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ABSTRACT

Child care costs place a heavy burden on working families with young children. This study investigated relationships among income, cost of living, and child care costs in families who purchased center-based child care. Subjects were 720 families from Massachusetts, Georgia, and Virginia. Parents were interviewed separately to obtain information on income, employment, child care costs, family structure, child rearing styles, attitudes, role expectations, and subjective measures of individual and family well-being. Median and per capita incomes for the sample were calculated, and a standard of living index was established for comparison with 1990 census data on populations of families with children. Analysis revealed that the standard of living of families who can afford child care was significantly higher than the average standard of living from families with children in all three states. Single parent and ethnic minority families had a much lower standard of living, especially when they had more than one child. The study demonstrated the reliability, for cross-geographical comparison, of the standard of living index as an objective measure of family economic welfare. (Contains 12 tables/figures.) (MM)

Who Can Afford Child Care?

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Abstract

Child care costs place a heavy burden on working families with young children. We examined relationships among income, cost of living, and child care costs in a tri-state sample of families who purchased center care. 1990 census data were used to evaluate the representativeness of families who purchase center-based child care. Families who can afford to purchase center-based care have incomes well above the average of all working families with young children. From income and cost of living data, standard of living (SOL) indices were computed, both for family units and per capita within families. The standard of living of families who can afford child care was significantly higher than the average standard of living for families with children in all three states. Single parent and ethnic minority families had much lower SOLs than others, especially when they had more than one child.

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The cost of child care creates a substantial financial burden, even for families who can afford these services. The increasing demand for quality in child care, coupled with increasing proliferation and enforcement of state and federal regulations, predicts that future center based child care costs will loom ever higher (Hofferth & Phillips, 1987). This cost burden has a differential effect on the standard of living of the various types of families who purchase child care.

The purpose of this study is to investigate the economic welfare of families who can afford child care and contrast them to the population of families with children. Contrasts in the economic welfare of different sizes and types of families indicates which families are at risk for economic hardship due to child care costs and other factors. We have identified regions in a tri-state sample that are hardest hit by other economic factors, making child care in these areas even less affordable than in other areas.

The construction of a family standard of living index permitted comparisons of the economic welfare of families grouped by various characteristics. These comparisons document types of families at risk for economic hardship due to increasing child care costs. Where a family is located on the standard of living continuum might also predict parental attitudes and role expectations, parental disciplinary styles, and various other measures of family well-being.

Methods

Sample

The 720 families participating in this study came from Massachusetts, Georgia, and Virginia. Parents were interviewed separately for a period of 2.5 hours in order to obtain information on income, employment, child care costs, family structure, child rearing styles, attitudes, role expectations, and subjective measures of individual and family well-being.

Measures

Median and per capita incomes for the sample were calculated, and a standard of living index established for comparison with 1990 census data on populations of families with children. Housing costs were established as a general indicator of overall cost of living through correlation with other prices in randomly selected metropolitan areas. Family household and per capita income figures for every family were each set in a ratio to the cost of living indicator for their respective areas. The medians of the resulting quotients were used to produce the family and per capita standard of living indices. These indices were used to compare the economic welfare of the different family types within the sample.

Problems in Finding a Valid Measure of Economic Welfare

Finding a reliable method for determining a family's economic welfare is difficult because economic welfare is dependent on many factors. Studies attempting to measure economic welfare have often used occupational status indices; at best, occupational status measures are modestly associated with economic welfare, usually with a high degree of variability. A construction worker, for example, making $40,000 annually would have a lower occupational status rating on a scale of this sort than a

school teacher making $25,000.

Studies have also used total family income and per capita household income to estimate economic well-being. Although these are useful measures for many purposes, they are inaccurate estimates of families' economic welfare, because they do not take into account wide variations in costs of living from one geographic area to another.

Redefining Economic Welfare

For this study an objective measure was needed that directly measured all the components that affect a family's economic welfare. A more concrete definition of family economic welfare can be understood in terms of a standard of living. This definition can be stated as the relative ability of a family to provide its members with desired goods and services. We can then identify those components of standard of living which directly affect a family's ability to purchase goods and services for its members.

