NAVAL POSTGRADUATE SCHOOL
MONTEREY, CALIFORNIA

19971105 020

DTIC QUALITY INSPECTED 2

THESIS

AN ASSESSMENT OF THE EFFECTS OF CHANGING FAMILY CIRCUMSTANCES ON THE SIZE AND DIVERSITY OF FUTURE MILITARY ACCESSIONS

by

Jeffrey S. Weis
Alvin J. Van Steenbergen

March 1997

Thesis Advisor: Mike D. Cook

Approved for public release; distribution is unlimited.

REPORT DOCUMENTATION PAGE

Form Approved OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instruction, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188) Washington DC 20503.

1. AGENCY USE ONLY *(Leave blank)*	2. REPORT DATE	3. REPORT TYPE AND DATES COVERED
	March 1997	Master's Thesis

4. TITLE AND SUBTITLE An Assessment of the Effects of Changing Family Circumstances on the Size and Diversity of Future Military Accessions

5. FUNDING NUMBERS

6. AUTHOR(S) J. S. Weis, USMC & A. J. Van Steenbergen, USMC

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
Naval Postgraduate School
Monterey CA 93943-5000

8. PERFORMING ORGANIZATION REPORT NUMBER

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)

10. SPONSORING/MONITORING AGENCY REPORT NUMBER

11. SUPPLEMENTARY NOTES The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government.

12a. DISTRIBUTION/AVAILABILITY STATEMENT
Approved for public release; distribution is unlimited.

12b. DISTRIBUTION CODE

13. ABSTRACT *(maximum 200 words)*

This thesis examines the relationship between changing family circumstances and the educational outcomes of children, and derives the implications of changes in family background on the quality and diversity of future military recruiting pools. The data sources for this thesis were the Panel Study of Income Dynamics, maintained and published by the University of Michigan, and the March Current Population Surveys, maintained and published by the U.S. Bureau of Labor Statistics. We estimated the effect of family background variables such as family income, parental education levels, and number of siblings, on the likelihood of children either completing high school or attending college. We then used these relationships to simulate the rates of high school completion and college attendance for nationally representative samples of children selected from the March 1974/1975 and 1993/1994 Current Population Surveys. The results indicate that today's children from white families will likely complete high school at lower rates but attend college at somewhat higher rates, as compared to people who were children in the early 1970s. Today's children who are growing up in minority families will likely graduate from high school at lower rates, and today's black and Hispanic children who do complete high school will be less likely to attend college, again compared to children from the 1970s. These trends suggest that military recruiters will likely have more difficulty recruiting from among all youth for enlistment, and may have less success in finding minority officers.

14. SUBJECT TERMS Family Circumstances, Educational Attainment, Children

15. NUMBER OF PAGES 138

16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT
Unclassified	Unclassified	Unclassified	UL

NSN 7540-01-280-5500

Standard Form 298 (Rev. 2-89)
Prescribed by ANSI Std. 239-18 298-102

Approved for public release; distribution is unlimited.

AN ASSESSMENT OF THE EFFECTS OF CHANGING FAMILY CIRCUMSTANCES ON THE SIZE AND DIVERSITY OF FUTURE MILITARY ACCESSIONS

Jeffrey S. Weis
Major, United States Marine Corps
B.S., United States Naval Academy, 1983
Alvin J. Van Steenbergen
Major, United States Marine Corps
B.A., Chaminade University of Honolulu, 1986

Submitted in partial fulfillment
of the requirements for the degree of

MASTER OF SCIENCE IN MANAGEMENT

from the

NAVAL POSTGRADUATE SCHOOL
March 1997

Authors: _____
Jeffrey S. Weis
_____
Alvin J. Van Steenbergen

Approved by: _____
Mike D. Cook, Co-Advisor
_____
Stephen L. Mehay, Co-Advisor
_____
Reuben T. Harris, Chairman
Department of Systems Management

ABSTRACT

This thesis examines the relationship between changing family circumstances and the educational outcomes of children, and derives the implications of changes in family background on the quality and diversity of future military recruiting pools. The data sources for this thesis were the Panel Study of Income Dynamics, maintained and published by the University of Michigan, and the March Current Population Surveys, maintained and published by the U.S. Bureau of Labor Statistics. We estimated the effect of family background variables such as family income, parental education levels, and number of siblings, on the likelihood of children either completing high school or attending college. We then used these relationships to simulate the rates of high school completion and college attendance for nationally representative samples of children selected from the March 1974/1975 and 1993/1994 Current Population Surveys. The results indicate that today's children from white families will likely complete high school at lower rates but attend college at somewhat higher rates, as compared to people who were children in the early 1970s. Today's children who are growing up in minority families will likely graduate from high school at lower rates, and today's black and Hispanic children who do complete high school will be less likely to attend college, again compared to children from the 1970s. These trends suggest that military recruiters will likely have more difficulty recruiting from among all youth for enlistment, and may have less success in finding minority officers.

TABLE OF CONTENTS

I. INTRODUCTION 1
A. TRENDS IN FAMILY BACKGROUND AND THEIR EFFECTS ON CHILDREN'S EDUCATIONAL ATTAINMENT 1
B. IMPLICATIONS FOR MILITARY RECRUITING 2

II. LITERATURE REVIEW 5
A. SUMMARY OF EARLIER RESEARCH 5
1. Economic Perspective 5
2. Other Perspectives 6
3. A More Comprehensive Perspective 7
4. Summary of Earlier Studies of Children's Educational Attainments 8
5. Findings Relative to Income and Parenthood 8
6. Findings Relative to Community 8
7. Findings Relative to Race 9
B. RESEARCH USING THE PANEL STUDY OF INCOME DYNAMICS (PSID) 9
C. EFFECTS OF FATHERLESSNESS ON EDUCATIONAL ATTAINMENT 10
D. EFFECTS OF CHANGES IN FAMILY CIRCUMSTANCES ON TEST SCORES 12
E. EFFECTS OF FAMILY STRUCTURE AND PARENTAL PRACTICES ON HIGH SCHOOL GRADUATION 14
F. TRENDS IN EDUCATIONAL ATTAINMENT AND THEIR IMPLICATIONS FOR MILITARY RECRUITING 15
G. SUMMARY 16

III. DATA SOURCES AND DESCRIPTION 17
A. OVERALL APPROACH 17
B. THE PANEL STUDY OF INCOME DYNAMICS 19
1. Overview of the PSID 19
2. Content of the PSID 21
C. PSID VARIABLES USED IN STAGE I ANALYSIS 22
1. Dependent Variables 22
2. Explanatory Variables 23
D. DESCRIPTIVE ANALYSIS 27
1. Frequency Distributions and Cross-Tabulations 27
2. Data Analysis 27
E. THE CURRENT POPULATION SURVEYS 32
1. Overview of the Current Population Survey 32
2. CPS Sampling Technique 33
3. The March CPS 34
4. CPS File Structure 34
5. CPS Weights 34

IV. METHODOLOGY 39

A. STAGE I ANALYSIS USING THE PSID 39
1. Selection and Definition of Variables . 39
2. Statistical Model 40
B. STAGE II ANALYSIS USING THE 1973/1974 CPS . . . 41
1. The 1993 and 1994 March CPS Surveys . . . 42
2. The 1974 and 1975 CPS Surveys 43

V. STAGE I RESULTS: EFFECTS OF FAMILY BACKGROUND CHARACTERISTICS ON EDUCATIONAL ATTAINMENT IN CHILDREN . . 45
1. Results of HSGRAD Model 46
2. Results of ATTCOL Model 46
3. Marginal Effects 47
4. Summary 49

