**	0.14	1,564
	(4.22)	(10.53)	(3.30)	(-1.27)	(1.13)	(2.34)	(0.76)	(2.44)	(-1.18)	(2.32)		
	2269.36**	0.01**	311.78**	-563.81	537.17†	1660.82**‡					0.13	1,564
	(16.90)	(10.64)	(3.19)	(-1.18)	(1.18)	(2.50)						

T-statistics are shown in parentheses.
** Significant with 90% confidence. **Significant with 95% confidence.*
†Different from Kids1 with 95% confidence. ‡Different from Kids2 with 95% confidence.

An Economic Model: Empirical Findings on Transportation Costs

- Empirical results are presented in Table 3.

- Except for low income, married households with three or more children, there is no evidence that households with children spend more on transportation than households without children.
  - most likely, households with children take different types of trips, but there is no indication that they take more trips leading to higher costs.
  - therefore dividing transportation costs by the number of people in the household overstates the economic cost appropriately allocated to children.

Table 3

Table 3: Transportation Costs

Income Group	Constant	Income	Child Age	Number of Children: Kids1	Number of Children: Kids2	Number of Children: Kids3+	Urban	Northeast	Midwest	West	R2	N
					Married Households							
Low	277.49	0.07**	38.68	260.11	168.06	376.81**	-293.93	-133.70	-225.77	116.30	0.07	3,927
	(1.14)	(16.11)	(1.49)	(1.59)	(1.00)	(2.01)	(-1.58)	(-0.82)	(-1.58)	(0.82)		
	-5.10	0.07**	39.68	279.58*	188.46	395.86**					0.07	3,927
	(-0.03)	(15.96)	(1.53)	(1.72)	(1.13)	(2.12)						
Middle	1964.23**	0.05**	100.54**	-203.00	153.70	-66.41	-312.61	-317.18	-458.29	-282.14	0.01	3,927
	(2.58)	(5.84)	(2.26)	(-0.68)	(0.52)	(-0.18)	(-0.72)	(-1.02)	(-1.64)	(-0.99)		
	1504.22**	0.05**	101.16**	-190.56	151.57	-71.77					0.01	3,927
	(2.30)	(5.76)	(2.27)	(-0.64)	(0.51)	(-0.19)						
High	3648.73**	0.02**	263.46**	554.37	-507.97	248.01	-208.80	-364.37	127.35	707.39	0.02	3,927
	(2.78)	(8.69)	(3.23)	(0.98)	(-0.93)	(0.35)	(-0.17)	(-0.64)	(0.22)	(1.31)		
	3603.47**	0.02**	262.97**	548.48	-484.18	274.88					0.02	3,927
	(6.19)	(8.66)	(3.22)	(0.97)	(-0.89)	(0.39)						
					Single Households							
Low	422.61**	0.05**	63.85	84.42	102.63	52.47	-275.32**	17.73	74.12	49.38	0.10	5,710
	(2.99)	(24.30)	(1.41)	(0.41)	(0.51)	(0.21)	(-2.14)	(0.21)	(0.95)	(0.59)		
	204.29**	0.05**	64.67	72.06	94.96	37.15					0.10	5,710
	(2.98)	(24.22)	(1.43)	(0.35)	(0.47)	(0.15)						
Middle / Hiigh	-363.08	0.05**	387.24	-812.65	-232.03	640.23	187.18	25.92	-113.85	100.14	0.09	1,564
	(-0.26)	(11.65)	(1.24)	(-0.53)	(-0.16)	(0.30)	(0.14)	(0.05)	(-0.20)	(0.20)		
	-175.47	0.05**	380.43	-772.68	-213.13	691.17					0.09	1,564
	(-0.41)	(11.70)	(1.22)	(-0.51)	(-0.15)	(0.33)						

T-statistics are shown in parentheses.
** Significant with 90% confidence. **Significant with 95% confidence.*
†Different from Kids1 with 95% confidence. ‡Different from Kids2 with 95% confidence.