Whether a $30,000 wage earner is a cab driver or a psychologist, she has the same buying power relative to every other $30,000 wage earner in her geographic area. The only other factor directly affecting a family's standard of living, then, is the number of people in the household which must be provided for. How a family actually chooses to spend its money , on the other hand, is dependent on many values and personal qualities such as thrift, cultural interests, money management ability, health, and numerous other factors we can call "lifestyle variance," which is beyond the scope of economic welfare.

Thus, there are three components of standard of living (SOL) that must be measured directly in any cross geographical sample or population to accurately measure a family's ability to provide for its members. They are household income, cost of living, and family size.

Insert Figure 1 about here

Calculating Sample and Population Income

The median family income for the 1990 census population for each of the tri-state regions in which child care families reside was calculated. In Virginia there were four well defined regions represented by the Virginia child care sample. Weighting the population figures by the proportion of sample families in that county insured that the income/cost of living ratio of the population represented the same geographic distribution as the child care sample. Weighting was not necessary for Atlanta or Boston because the census figures were aggregated for the metropolitan areas in which the child care families lived.

Cost of Living

Establishing a reliable measure for the cost of living is a crucial component in cross geographical comparisons. There is a vast difference, for example, between the buying power of a $30K income in Boston versus a $30K income in rural Virginia. The Consumer Price Index from the U.S. Bureau of Labor & Statistics (a popular measure of cost of living) was found to be an improper instrument for cross geographical comparison of costs of living. This is due to the fact that the CPI is based on

inflationary figures (the rate of change over time) for costs in a given area, rather than on the differences between costs in different areas at a specific point in time. An area with extremely high prices but a low inflation rate has a lower CPI index figure than a low cost area with a moderate or high inflation rate.

A cost of living index compiled specifically for cross geographical comparison is produced by the American Chamber of Commerce Researchers Association (ACCRA). Unfortunately, ACCRA's index was not available for all of the areas in which the child care families lived.

Housing Costs as a General Cost of Living Indicator. As an alternative, we correlated indices for specific goods and services in assorted geographical areas with indices for housing costs to establish cost of housing as a reliable cross geographical consumer price indicator. Using ACCRA's figures, we correlated the indices of six different goods and services with the housing index for 13 major metropolitan areas, as shown in Table 1.

Table 1 housing costs correlations

Substantial correlations ($p < .01$) were obtained for five out of six of the cost indicators. Based on this finding, median aggregate housing costs from the census were used as a cost of living index for calculating relative differences in living costs between areas.

The Standard of Living Index

The three SOL components (household income, family size, and cost of living) can be combined into a single index, using per capita family income (household income divided by number in household) and a standardized cost of living index. The resulting SOL index figure can then easily be compared with the same index figures for other areas. In this study, a ratio was developed which set the per capita sample incomes for an area in a ratio to the cost of living indicator for that area:

$$1)\ \text{per capita SOL} = \frac{\text{Household income / No. in household}}{\text{Cost of living}}$$

Unfortunately, the per capita income calculated by the 1990 census was not a household per capita income (household income divided by number in household) but rather a population per capita income (aggregate income for an area divided by total population). Because of this, household family income figures for the population were used in calculating a family standard of living index for comparison with sample families.

$$2)\ \text{family standard of living} = \frac{\text{Household income}}{\text{Cost of living}}$$

Note that formula 2 does not account for family size. Family size was addressed only in within-sample comparisons utilizing the first formula above.

Results

Population versus Child Care Sample

The weighted median family income from the 1990 census for each of the six areas in Georgia, Virginia and Massachusetts was combined in formula number 2 above to yield the median family SOL index in table 2.

Insert Table 2

Notice that Boston, despite having the highest median income, has the lowest SOL index figure and is ranked at the bottom in terms of overall standard of living. Boston's cost of living index, based on the median 1990 census housing costs, is more than twice that of some of the rural areas in Virginia.