VI. STAGE II RESULTS: TRENDS IN FAMILY CIRCUMSTANCES . 51
A. SUMMARY OF STAGE II RESULTS 51
B. SINGLE PARENT FAMILIES 53
C. NUMBER OF SIBLINGS PER FAMILY 53
D. WORK FORCE STATUS 55
1. Men in Two-parent Families 56
2. Women in Two-parent Families 56
3. Women in Single-parent Families 57
E. INCOME LEVELS AND DISTRIBUTION 58
1. Money Income Distribution 60
a. All Families 60
b. Two-parent Families 62
c. Single-parent Families 64
2. Labor Income Distribution 66
a. All Families 66
b. Changes in Labor Income by Race . . . 66
c. Labor Income Distribution, Two-parent Families 68
d. Changes in Labor Income Distribution by Race 69
e. Labor Income Distribution, Single-parent Families 71
f. Change in Labor Income Distribution, Single-parent Families 71
g. Income Distribution Means and Medians 73
F. PARENTS' EDUCATION 73
1. Mothers' Education 74
2. Fathers' Education 76
3. Highest Educational Level of Either Parent 79

VII. STAGE III RESULTS: SIMULATION OF CHILDREN'S EDUCATIONAL ATTAINMENT 81
A. METHODOLOGY OF STAGE III ANALYSIS 81
B. WHAT STAGE III RESULTS DO NOT REPRESENT 83
C. RESULTS 84

VIII. SUMMARY AND CONCLUSIONS 87
A. PURPOSE OF RESEARCH 87
B. SUMMARY AND CONCLUSIONS 87
C. IMPLICATIONS FOR DOD 88
D. SUGGESTIONS FOR FURTHER RESEARCH 89

APPENDIX A. CPS DATA MANIPULATION 91

APPENDIX B. CHARTS OF TRENDS IN FAMILY CIRCUMSTANCES . . 95

LIST OF REFERENCES 123

INITIAL DISTRIBUTION LIST 125

ACKNOWLEDGMENT

The authors would like to acknowledge the assistance and support of Mr. George T. Fitzgerald, III, Defense Manpower Data Center, Monterey, in obtaining and analyzing data sets used in this thesis.

The authors would also like to thank Professor Mike Cook for his patience and guidance during the work on this research project.

I. INTRODUCTION

A. TRENDS IN FAMILY BACKGROUND AND THEIR EFFECTS ON CHILDREN'S EDUCATIONAL ATTAINMENT

A child's family background has been shown to have a strong effect on future educational attainment, the development of cognitive skills, and future labor market success. This finding has been documented by a number of economists, sociologists and educational researchers. Children who live in poor families, whose parents have relatively low levels of education, or who live in high-poverty areas are more likely to drop out of high school and less likely to attend college, perform worse on tests of cognitive skills, and more likely to be unemployed or drop out of the labor force entirely.

Two recent trends may have implications for the quality of the future civilian workforce, as well as for the quality of future military accessions. The first trend is an apparent deterioration of the family circumstances of children, especially for those in the lower half of the income distribution. In particular, the number of children living in single-parent families, the number of children living in households with family income less than $20,000 per year, and the proportion of children living in high-poverty areas are all increasing.

The second trend is an apparent increase in the gap in the family circumstances of white children versus minority

children. From the late 1970s to the early to mid-1980s, there was a significant convergence in the family background (such as parental education) of white and black children, and the narrowing of this gap in background characteristics has been shown to be responsible for the convergence in white and black academic performance. However, recent data suggests that this trend may be reversing, with the gap between white and minority children growing again. The convergence in white and black family income appears to have stalled and the number of minority children living in poor families and in single-parent families is rising, both in absolute terms and relative to whites.

B. IMPLICATIONS FOR MILITARY RECRUITING

The military services compete in the youth labor market for recruits to fill their ranks. Like other organizations, they are looking for the most highly-qualified people they can find who meet certain minimum standards, defined by educational attainment and scores on the Armed Services Vocational Aptitude Battery (ASVAB). The effects of changes in family circumstances on children's educational attainment will thus affect the military services' ability to find adequate numbers of suitable recruits, just as these changes affect the ability of civilian organizations to hire qualified workers. The question we are trying to answer is: given the nature of the changes in children's family circumstances and, assuming that the trends continue into the future, can we simulate their

effect on the educational attainment of the future civilian workforce? The answer is that, within some limitations, we can show how changes in family circumstances could affect the ultimate educational attainment of today's children and, consequently, the size and "quality" of the youth labor pool from which the military draws its recruits.

II. LITERATURE REVIEW

A. SUMMARY OF EARLIER RESEARCH

Most of the research in the area of children's family circumstances and their effects on children's outcomes has been done by sociologists, developmental psychologists and economists. Robert Haveman and Barbara Wolfe (Haveman and Wolfe, 1995) summarized much of this earlier work, from which we draw information for inclusion in this Chapter. We examine first the various perspectives from which researchers view this issue, then provide a summary of the major findings. The section below draws heavily on Haveman and Wolfe (1995).

1. Economic Perspective

In the economic perspective, the family is viewed as a production unit in which inputs are employed to increase utility for its members. The adult members of the family unit determine how much labor to supply to the market in order to obtain resources, which they then determine how best to allocate to the various needs and desires of the family. The amount, nature and timing of resources devoted to children influence, in some measure, the attainments of the children in terms of education and future earnings (among others). Other decisions made by adults in the family also influence later attainments of their children; e.g., family size, where to live, when to move, whether and how much to work. The nature of parental decisions depends upon the skills and capabilities

of the adults. More educated and skilled parents are able to generate more resources for family consumption and for investment in their children. Greater investments in children affect the children's educational attainment which, in part, determines the level of their earnings over time. (Haveman and Wolfe, 1995)

2. Other Perspectives

The Socialization/Role Model Perspective ". . . stresses the potentially important effect of role models and socialization . . . during childhood . . . on achievements as young adults." (Haveman and Wolfe, 1995, p. 1,834) In this perspective, parents are viewed as transferring a pattern of behavior to their children that is influenced by their (parents') values and expectations, which directly affect the development of their children. (Haveman and Wolfe, 1995)

In the Live-Span Development Approach, developmental psychologists view children's development as a continuous process. Events in children's lives affect their development, but the effect differs depending on the age of the children at the time the event occurs, the duration and character (e.g., positive or negative) of the event, and the context in which the event occurs. Event timing, then, greatly influences the nature of the effect that an event has in a child's life.

From a Stress Theory perspective, stressful events in children's lives create ". . . emotional uncertainties that impede normal development." Similarly, parents' coping

abilities are thought to offset the effects of stressful events in children's lives and, ultimately, improve their chances for success. (Haveman and Wolfe, 1995, p. 1,835)

A final perspective concerns the potential effect that living in a poor household has on a child's chances for success. In this view, dependence on public assistance has been shown to diminish children's chances for success, in part because of the stigma associated with such living conditions.

3. A More Comprehensive Perspective

Haveman and Wolfe believe that a more comprehensive framework is needed for studying children's educational attainments. They state that such a framework should include three primary factors: choices made by government that determine the opportunities available to parents and children; choices made by parents concerning the investments in their children; and the choices made by children. Government's policies (i.e., society's choices) regarding taxes, regulations, and spending create an environment in which families make choices about the level of investment to make in children, which are constrained by the economic opportunities provided by the government. Either aided or constrained by the environment that government creates, parents' choices regarding consumption, household size and structure, allocation of resources, discipline and nurturing influence the level of success their children are able to attain. Finally children, too, make choices that affect their level of

success, given their resources and the constraints facing them. In this more-comprehensive framework, the choices made by society, parents and children are sequential, and we observe the outcome of the choices in the attainments of children.