An Economic Model: Empirical Findings on Child Care and Education Costs

- Empirical results are presented in Table 4.
- These outlays are the largest category of Child Costs. This is hardly surprising since they are not made by childless households.
- The child age variable here is nearly always statistically significant, and always negative.
  - this finding is consistent with their being largely made for child care for younger children.
- Also, only for high income, married households are they significantly greater for three or more children than for two. Little indication that more is spent when the number of children exceeds two.

Table 4

Table 4: Child Care and Education Costs (Tobit)

Income Group	Constant	Income	Child Age	Number of Children: Kids1	Number of Children: Kids2	Number of Children: Kids3+	Urban	Northeast	Midwest	West	R2	N
					Married Households							
Low	-2608.89**	0.02**	-22.00	1229.29**	1448.10**†	1386.73**	-70.31	-84.36	126.57*	-94.05	0.06	590
	(-16.54)	(8.63)	(-1.61)	(14.22)	(16.52)	(14.77)	(-0.76)	(-0.98)	(1.79)	(-1.34)		
	-2672.49**	0.02**	-22.14	1219.49**	1432.39**†	1384.33**					0.06	590
	(-19.85)	(8.65)	(-1.62)	(14.13)	(16.40)	(14.79)						
Middle	-4357.49**	0.02**	-75.39**	2520.90**	2806.30**†	2917.52**	-148.72	-396.16**	81.61	58.19	0.04	1,061
	(-13.48)	(6.53)	(-3.82)	(19.25)	(21.52)	(19.54)	(-0.89)	(-3.07)	(0.75)	(0.53)		
	-4488.75**	0.02**	-76.04**	2511.69**	2800.45**†	2933.24**					0.04	1,061
	(-15.64)	(6.42)	(-3.86)	(19.25)	(21.52)	(19.67)						
High	-8659.54**	0.01**	-95.41**	5524.22**	6531.23**†	7213.26**‡	594.03	-223.55	392.17	-31.18	0.03	1,427
	(-12.42)	(8.51)	(-2.22)	(19.05)	(23.19)	(21.71)	(0.94)	(-0.81)	(1.48)	(-0.12)		
	-8031.55**	0.01**	-92.87**	5519.03**	6524.13**†	7221.78**‡					0.03	1,427
	(-23.83)	(8.45)	(-2.16)	(19.06)	(23.20)	(21.74)						
					Single Households							
Low	-1935.67**	0.01**	-186.29**	1758.79**	1933.28**†	1763.64**	-136.85	-92.39	50.46	106.64*	0.08	488
	(-14.84)	(8.10)	(-8.28)	(15.89)	(17.21)	(13.16)	(-1.41)	(-1.33)	(0.83)	(1.71)		
	-2040.18**	0.01**	-184.34**	1744.03**	1921.12**†	1761.59**					0.08	488
	(-21.41)	(8.04)	(-8.22)	(15.82)	(17.15)	(13.18)						
Middle / Hiigh	-4522.78**	0.01**	-478.03**	5314.47**	7178.48**†	6848.78**	-466.19	-433.49	-239.34	-481.68	0.06	217
	(-5.22)	(2.47)	(-3.44)	(7.50)	(10.32)	(7.09)	(-0.58)	(-1.17)	(-0.65)	(-1.48)		
	-5217.19**	0.01**	-459.78**	5255.78**	7117.33**†	6737.67**					0.06	217
	(-13.50)	(2.35)	(-3.34)	(7.51)	(10.30)	(7.03)						

T-statistics are shown in parentheses.
** Significant with 90% confidence. **Significant with 95% confidence.*
†Different from Kids1 with 95% confidence. ‡Different from Kids2 with 95% confidence.

An Economic Model: Empirical Findings on Total Monetary Child Costs

- See Table 5 for our overall findings. These values are total household expenses in the different categories.

- Most prominent finding is that costs per child declines with the number of children in the household.
  - child costs with two children are always less than twice those for a single child.
  - for single household, total costs with three or more children are no greater than for two children.