The median family SOL figures for the population are compared with those of the sample in Figure 2.

Figure 2 Bar chart SOL

Alternatively, median family income can be used for comparison of the sample to the population in each area, since cost of living is a constant between the two:

Figure 3 Bar chart - median income

A quick glance at the two figures shows the disparity between the standard of living of our sample and that of the population. Families who can afford child care have, as a group, higher incomes and a higher standard of living than families in the general populations from which they are drawn.

Geographic Comparisons within the Child Care Sample

The per capita SOL index compares economic welfare across the tri-state sample and accounts for family size. Median SOL and income figures are provided in Table 3 for each geographical area of the study. Per capita SOL is presented in Figure 4.

Table 3 and Figure 4

Because the distributions of income and SOL were slightly skewed, Kruskal Wallis 1-Way ANOVAs were used to determine if there were any significant geographical differences in types of income or SOL among the areas of the sample. Corrected chi-squares for the ranking showed significance on all measures with $p=.000$. Mann-Whitney U -Willcoxen Rank Sum tests were then used in place of t-tests to determine which of the geographical areas was heterogeneous on any given measure from the above table.

These tests indicate no significant differences on the measures among the 6 areas of the sample, with the exception of Boston, which was significantly different from the other areas on all measures. This is consistent with the findings in the census population: Boston and Atlanta ranked at or near the bottom of the areas in SOL by household or per capita.

Groups at Risk of Economic Hardship

Single Mothers. As expected, single mothers fared worse than two parent families in this sample, with SOL figures often less than half that of two parent households. More dramatic is the differential rate of decline in SOL between two-parent versus single mother households as the numbers of children in the home increases. Figure 5 shows the SOL index by Total Adults and Total Children in household.

Figure 5 and Table 4

Table 4 shows that the rate of decline in SOL from 1 to 3 children for single mothers is twice the rate of decline for that of two parent households (a drop of 70.3% versus 36.1%).

Ethnic Groups. As expected, minority groups as a whole fare worse than the white population in standard of living and in income decline with increasing family size.

Who Can Afford Quality Child Care?

Per capita SOL correlated strongly with center cost ($r = .49$, $p < .01$) in this sample of families who pay for child care. This suggests that parents choose centers in part based on their cost and affordability. This result also suggests that the poorest families are receiving the lowest quality of care, because cost of care is similarly correlated with overall quality of care ($rs = .42$-$.53$ for infants, toddlers, and preschoolers, all $ps < .001$).

Validation of the SOL Index with other Measures

The SOL index developed for this study correlates strongly with other measures of socio-economic status used in the Child care and Family Project -- with job prestige and socio-economic status. The coefficients are listed in table 5 and in table 6.

Tables 5 and 6

The SOL index has strong positive correlation with two other status oriented measures of economic welfare. The SOL index proved to be a more accurate predictor than these measures, or income alone, of other measures, such as center cost. This attests to the value of assessing all objective components of economic welfare in cross geographical samples.

With more subjective measures of family functioning, the SOL index was inconsistently related. It was not predictive of marital satisfaction and only weakly so of a few child behaviors, as rated by parents and teachers. A dichotomous income split only worsened the association for child manageability while slightly strengthening the association with marital satisfaction in the lower income group. Perhaps money can't buy happiness or well adjusted children

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Correlation Matrix Table 7

Conclusions

The results of this study indicate that families who purchase child care are much better off financially than families in the populations from which they are drawn. The fact that the two major metropolitan areas with high incomes, in both the sample and census population, were ranked the lowest in standard of living due to high costs of living may also serve as warning to look in high cost urban areas for families hardest hit by child care costs.

Among high risk groups for economic hardship, single mothers not only had standards of living far below that of two parent households, but their rate of decline in standard of living with each additional child was twice that of two parent families. Minority groups were also found to be at risk for economic hardship, with standard of living figures far below that of the general population.

The strong positive correlation of standard of living with center cost in this study indicates that poorer families typically utilize low cost centers, which are also of lower quality.