4. Summary of Earlier Studies of Children's Educational Attainments

Haveman and Wolfe summarized earlier studies about the intergenerational mobility of socioeconomic status and the relationships between children's outcomes and a variety of social and family background variables, among which are studies relevant to our research (Haveman and Wolfe, 1995, p. 1,844). The significant findings from research into determinants of high school graduation are summarized below.

5. Findings Relative to Income and Parenthood

Growing up in a low-income household has a negative influence on children's educational attainments. Growing up in a family with a working mother also has a modest negative effect on children's educational attainment. Growing up in a single-parent or stepparent family adversely affects educational attainments.

6. Findings Relative to Community

"Growing up in a neighborhood with 'good' characteristics . . . has a positive effect on a child's choices regarding schooling . . ." (Haveman and Wolfe, 1995, p. 1,871).

Neighborhoods are characterized by the income and education levels of their residents and other characteristics.

7. Findings Relative to Race

The magnitude of the negative effect on children's educational attainments of living in a single-parent or step-parent household is greater for black children than it is for whites. However, after controlling for family background characteristics, being a racial minority does not have a negative effect on schooling. (Haveman and Wolfe, 1995, p. 1,871)

B. RESEARCH USING THE PANEL STUDY OF INCOME DYNAMICS (PSID)

In their research using the PSID (the PSID is described in Chapter III), Haveman, Wolfe and Spaulding (1991) examined the effects of a number of family and economic circumstances on children's probability of graduating from high school. They considered children who were between 0 and 4 years of age in 1968 and who were, subsequently, between 19 and 23 years of age in 1987. The authors also merged another data file, the University of Michigan Time Use Data Set, with the PSID to obtain information about the amount of time parents spent on child care in the families who were included in the study. Independent variables used in this study included gender, ethnic group, religion, number of siblings and birth order, parental child care time, parents' education, family economic circumstances (as measured by numbers of years spent in poverty or receiving government benefits), and stressful

events over time (separations, divorces, location moves, time spent in standard metropolitan statistical areas). Some independent variables were defined over several years to capture the effect of changes in the variable over time (rather than at a point in a child's life). The dependent variable for this study was equal to 1 if an individual completed high school by 1987, 0 otherwise.

The findings in the full specification of their model indicate that increased parental education levels, Catholic religion and the income effect of having a working mother positively influence the likelihood that children will graduate from high school. Conversely, increased numbers of siblings, growing up poor or on welfare, and moving frequently negatively affect the likelihood of graduation. Among the time-related variables, greater numbers of years spent in poverty and more frequent location moves have significant negative effects on the likelihood of graduation when experienced in late adolescence and, for moves only, in early childhood. Growing up with a working mother significantly positively affected graduation likelihood if the mother worked when the child was in late adolescence; the effect of this variable earlier in childhood, though positive, was not significant.

C. EFFECTS OF FATHERLESSNESS ON EDUCATIONAL ATTAINMENT

Recent news reports on the increasing prevalence of children growing up without their fathers has led some researchers

to examine the effects of this circumstance on children. Grogger and Ronan (1995) studied the effects of fatherlessness on both educational attainment (as measured by years of completed education by age 27) and entry-level wages. They attempted to distinguish between the effects of observed periods of fatherlessness and unobserved family-specific characteristics (using sibling data) and to correct for measurement error in reports of children's living arrangements. They theorized that, to the extent that periods of observed fatherlessness are correlated with unobserved family characteristics (i.e., disharmony), measures of the effect of fatherlessness on children's education and wages are over-exaggerated. (Grogger and Ronan, 1995)

Grogger and Ronan concluded that traditional methods of estimating the effects of fatherlessness on the educational attainment of whites and Hispanics were at least as accurate as methods that attempted to correct for the separate effects of unobserved family characteristics and for measurement errors in reports of family circumstances. They concluded that, for whites and Hispanics, growing up in a fatherless home for some period of childhood results in lower educational attainment. The results of their research for blacks, however, were different. After accounting for unobserved family characteristics, blacks who grew up in fatherless homes exhibited higher educational attainment. This finding suggests that, for black children, growing up in single-parent

households was beneficial, compared to growing up in a traditional, two-parent household. The authors suggest that this conclusion is counterintuitive and should be the subject of further research.

D. EFFECTS OF CHANGES IN FAMILY CIRCUMSTANCES ON TEST SCORES

In a study by the Rand Corporation using a methodology similar to the one we used in our study, researchers Grissmer, Kirby, Berends and Williamson (1994) examined the effects of changes in family circumstances on children's performance on standardized mathematics and verbal/reading examinations. Using the National Longitudinal Survey of Youth (NLSY), 1980, and the National Education Longitudinal Survey (NELS), 1988, the authors selected 15-18 year olds and eighth graders, respectively, and regressed their standardized test scores on independent variables that represent those aspects of family life that have changed most significantly over the 20 years preceding the study. These variables include family income, family size, parents' education levels, labor force participation of the mother and her age at the birth of the children, and whether or not the children lived in single- or two-parent households. Then, using the estimated effects of the independent variables, the researchers predicted individual scores for a nationally representative sample of youth (from the March Current Population Surveys (CPS)) of similar ages in 1970, 1975 and 1990 to determine the net effect of changes in family and demographic characteristics on

test scores. Finally, they compared the predicted test scores with actual changes in test scores (which were all positive) over the same period to calculate the proportion of the changes that could be attributed to changing family circumstances.

The authors found that the most important influences on children's test scores were family income, family size, level of parental education and the age of the mother at the child's birth. Significantly, more children in the 1990s are living in smaller households with more highly-educated parents than was the case in 1970/1975. They found only negligible effects from changes in the number of single-parent households (independent of family income) and the increased number of working mothers. These circumstances led them to predict higher test scores for all racial/ethnic groups.

When comparing predicted test score gains with actual gains over the same period, the authors found that changes in family circumstances account for all of the increase in test scores for white children but for only about one-third of the increase in test scores for Hispanics and blacks. This comparison led them to conclude that other changes (e.g., higher quality of education or positive impact of government intervention programs) were responsible for the remainder of the gains in test scores.

E. EFFECTS OF FAMILY STRUCTURE AND PARENTAL PRACTICES ON HIGH SCHOOL GRADUATION

Astone and McLanahan (1991) examined the effects of growing up in single- and step-parent families as part of their study of the effects of parental-behavior changes on high school completion. The authors were primarily interested in examining the differences in parental practices across family structures relative to educational expectations and involvement in school, and the effects of these differences on students' attitudes toward school and on their high school completion rates. Their research supports earlier conclusions about the effects of growing up in single-parent households; i.e., the likelihood of completing high school or obtaining a GED is reduced significantly by growing up in a single-parent household.

The authors used data from the High School and Beyond (HSB) survey, obtained from a nationally representative sample of students from over 1,000 high schools in 1980. They restricted their analysis to students who participated in all waves of the survey and who were sophomores in 1980 (respondents were surveyed until 1986). While they found that lowered parental involvement in students' lives, resulting from students living in single- or step-parent families, has a negative effect on educational expectations and outcomes, reduced involvement accounted for only a small percentage of the decline in expectations and outcomes. The predominant

influence leading to lower expectations and outcomes appears to be family structure; i.e., the single- or step-parent household situation in which the students live.