- Also, total costs in single, middle/high income households are greater than in married, high income households.

Table 5

Table 9: Total Monetary Child Costs by Category, Income Group, and Number of Children ($/year)

	Number of Children								
	1	2	3+	1	2	3+	1	2	3+
Married Households									
Income Group:	Low			Middle			High		
Income Range:	< $55,859			$55,860 - $101,120			> $101,120		
Average Income:	$36,726			$76,307			$168,221		
t ≥ 0.5	$ 3,421	$ 4,291	$ 4,745	$ 4,749	$ 6,663	$ 7,475	$ 11,138	$ 13,706	$ 15,957
t ≥ 1.0	$ 3,376	$ 4,248	$ 4,697	$ 4,749	$ 6,509	$ 7,385	$ 10,478	$ 13,610	$ 15,957
t ≥ 2.0	$ 2,998	$ 3,964	$ 4,570	$ 4,749	$ 6,509	$ 7,385	$ 10,365	$ 13,512	$ 15,855
Single Households									
Income Group:	Low			Middle/High					
Income Range:	<= $55,859			> $55,859					
Average Income:	$27,207			$94,344					
t ≥ 0.5	$ 3,972	$ 5,073	$ 5,013	$ 11,399	$ 18,316	$ 17,127			
t ≥ 1.0	$ 3,860	$ 4,971	$ 5,013	$ 11,399	$ 18,316	$ 14,945			
t ≥ 2.0	$ 3,613	$ 4,744	$ 4,775	$ 7,828	$ 14,432	$ 11,286			

Sources and Notes:

Based on esimated category costs reported in Tables 1 through 8, excluding healthcare costs.

Comparing Child Costs by Analytical Method

- See Table 6 for total Child Costs as estimated by the three methods. As indicated, the economic approach proposed here leads to much lower figures.
  - the differences are striking, particularly in regard to the USDA figures, which use the same data as we do.
- The essential difference between the USDA method and ours is the full application of Marginal Cost principles within broad categories of expenditures.
  - consistent with accepted principles of economics.
- To the extent that existing child support guidelines rest on the other two methods, there is the suggestion from our results that the required amounts substantially exceed the economic cost of raising children.

Table 6

Table 10: Comparison of Total Monetary Child Costs by Analytical Method ($/year)

	Number of Children								
	1	2	3+	1	2	3+	1	2	3+
Married Households									
Income Group:	Low			Middle			High		
Income Range:	< $55,859			$55,860 - $101,120			> $101,120		
Average Income:	$36,726			$76,307			$168,221		
[1] Comanor, et al.	$ 3,421	$ 4,291	$ 4,745	$ 4,749	$ 6,663	$ 7,475	$ 11,138	$ 13,706	$ 15,957
[2] Center for Policy Research	$ 6,504	$ 10,008	$ 12,216	$ 10,740	$ 16,368	$ 19,764	$ 16,872	$ 25,620	$ 30,828
[3] USDA	$ 10,402	$ 16,643	$ 19,473	$ 14,479	$ 23,167	$ 27,105	$ 24,715	$ 39,543	$ 46,266
Single Households									
Income Group:	Low			Middle/High					
Income Range:	<= $55,859			> $55,859					
Average Income:	$27,207			$94,344					
[1] Comanor, et al.	$ 3,972	$ 5,073	$ 5,013	$ 11,399	$ 18,316	$ 17,127			
[2] Center for Policy Research	*N/R*	*N/R*	*N/R*	*N/R*	*N/R*	*N/R*			
[3] USDA	$ 10,025	$ 15,310	$ 17,593	$ 21,560	$ 32,925	$ 37,836			

Sources and Notes:

[1] Estimates reported in Table 9 for all coefficients with t-statistics ≥ 0.5.

[2] CPR, "Economic Basis for Updating a Child Support Schedule for Georgia," Appendix B, April 2011.
Betson-Rothbarth estimates at average income levels indicated; excludes child care and private tuition.

[3] Lino, USDA, May 2011, excluding healthcare costs for comparability.