This study developed and examined the utility of a standard of living index as an objective measure of family economic welfare and found it to be a reliable instrument for cross geographical comparison. Future studies might further examine its predictive validity against other measures of economic welfare.

References

Hofferth, S.L. & Phillips, D.A. (1987). Child care in the United States, 1970 to 1995. Journal of Marriage and Family. 49:559-571.

TABLE 1

SELECTED CONSUMER ITEMS[1]
CORRELATED WITH HOUSING COSTS

	Housing
Metro	.33
Grocery	.84**
Utility	.73**
Transportation	.61*
Health	.82**
Miscellaneous[2]	.88**

* $p < .05$ ** $p < .01$

[1]From American Chamber of Commerce Researchers Association Cross Geographical Survey of Consumer Prices on Selected Items

[2]A selected set of miscellaneous items used by most consumers

TABLE 2

TABLE OF ECONOMIC INDICATORS
FOR THE POPULATION*

Region	SOL	Median family income	Cost of Living Index
Virginia aggregate	89.92	$35,187.	391.3
Roanoke	96.09	32,768.	341.0
Richmond	94.53	42,588.	450.5
Lynchburg	89.09	30,780.	345.5
C'ville	85.54	34,611.	428.0
Atlanta	71.75	39,428.	549.5
Boston	69.04	48,423.	701.3
Tri-state average	74.92	41,013.	547.4

*calculated from 1990 Census Data

TABLE 3

TABLE OF ECONOMIC INDICATORS FOR THE TRI-STATE SAMPLE

Region	Family SOL	Per capita SOL	*median income* Family	*median income* Per capita	Cost of Living Index
Roanoke	165.55	45.27	$56,794.	$15,438.	341.0
Lynchburg	147.61	37.14	51,000.	12,833.	345.5
C'ville	136.68	36.60	58,500.	15,667.	428.0
Richmond	125.42	35.24	56,500.	15.875.	450.5
Virginia aggregate	144.39	38.33	$56,500.	$15,000.	391.3
Boston	104.45	29.71	73,250.	20,833.	701.3
Atlanta	94.18	27.90	51,750.	15,333.	549.5
Tri-state aggregate	108.70	31.70	$59,500.	$17,354.	547.4

TABLE 4

PERCENT DECLINE IN STANDARD OF LIVING WITH ADDITIONAL CHILDREN IN HOUSEHOLD

	Per capita SOL with 1 child	Per capita SOL with 3 children	% change in SOL
1-Parent	32.0	9.5	-70.3%
2-Parent	42.4	27.1	-36.1%

TABLE 5

STRENGTH OF ASSOCIATION OF ECONOMIC WELFARE RELATED MEASURES USED BY THE CHILD CARE AND FAMILY PROJECT

	Per capita SOL[1]
Socio-Economic Status	.47**
Parent Job Prestige	.38**

** $p < .01$

[1] Log transformed for normality

TABLE 6

STRENGTH OF 3 ECONOMIC WELFARE MEASURES USED BY THE CHILD CARE AND FAMILY PROJECT IN PREDICTING CENTER COST

	Center Cost
Per Capita SOL	.50**
SES	.35**
Job Prestige	.30**

**$p < .01$

TABLE 7

STRENGTH OF 3 ECONOMIC WELFARE ASSOCIATED MEASURES WITH CHILD MANAGEABILITY AND MARITAL SATISFACTION IN AGGREGATE AND UPPER/LOWER INCOME GROUPS OF THE CHILD CARE SAMPLE

	CHILD MANAGEABILITY			MARITAL SATISFACTION		
	Aggregate Sample	Lower Income	Upper Income	Aggregate Sample	Lower Income	Upper Income
Per Capita SOL	.17**	.15**	ns	ns	.11*	ns
SES	.11**	ns	ns	ns	ns	-.19**
Job prestige	.09*	ns	ns	ns	ns	-.18**