F. TRENDS IN EDUCATIONAL ATTAINMENT AND THEIR IMPLICATIONS FOR MILITARY RECRUITING

Klerman and Karoly (1994) discuss trends in youth labor markets and note that the population of the U.S. will become increasingly diverse as we move beyond 2000. The proportions of racial and ethnic minorities in the youth population are expected to continue to rise in the next century, while the number of potential recruits as a percentage of the population is expected to fall. The trends in educational attainment for Hispanics (i.e., lower high school completion rates as compared to whites), raise concerns for the future of military recruiting. By comparison, the trend for blacks (as compared to whites) indicates a narrowing of the gap in high school completion rates. The military of the future is expected to become more technologically sophisticated, increasing the demand for skilled and educated recruits. If a sufficient supply of high-quality recruits is not available, the services may be required to invest in remedial training programs. (Klerman and Karoly, 1994)

Difficulties in recruiting had been expected to affect the military services as early as the late 1980s as a result of a shrinking pool of Qualified Military Applicants among smaller 18-24 year old youth cohorts. However, the recruiting

problems that had been expected were mitigated by the military drawdown, which sharply reduced requirements for new recruits. Responding to these reduced recruiting requirements, the services raised enlistment standards to compensate for reduced demand. As a result of higher entrance standards and lower high school completion rates among racial and ethnic minorities, the proportion of whites accepted into the Armed Forces increased, while the proportions of blacks and Hispanics decreased. This trend can be expected to continue unless the gap in educational attainment between whites and minorities narrows.

G. SUMMARY

The findings of earlier researchers relative to our study reveal that: (1) increases in family income or socioeconomic status lead to higher likelihoods of educational success in children; (2) growing up in a single-parent household reduces children's chances for educational success; (3) being black does not, by itself, lead to a lower likelihood of completing school, but being Hispanic does seem to reduce that likelihood; (4) more educated parents raise children who are more likely to graduate from high school; and (5) children who grow up in larger families are less likely to finish high school, compared to children who grow up in households with fewer children in them.

III. DATA SOURCES AND DESCRIPTION

A. OVERALL APPROACH

Our data sources included the Panel Study of Income Dynamics (PSID) and the March Current Population Surveys (CPS). The methodology we used in this study is much like that used by Grissmer, et al., in the Rand study of the effects of changes in family circumstances on test scores (Grissmer, Kirby, Berends and Williamson, 1994). However, there are several differences in the research design. First, we estimated the effects of changing family circumstances on educational attainment measured by dichotomous variables that represented high school completion and college attendance, rather than on test scores measured on a continuous scale. Second, we used a probit model to determine the probability of either graduation from high school or college attendance, which is a more appropriate approach when working with a dichotomous dependent variable, rather than an ordinary least squares model. Third, we used the PSID and the March CPS rather than the NLSY or NELS surveys. Fourth, we used a smaller set of explanatory variables to accommodate differences in the data sets and to ensure that we could use the same variable definitions in the PSID and CPS data sets. Finally, and most significantly, Grissmer attempted to measure the influence of family circumstances on children's test scores by first predicting their scores (based on their family

circumstances) and then comparing his predictions to their actual test scores. In our study, we attempt to predict changes in children's **future** educational attainment based on changes in their **current** (i.e., childhood) family circumstances.

We began by estimating the effects of family circumstances on the educational attainment of children aged 0 to 8 in 1968, using information from the PSID. By regressing family labor income, parental education levels, number of siblings and family structure on children's attainments, we were able to obtain estimates of the separate effects of each variable on the likelihood of either graduating from high school or attending college. We also included variables to control for race and gender in our statistical model.

We next obtained information about children who were in the same age group in 1974/1975 and 1993/1994 from the March CPSs, using the same variable definitions we had used for the PSID sample. We thus had coefficients from the PSID sample that estimated the effects of family circumstances on the educational attainments of children in a specific age group, and information from the March CPS that measured the actual circumstances of two different groups of children in the same age group from data sets that were separated by 20 years.

Finally, we multiplied the probit coefficients obtained from the PSID sample by the variables that measure the family background of children in the 1974/1975 CPS data to simulate

their educational outcomes by age 21 (approximately 1995) and by the same variables of children from the 1993/1994 CPS data to simulate their educational outcomes by age 21 (approximately 2004). We then compared the 1974/1975 results to the 1993/1994 results. In theory, if the measured effects of family circumstances remain the same (i.e., the estimated probit coefficients), any changes in simulated outcomes from the 1970s to the 1990s should be attributable solely to changes in family circumstances.

B. THE PANEL STUDY OF INCOME DYNAMICS

1. Overview of the PSID

The PSID is a longitudinal survey of households in the U.S. and of the members who reside in these households. The survey began in 1966 under the auspices of the U.S. Bureau of the Census, entitled the Survey of Economic Opportunity (SEO). Thirty thousand predominantly-poor households were surveyed in 1966 and 1967 in an effort to determine the extent to which President Johnson's war on poverty was affecting people's lives. In 1968, the Survey Research Center (SRC), Institute for Social Research, University of Michigan, was asked to carry on the study by interviewing a subsample of approximately 2,000 households. Professor James N. Morgan, who became the director of the study at SRC, added nearly 3,000 households from the SRC's national sampling frame to make the study representative of the U.S. population. In 1968, members of 1,872 low-income households and 2,930

households from the SRC sample were interviewed in what became the PSID. In 1990, to correct for the under-representation of Latino households, 2,043 Latino households were added to the study. The primary purpose to which the study is dedicated is the collection of information relative to the economic and demographic behavior of families. (Hill, 1992)

The heads of sample families are interviewed yearly to update the information in the PSID. If the head of the household is not available or uncooperative, another member may be interviewed and asked to provide information about all the members of the household. Children who become adults and form families of their own become sample household heads themselves, and their families become sample families. The data obtained each year are added to the survey after a period of about two years (during which time the data is checked for accuracy) and eventually are made available for public use by the inter-University Consortium for Political and Social Research (ISPSR). SRC personnel work diligently to both minimize attrition of sample families and ensure the accuracy of the collected information. As a result, the PSID is an excellent database for use in longitudinal studies.

Because the PSID started as a poverty study, low-income and black households are disproportionately represented among sample families. Also, as members of sample families are followed after they leave the family to which they belonged when the study began, the disproportionate representation of

these households continues as the study grows. To ensure that users of the data from the study can generalize the results of their research over the population of the U.S., probability-of-selection weights are calculated for each person in the study. Additionally, individual weights are adjusted to account for differences in attrition from the study among members of various groups. Sample members leave the study if they move out of a sample household and do not form households of their own. Such nonresponse persons usually become members of an institution (e.g., military, college, jail), and attempts are made to re-contact them after their period of institutionalization. Yearly attrition of sample members, with the exception of the first year of the study, has been low. (Hill, 1992)

2. Content of the PSID

The PSID consists of a separate data file of family-level variables for each family unit in each year of the study, and a cross-year file of individual-level variables for each person in the study. Most of the information is collected in the family files — nearly 1,400 variables for 1988 alone — while the individual-level variables represent a small part of the information collected. Examples of the types of information collected include income sources and amounts, poverty status, public assistance information, family structure and other demographic measures, employment histories, housing information, socioeconomic background

(including education and numbers of siblings), health, religion and military service information, and some county-level data about unemployment, labor demand and wage rates.

C. PSID VARIABLES USED IN STAGE I ANALYSIS

1. Dependent Variables

We defined two binary variables from the PSID data to be used as dependent variables: HSGRAD (whether or not the individual graduated from high school by age 21) and ATTCOL (whether or not the individual attended or graduated from college by age 21). For the purpose of our research (and within the limitation of the data in the PSID), an individual was deemed to have graduated from high school if, at any time after age 17 and before age 22, the data indicated that he or she had completed 12 years of education. Similarly, an individual was deemed to have attended college if, during the same timeframe, the data indicated that he or she had completed 13 or more years of education. The information for these variables was obtained from the cross-year individual data file, from which we obtained information about the completed years of education of each individual still in the study in each wave of the survey. For example, if a person was five years old in 1968, the information about his or her completed education at age 17 was located in the individual level variables for 1985, and for age 21 in 1989. The dependent variables, then, represented the highest level of education achieved by each person between ages 17 and 21.