* $p < .05$

** $p < .01$

[1] Log transformed for normality

THE 3 COMPONENTS OF STANDARD OF LIVING

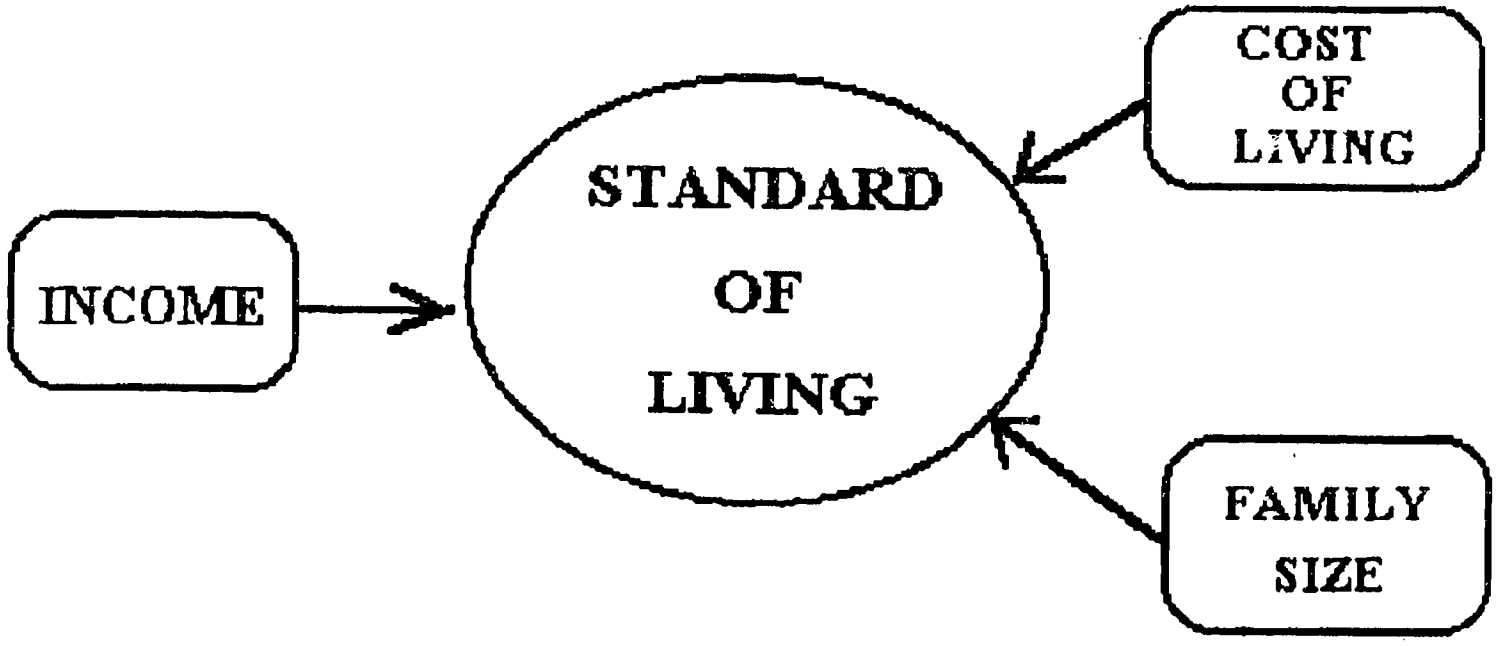

FIGURE 1

Figure 2

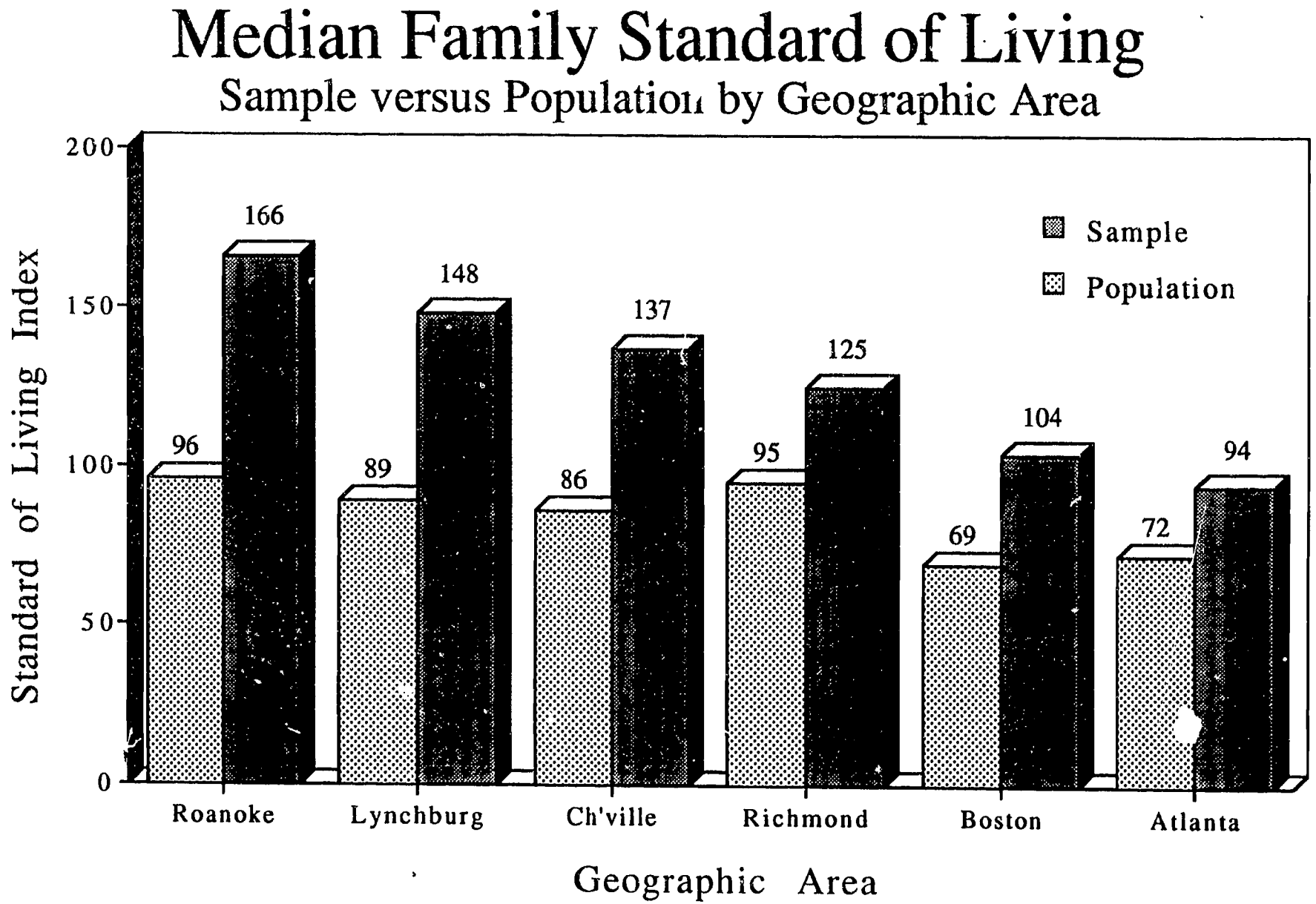
Median Family Standard of Living
Sample versus Population by Geographic Area
Standard of Living Index
200
150
100
50
0
Sample
Population
166
148
137
125
104
96
89
86
95
69
72
94
Roanoke
Lynchburg
Ch'ville
Richmond
Boston
Atlanta
Geographic Area