2. Explanatory Variables

For the purposes of comparison, we used the same set of explanatory variables in all statistical models. Table III1, below, lists the variables we used in the Stage I analysis along with a brief description of each.

Table III1. Explanatory Variables Used in Stage I Analysis

Variable	Description
INCOME	head + spouse labor income in 1977 ($000, 1995)
INCSQ	$INCOME^2$
FATHER NON-HSGRAD	coded 1 if father is not a high school graduate; 0 otherwise
FATHER SOME COL	coded 1 if father attended college but did not obtain a degree; 0 otherwise
FATHER COL DEGREE	coded 1 if father obtained a college degree; 0 otherwise
MOTHER NON-HSGRAD	coded 1 if mother is not a high school graduate; 0 otherwise
MOTHER SOME COL	coded 1 if mother attended college but did not obtain a degree; 0 otherwise
MOTHER COL DEGREE	coded 1 if mother obtained a college degree; 0 otherwise
NO WIFE	coded 1 if data indicated male spouse had no wife; 0 otherwise
SIBLING	number of children in the household - 1
SPHH	coded 1 if the household was headed by only one parent; 0 otherwise
FEMALE	coded 1 if the subject was female; 0 if male
BLACK	coded 1 if the subject was black; 0 otherwise
HISP	coded 1 if the subject was Hispanic; 0 otherwise

The income variables, INCOME and INCSQ, capture the effect that varying levels of income have on educational attainment. The INCOME variable is a continuous variable that measures family labor income for 1967, converted to 1995 dollars using Consumer Price Index conversion factors provided by the Political Science Department, Oregon State University (1996). The hypothesized relationship between income and educational attainment, whether measured by high school graduation or by college attendance, has been previously observed to be positive; i.e., an increase in income leads to a greater likelihood of successful educational attainment (Grissmer, Kirby, Berends and Williamson, 1994). The INCSQ variable is included to control for diminishing returns to increases in income at higher income levels (i.e., non-linearity).

We included three dummy variables that describe the level of father's education. The first variable indicates that an individual's father completed less than 12 years of school; the second indicates that the father completed 13-15 years of school; the last indicates that the father completed 16 or more years of school (FE1, FE3, FE4). High school graduation is the omitted condition. Our *a priori* hypothesis is that children's educational attainment is influenced by the father's level of educational attainment; i.e., the higher the level of the father's education, the greater is the likelihood of successful educational attainment of his children. As

mentioned earlier, parental education levels have been observed to exert considerable influence on the likelihood of children's successful educational attainments (Haveman and Wolfe, 1991). The PSID information for the parental education variable is categorical; i.e., parents' education is listed as 0-8 grades, 8-11 grades, and so on. We combined categories when defining our variables, so that any educational category indicating attainment of 11 grades or lower placed the respective parent in the "non-high school graduate" category.

Similarly, we included four variables that describe the level of mother's education. They represent, respectively, mother completed less than 12 years of school (ME1), mother attended 13-15 years of school (ME3), mother completed 16 or more years of school (ME4), and no mother (or, rather, no wife, as described in the documentation accompanying the data set, ME7). Again, high school graduation is the omitted condition. The *a priori* hypothesis for the influence of mother's education is the same as that for father's education.

The SIBLING variable is a discrete variable that describes the number of siblings in the household for each individual in the study. Values ranged from 0 to 8 (which represents a total of 9 or more children in the family). The modal value of this variable was two, indicating that the majority of families in our study had three children in the household.

The SPHH variable described those households that were single-parent households, the vast majority of which were headed by females. We found that, of the 988 single-parent families who had children in the age group we used in our research, 956 of them were headed by a woman; the remaining 32 were headed by men. Earlier research in this area tends to support the conclusion that white and Hispanic children who grow up in a single-parent household for some part of their childhood are less likely to be successful in school, and that the opposite is true for blacks (Grogger and Ronan, 1995). We do not attempt to make separate conclusions by race on the independent effect of single parenthood on educational attainment; we merely interpret the coefficient on the SPHH variable as it applies to everyone in the study. In keeping with the conclusions reached in earlier research, we expect that the effect of growing up in a single-parent household is negative; i.e., that it reduces the likelihood of completing high school and of attending college.

Finally, we include variables to control for gender and race: SEX, BLACK and HISP (white, non-Hispanics are the omitted category). Based on our review of the literature, we expect that, other things equal, females are more likely to be successful in school than males. Also, after controlling for family background characteristics, we expect that black children will be more likely to graduate from high school and

attend college and that Hispanic children will be less likely to do so, as compared to non-Hispanic white children.

D. DESCRIPTIVE ANALYSIS

1. Frequency Distributions and Cross-Tabulations

We generated frequency distributions and cross-tabulations to describe and analyze the subjects in our study relative to their demographic and family characteristics. The tables are presented below. Before analyzing the data, we restricted the data set to sample members who were between 0 and 8 years of age in 1968, and then matched their records with their family records and the individual records of their parents.

Table III2. Selected Percentages by Race

	WEIGHTED				UNWEIGHTED			
	WHITE	**BLACK**	**HISP**	**OTHER**	**WHITE**	**BLACK**	**HISP**	**OTHER**
RACE	80.70	15.20	3.20	.90	46.40	49.50	2.80	1.40
HSGRAD	84.98	75.86	55.61	91.96	83.10	71.77	50.00	84.00
ATTCOL	30.84	20.80	24.57	41.09	28.84	18.48	24.07	40.00
TPHH	91.47	67.89	89.74	84.81	89.70	62.71	90.27	67.86
SPHH	8.53	32.21	10.26	15.19	10.30	37.29	9.73	32.14

2. Data Analysis

Table III2 presents information about the racial mix of individuals in our study. We present here both weighted and unweighted percentages to provide an indication of how the sample percentages change when individual weights are applied.

Weighting is necessary in our analysis so that we can generalize our conclusions to the U.S. population. For example, 46.4 percent of the children in the unweighted sample are white, 49.5 percent are black, 2.8 percent are Hispanic, and 1.4 percent are of other races. When individual weights are applied to the sample, however, 80.7 percent of the children are white, 15.2 percent are black, 3.2 percent are Hispanic and .9 percent are of other races. Clearly, without using sample weights, we could draw incorrect conclusions about the effects of family characteristics on the educational attainments of children in our sample only.

Examining the weighted tabulations, we note that the high school graduation rates were 84.98, 75.86, 55.61 and 91.96 percent, respectively, for whites, blacks, Hispanics, and others. Although these are only percentages, they support the hypothesis that, relative to whites, blacks and Hispanics are less likely to graduate from high school. The relative percentages by race for college attendance, though smaller, follow a similar pattern with one exception: A greater percentage of Hispanics attend college than blacks.

In terms of household structure, fully 91.47 percent of whites reside in two-parent households, while only 8.53 percent live in single-parent homes. The percentages for Hispanics and others are lower but still comparable to those of whites for two-parent households (and, correspondingly, somewhat higher for single-parent households). The figures

for blacks, however, are in sharp contrast to those of whites and non-Hispanic whites (white + other). Only 67.89 percent of blacks live in two-parent households, while nearly one third (32.21 percent) live in single-parent households. If growing up in a single-parent household significantly decreases the likelihood of successful educational outcomes, as earlier research suggests, the impact clearly would fall more heavily on black children.

Table III3. Father's Education by Race
(% of sample by race)

EDUC	WHITE	BLACK	HISP	OTHER
NHSGRAD	33.58	45.28	72.57	28.57
HSGRAD	29.85	12.65	13.27	8.93
ATTCOL	13.50	3.20	0	5.36
COLLDEG	12.82	.79	2.65	21.43

Table III4. Mother's Education by Race
(% of sample by race)

EDUC	WHITE	BLACK	HISP	OTHER
NHSGRAD	36.31	66.09	79.65	39.29
HSGRAD	47.35	27.26	16.81	39.29
ATTCOL	9.67	4.28	0	8.93
COLLDEG	5.68	.54	0	8.93

Tables III3 and III4 provide unweighted information about the education of the parents in our sample families, again by race. The percentages of fathers who graduated from high school were 29.85, 12.65, 13.27 and 8.93, respectively, for whites, blacks, Hispanics and others. More mothers than fathers were high school graduates in all racial categories, with percentages of 47.35, 27.26, and 16.81 for whites, blacks, and Hispanics, respectively. (The numbers for Hispanic mothers are too small to draw meaningful conclusions about their educational distribution.) These numbers seem low by today's standards, but not by the standards of the late 1960s. Earlier research has shown that parental education levels have steadily risen over the last 30 years. And, because many jobs were labor jobs in a more-industrialized economy, jobs were available to people (men, mostly) who had not graduated from high school. It is more revealing to examine the percentages of parents who did not graduate from high school. Over one third of white fathers and mothers, 45.28 and 66.09 percent of black fathers and mothers, respectively, and over 70 percent of Hispanic fathers and mothers were not high school graduates. The percentages of non-high school graduates are much greater (except for white mothers) than the percentages of graduates. If, as earlier research suggests, lower parental education levels reduce children's likelihood of educational success, these numbers suggest that many of the children who did graduate from high school did so

despite the influence of their parents. The numbers of parents of all races who attended college or obtained college degrees were fairly low, with only one notable exception. Over 21 percent of fathers in the "other" category were college graduates.

Table III5. Parental Education by Family Structure
(% of structural category by education level)

	FATHER		MOTHER	
VARIABLE	**TPHH**	**SPHH**	**TPHH**	**SPHH**
NHSGRAD	52.35	2.43	48.45	64.07
HSGRAD	27.04	.20	39.15	28.24
ATTCOL	10.26	.40	7.61	3.85
COLLDEG	8.82	0	3.84	.51

Table III5 shows that parental education levels are low for fathers in two-parent households and that nearly two-thirds of mothers in single-parent households have not completed high school. The numbers for fathers in single-parent households are low, reflecting the overwhelming absence of fathers in single-parent homes (nearly all are headed by mothers). Also, nearly half of the mothers in two-parent households had not completed high school.

Table III6. Means and Ranges of Continuous Variables

VARIABLE	MEAN	RANGE
INCOME	$22,318	$0 - $78,942
SIBLINGS	3.1	0 - 8

Table III6 indicates that the mean income level in 1968 (in 1995 dollars) for the families in our study was just over $22,000. This reflects the over-sampling of poor families in the original PSID sample and the fact that many of the families examined had no labor income. The average number of children in our families was 3.1.

E. THE CURRENT POPULATION SURVEYS

1. Overview of the Current Population Survey

The Current Population Survey (CPS) has been the source of official government statistics on employment and unemployment for over 50 years. Over 57,000 households are scientifically selected each month based on their area of residence in order to ensure that a nationally representative sample is obtained. Members in each selected household are interviewed monthly for four consecutive months one year, and re-interviewed during the same time frame one year later. (Technical Documentation, Overview, 1993 March CPS)

The main purpose of the CPS has always been to gather data on the employment situation in the country. A secondary purpose, which has grown out of the wealth of information

provided by the interviewed households, is to collect information on the demographic makeup of the population. Factors such as race, ethnic origin, age, sex, marital status, educational attainment, and family structure are routinely tracked and compiled. These statistics serve to update similar information collected once every ten years through the decennial census and aid government policy makers by providing important indicators of the nation's economic situation and the impact of certain government programs. Information from the surveys can be used to determine the characteristics of persons in and out of the labor force such as marital status, number of children, numbers of disabled persons, retired workers, veterans, single-parent families, and so on. (Technical Documentation, Overview, 1993 March CPS)

2. CPS Sampling Technique

The CPS represents the civilian noninstitutionalized population of the nation. The sample is geographically located in 729 sampling areas compromising 1,973 counties and independent cities, thus ensuring that every state and the District of Columbia are represented. Each month approximately 71,000 households are assigned to be interviewed. Of these assigned for interview, normally 14,000 do not respond for various reasons; e.g., the housing unit is vacant, has been converted to nonresidential use, or contains persons who reside elsewhere, or the residents are temporarily absent or choose to not participate. The resultant sample is

approximately 163,000 and includes information about the household and the individuals therein. (Technical Documentation, Overview, 1993 March CPS)

3. The March CPS

In March of each year, supplemental data are collected from members of the Armed Forces who live in civilian-type housing units either on or off base. The Armed Forces members interviewed, however, are not asked the standard questions about labor force participation. The March CPS is also known as the Annual Demographic File because it contains the basic labor force and monthly demographic data described above, as well as additional detailed information on work experience, income, noncash benefits, and worker migration. (Technical Documentation, Overview, 1993 March CPS)

4. CPS File Structure

The CPS files have a hierarchial file structure wherein the type of the household determines what records will follow the household record. The possible combinations, which are divided into three categories, are illustrated in Figures III1 through III3 below.

5. CPS Weights

The March CPS uses weights to produce population estimates for the many items covered in the basic monthly CPS. The final weight is a product of several adjustments that account for changes in sample size, the probability of selection of that household, and the number of non-interviews

that affect the total number of households sampled. The March CPS final supplemental weight should be used when producing population estimates from the basic CPS data. (Technical Documentation, Overview, 1993 March CPS)

Figure III1. Households Containing Related Persons/Not A Group Quarters

Household Record
Family Record
Person 1 (Householder) Record
Person 2 (Spouse) Record
Person "n" (Family Member)

Family (Related Subfamily Record)
Person 1 (Related Subfamily Reference Person) Record
Person 2 (Spouse) Record
Person "n" (Related Subfamily Member) Record

Family (Unrelated Subfamily) Record
Person 1 (Unrelated Subfamily Reference Person) Record
Person 2 (Spouse) Record
Person "n" (Unrelated Subfamily Member) Record

Family (Persons Living With Nonrelatives) Record
Person 1 (Person Living With Nonrelatives) Record

Figure III2. Households Containing a Householder with no Relatives/Not A Group Quarters

Household Record
Family (Nonfamily Householder) Record
Person (Nonfamily Householder) Record

Family (Unrelated Subfamily) Record
Person 1 (Unrelated Subfamily Reference Person) Record
Person 2 (Spouse) Record
Person "n" (Unrelated Subfamily Member) Record

Family (Person Living With Nonrelatives) Record
Person (Persons Living With Nonrelatives) Record

Figure III3. Households that are Group Quarters

(Each person is defined as a person living with nonrelatives.)

Household Record
Family (Persons Living With Nonrelatives) Record

IV. METHODOLOGY

A. STAGE I ANALYSIS USING THE PSID

In Stage I, we use data from the PSID to measure the effects of family background characteristics on educational attainment.

1. Selection and Definition of Variables

We selected subjects in the PSID who were between the ages of 0 and 8 years old in 1968, the first year of the panel study. All subjects were sample members from the original set of families in the SRC and SEO samples. From the cross-year individual file, we obtained information about each person's educational attainment from age 17 to age 21, from which we constructed the dependent variables that reflected whether or not that individual had graduated from high school (HSGRAD) or attended college (ATTCOL) by age 21. We also obtained gender information from the cross-year individual file for each subject.