Figure 3

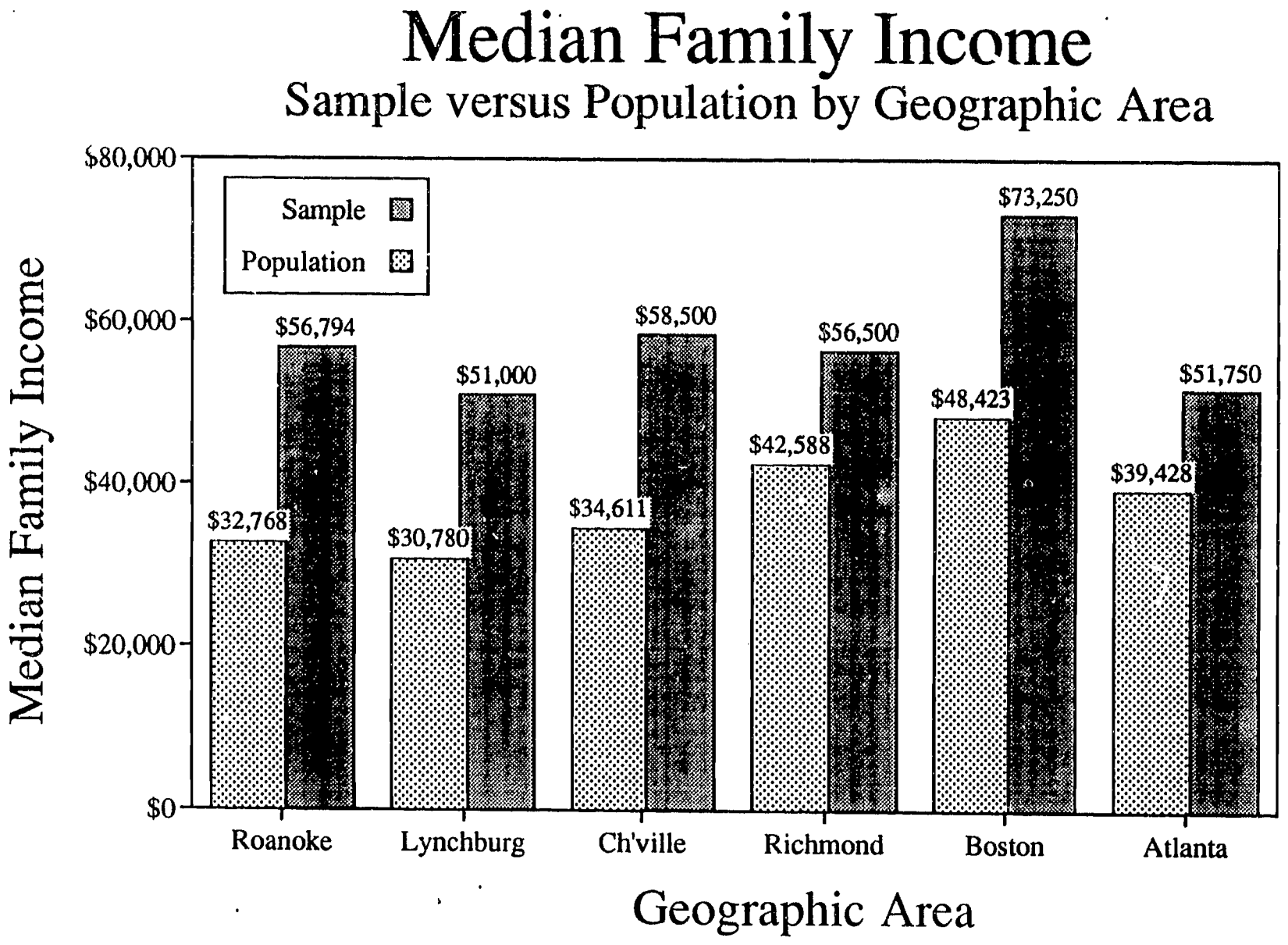
Median Family Income
Sample versus Population by Geographic Area
Median Family Income
$80,000
$60,000
$40,000
$20,000
$0
Sample
Population
$56,794
$32,768
$51,000
$30,780
$58,500
$34,611
$56,500
$42,588
$73,250
$48,423
$51,750
$39,428
Roanoke
Lynchburg
Ch'ville
Richmond
Boston
Atlanta
Geographic Area