We next merged the 1968 family file containing family variable information — such as family size and structure — about the children in our study, matching the data sets by interview number (the match variable in the PSID data sets). The merge operation yielded a data set that contained both individual and family information about each of the subjects in our study. We defined the SIBLING variable by subtracting 1 from the number of children in each family. We defined the

SPHH variable using information about the gender and marital status of each head of household. We also defined the variables for father's and mother's education using the head and spouse educational data in the 1968 family file.

We next merged the combined individual-family data file with the cross-year individual file, again matching by 1968 interview number, obtaining individual information about family heads that was not present in the family file. Finally, we once again merged our individual-family file with the cross-year individual file to obtain similar information about the spouse in each family. The final two merge operations yielded head and spouse labor income information, from which we defined the INCOME and INCSQ variables.

2. Statistical Model

We modeled educational attainment as a function of family background and other control variables. The probit model we estimated is:

$$\Pr(Y_i = 1) = \beta X_i + \alpha Z_i + \varepsilon_i$$

where Y_i a dichotomous variable coded 1 if the individual completed high school or attended college by age 21, 0 otherwise, X_i is a vector of variables that measure family background characteristics, and Z_i is a vector of control variables (race/ethnicity and gender).

We used the SAS PROBIT procedure to obtain maximum-likelihood estimates of the regression parameters. The values

for β provide an estimate of the relationship between individual family background characteristics and future educational attainment. The PROBIT procedure is appropriate for the analysis of dichotomous dependent variables where the distribution of the error term is assumed to be normal. The results we obtained from our models are detailed in the next Chapter.

B. STAGE II ANALYSIS USING THE 1973/1974 CPS

In Stage II, we measured the changes in family background characteristics over time. To do so, we selected March CPS data sets from 1974, 1975, 1993, and 1994. Each March CPS data set contains three types of records: household, family, and individual. The family records are aggregated from individual records and the household records are aggregated from the family records. Since all the information we needed was present in individual records, we decided to use just those records from each of the four data sets.

Since we wanted to examine the effect of changing family circumstances on children's educational attainment, we constructed individual child records from the CPS data sets, much as we did with the PSID data set. That is, we merged separate data sets into a single data set so that one observation was created for each child. The family head and spouse records were then attached to each child record. Figure IV1, below, illustrates the resultant file structure. Thus, for a

family with two children, the same head of the family and the spouse records appears twice, once for each child. In this way, the effect of multiple children in a family is accounted for. Records of children from single-parent families contain only parent information about the single parent.

1. The 1993 and 1994 March CPS Surveys

The first data set examined was the 1993 March CPS. Of the 704 variables available in individual records, 74 variables were read in and examined. These included information on educational attainment, detailed household and family relationships, type of family, income measures, labor force information, demographic information, and identification numbers for the individual, the family, and the household. Using the theory described above, we first separated the data set into groupings according to position in the family: child, family head, or spouse. We restricted the child subgroup to children who were eight years old or younger. Observations that did not meet this selection criteria were deleted. We next split each of the three groupings into two subdivisions based on the detailed household relationship variable. The two subdivisions were (1) individuals who belonged to any type of family, and (2) individuals who were either identified as residing in group quarters or as secondary individuals. The latter subdivision was then excluded from each grouping as the information on their parents was unavailable. The majority of people in this excluded group lived in group quarters such as

hospitals, nursing homes, or group foster homes. Next, we merged the remaining three groupings in a one-step merge. This yielded a data set that contained children matched to their parents and heads and spouses. This matching process is diagramed in Figure A1, Appendix A. The families without children were then deleted. The same procedure was followed for the 1994 CPS data set. For a summary of the records we deleted and the reason for the deletions see Table A1, Appendix A.

2. The 1974 and 1975 CPS Surveys

The information in the 1974 and 1975 CPS data sets was not as detailed as the information in the later-year surveys. Of the 240 individual variables available in the 1974 March CPS, we initially selected 37. Of particular interest, we found no variables for household identification number or family identification number. We instead created a family identification number using a variable that described each individual's number in a particular family.

We followed the same initial steps — separating the individual records by groupings and then subdividing these groupings, as noted above — for the 1993 and 1994 data sets. We encountered some problems working with 1974 and 1975 data sets because the household relationship variable was not as detailed (34 types of relationships) as in the 1993 and 1994 data sets (51 types of relationships). Most problems resulted from a duplication of observations for children: merging once

with their grandparents and again with their parents. We found it necessary to perform two separate merges and examine the data from each merge to resolve the problems. The first merge combined the child with the head of the family; the second combined the observations kept from the first merge with the spouse of the family. The matching process for the 1993 and 1994 data sets is diagramed in Figure A2, Appendix A. Observations containing grandparent information were deleted. Since we are measuring the effects of parents' circumstances on children's educational attainment, we feel justified in deleting observations that did not contain parent information. Table A1, Appendix A, provides a summary of the records we deleted and the reason for the deletions.

Figure IV1. Form of Individual Observations

```
OBS 1  [Child's Info]*[Head's Info]*[Spouse's Info]
OBS 2  [Child's Info]*[Head's Info]*[Spouse's Info]
```

V. STAGE I RESULTS: EFFECTS OF FAMILY BACKGROUND CHARACTERISTICS ON EDUCATIONAL ATTAINMENT IN CHILDREN

This chapter discusses the results of the PROBIT models run on the PSID data in Stage I. We estimated two models; the first was a high school completion (HSGRAD) model, and the second was a college attendance (ATTCOL) model. Table V1 below lists the coefficients from the models along with their corresponding χ^2 values.

Table V1. Probit Estimates of Determinants of Educational Attainment

	HSGRAD		ATTCOL	
Variable	β	χ^2	β	χ^2
Constant	.9600 *	37.3350	-.8712 *	32.5863
INCOME	.0130**	2.8392	.2252 *	9.2644
INCSQ	-.0001	.6130	-.0002 *	5.0506
F NON-HSGRAD	-.2535 *	9.1072	-.3096 *	16.1951
F SOME COL	.09995	.7069	.2527 *	8.8956
F COL DEGREE	.29998 *	4.7240	.3254 *	13.2587
M NON-HSGRAD	-.2872 *	14.8994	-.4514 *	39.5658
M SOME COL	.2162	2.6176	.0852	.9600
M COL DEGREE	.3799**	3.2004	-.1048	.8205
NO WIFE	.5104	1.6517	-1.3955**	3.6542
SIBLING	-.0568 *	11.8208	-.0278**	3.2692
SPHH	-.3713 *	6.8921	.0558	.1556
FEMALE	.1347 *	4.4888	.1280 *	5.5144
BLACK	.1523	2.5463	.1598**	2.9388
HISP	-.4761 *	6.5186	.4398 *	4.6504

* significant at the 5 percent level
** significant at the 10 percent level
Notes: HSGRAD = 1 if yrs of compl school = 12
ATTCOL = 1 if yrs of compl school > 12
N = 2,816

1. Results of HSGRAD Model

The results of the HSGRAD model indicate that INCOME (measured in thousands of 1995 dollars), parental education levels, and the number of siblings all significantly affect the likelihood of high school completion of children. Specifically, the children of wealthier, more educated parents who live in smaller, intact households have an increased likelihood of graduation. Two-parent, white households in which parents are high school graduates are the omitted categories. Among the control variables, it appears that whites, blacks and females are more likely to graduate, while Hispanics are less likely to do so, other things equal. These results are consonant with conclusions reached in earlier research (noted in Chapter II), and our analysis provides only one surprising result. The coefficient on the NO WIFE variable indicates that children in single-father households are *more* likely to graduate from high school. The results indicate that failure of either the father or the mother to graduate from high school and growing up in single-parent households have the most significant negative impacts on children's educational attainment.