Figure 4

Median Sample Per Capita Standard of Living

by Geographic Area

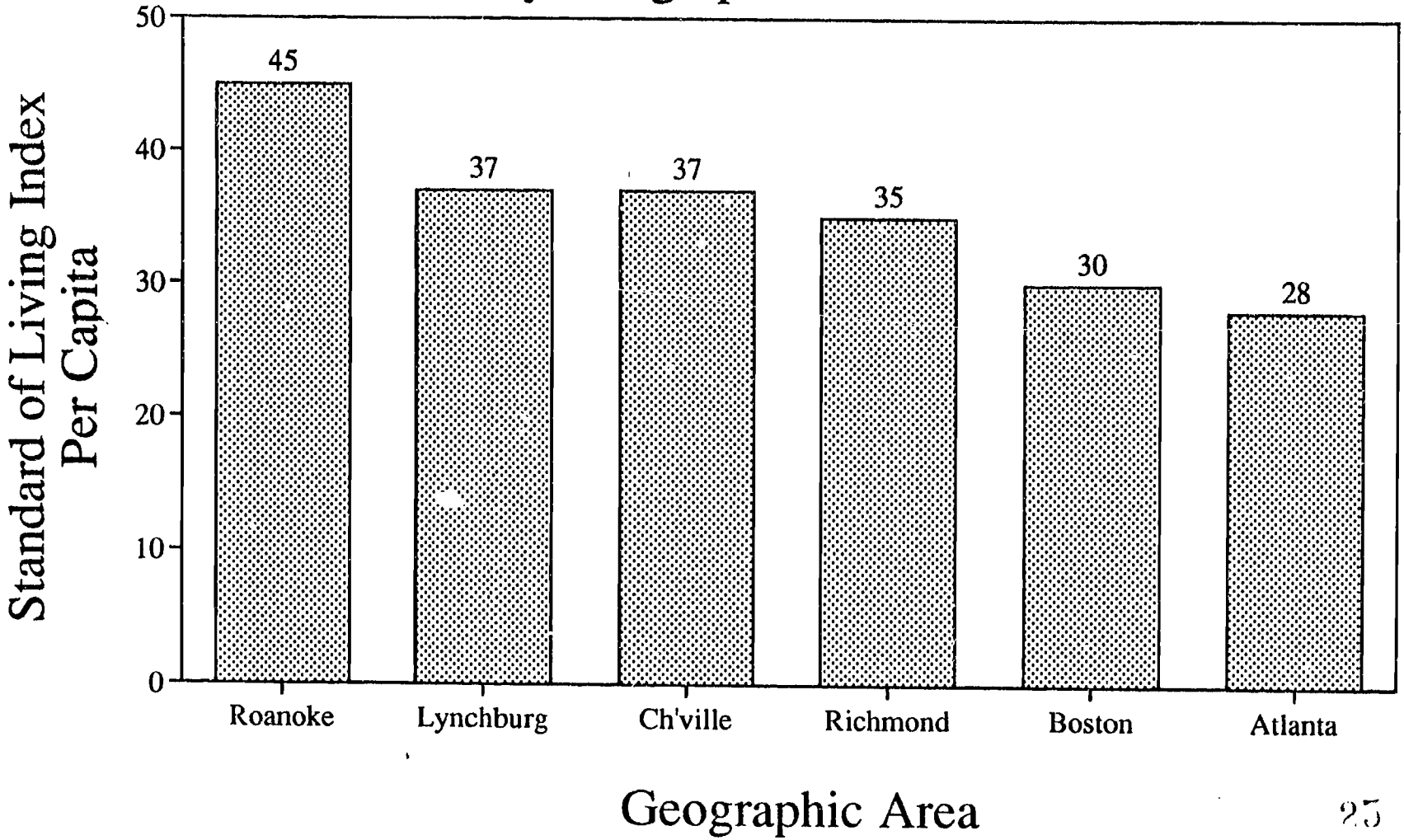

Figure 5

Per Capita Standard of Living

by Number of Adults and Children in Household