2. Results of ATTCOL Model

The results of the ATTCOL model are similar to the results obtained from the HSGRAD model, with some notable exceptions. The signs and significance of the INCOME, INCSQ

and most of the parental education variables are similar to the corresponding values in the HSGRAD model. Once again, the children of wealthier, more educated parents who live in smaller households have an increased likelihood of attending college. However, in this model, growing up in a single-parent household *increases* the likelihood that a child will attend college by age 21, although the magnitude of the effect is neither very large nor statistically significant. One other surprising result is the negative effect of having a mother with a college degree on the likelihood of attending college. While the impact is moderate, again it is not statistically significant. This latter result is counter-intuitive, however, and could possibly be explained by the small number of observations that fit in this category (of the 2,816 observations used in the regression, only 44 children of mothers with a college degree attended college by age 21) and by the high degree of correlation between fathers' and mothers' education.

3. Marginal Effects

Because the probit coefficients are difficult to interpret, we converted them into marginal effects, which measure the effect of a one-unit change in an explanatory variable on the probability of the outcome (graduate high school or attend college). The following table lists the marginal effects of each of the explanatory variables used in the models.

Table V2. Marginal Effects of the Determinants of Educational Attainment

Variable	HSGRAD	ATTCOL
INCOME	.0043**	.0042 *
INCSQ	-.00003	-.00004 *
F NON-HSGRAD	-.0839 *	-.0576 *
F SOME COL	.0331	.0470 *
F COL DEGREE	.0993 *	.0606 *
M NON-HSGRAD	-.0951 *	-.0840*
M SOME COL	.0760	.0159
M COL DEGREE	.1258**	-.0195
NO WIFE	.1690	-.2598**
SIBLING	-.0188 *	-.0052**
SPHH	-.1229 *	.0104
FEMALE	.0446 *	.0238 *
BLACK	.0504	.0298**
HISP	-.1576 *	.0819 *

* significant at the 5 percent level
** significant at the 10 percent level

Table V2 shows that, for each increase of $1,000 in family labor income, children's probability of completing high school or attending college increases by .43 and .42 percentage points, respectively. Each additional sibling reduces the probability of completing high school or attending college by 1.8 and .52 percentage points, respectively. Growing up in a single-parent household decreases the probability of graduating from high school by over 12 percentage points, but increases the probability of attending college by a little

over 1 percent (though this result is not statistically significant), relative to growing up in a two-parent household.

Among the parental education variables, the impact of having parents who have not graduated from high school on their children's probability of completing high school is significantly negative, over 8 and 9 percentage points for fathers and mothers, respectively, relative to having fathers and mothers who did graduate. The impact on children's probability of attending college is also negative, though not as great. Increasing parents' educational levels increases children's probability of successfully completing high school and attending college (except for the anomalous finding mentioned earlier).

Among the control variables, being female is significantly positively related to both educational outcomes; being black is positively related to both outcomes, though not significantly so. After controlling for other family characteristics, being Hispanic decreases the likelihood that a child will complete high school, but increases his or her likelihood of attending college.

4. Summary

These results are fairly consistent with earlier research on family characteristics and their impacts on completing high school (see Haveman, Wolfe and Spaulding, 1991), though the measured effects differ somewhat. Because of the differences

between the work of earlier researchers and our research, especially in the areas of variable selection and statistical model specification, variation in the magnitudes of the measured effects of different family characteristics is not surprising.

VI. STAGE II RESULTS: TRENDS IN FAMILY CIRCUMSTANCES

In Stage II, we focused on measuring changes in family circumstances over time. We examined the trends from 1974/1975 to 1993/1994 for the number of single-parent families, the number of siblings per family, parents' employment trends, family income, the distribution of income and parents' education levels. This chapter presents first a summary of our findings and then discusses the trends in detail. Graphs showing separate trends are included in Appendix B.

A. SUMMARY OF STAGE II RESULTS

The results of the trend analysis discussed in the remainder of this chapter are summarized below.

- **Single-parent Families** - increase in the number of single-parent families of 12.50 percentage points
- **Number of Siblings** - drop in mean from .9982 to .9157
- **Work Force Status** - Nonworking men in two-parent families decreased by 7.00 percentage points; nonworking women in two-parent families decreased by 38.70 percentage points; nonworking women in single-parent families decreased by 19.70 percentage points
- **Family Money Income** - Families earning less than $10,000 increased by 10.44 percentage points; the majority of the increase is attributable to an increase in the percentage of single-parent families. Families earning more than

$100,000 increased by 3.85 percentage points, mostly attributable to an increase in the number of two-earner couples in the labor force. The distribution of money income for single-parent families shows virtually no change from 1974 to 1994.

- **Family Labor Income** - Families earning less than $10,000 increased by 8.10 percentage points; the majority of this change is attributable to the stagnation of real wages. Families earning more than $100,000 increased by 3.37 percentage points, again attributable to an increase in the number of two-earner couples in the labor force. The distribution of labor income for single-parent families shows virtually no change from 1974 to 1994.
- **Means and Medians of Income Distribution** - The mean value of money income has increased by $1,088, while the median fell by $4,279. The mean value of labor income increased by only $528, while the median value decreased tremendously (by $6,268). The income distribution, both money and labor, has flattened over the twenty-year period.
- **Mothers' Education** - Mothers of all races show a decrease in the percentages of both high school dropouts and high school graduates and increases in both college attendance and getting college degrees.
- **Fathers' Education** - Fathers of all races show a decrease in the percent of high school dropouts. White fathers

show a decrease in high school graduates, while both black and Hispanic fathers show an increase in the percentage of high school graduates. Fathers of all races show an increase in the percentages attending college and getting college degrees.

B. SINGLE PARENT FAMILIES

Table VI1 below shows the numbers of single-parent families by year in the CPS surveys.

Table VI1: Single-parent Families

	White + Other Non-Hispanic	Black Non-Hispanic	Hispanic	Total
1974	48.98%	41.00%	10.02%	16.02%
1975	51.28%	38.99%	9.73%	17.71%
1993	49.58%	35.67%	14.74%	28.05%
1994	46.57%	35.90%	17.53%	28.52%

A look at the percentage of single-parent families in 1974 compared to 1994 reveals that there was a 12.50 percentage point increase over the twenty-year period, which represents a doubling since 1974. The largest increase in the percentage of single-parent families occurred among Hispanic families.

C. NUMBER OF SIBLINGS PER FAMILY

The first interesting trend in the number of siblings per family between 1973/1974 and 1994/1995 is the reduction in the highest number of siblings per family for both two-parent and

single-parent families. The highest number of siblings among two-parent families fell from 8 siblings in 1974 to 5 siblings in 1994. The same number among single-parent families fell from 7 in 1974 to 5 in 1994. The trend toward smaller family size is evident (although not statistically significant) when comparing the mean number of siblings in two-parent families in 1974 (0.9982) to the mean number of siblings in two-parent families in 1994 (0.9157). The trend is more pronounced when comparing the means for single-parent families from 1974 to 1994, where the mean number of siblings fell from 1.1551 to 0.8348. For the entire sample (single- and two-parent families), the mean number of siblings in 1974 was 1.0233 while the mean in 1994 was 0.8926. Clearly the trend has been toward smaller families over the twenty-year period examined in this study. In fact, family size today is approximately the same for both single- and two-parent families.

Table VI2: Siblings

Two Parent Families	1974	1975	1993	1994
Mean	0.9982	0.9930	0.8998	0.9157
Minimum	0	0	0	0
Maximum	8	9	6	5
Single Parent Families	**1974**	**1975**	**1993**	**1994**
Mean	1.551	1.1809	0.8696	0.8348
Minimum	0	0	0	0
Maximum	7	8	5	5
Entire Sample	**1974**	**1975**	**1993**	**1994**
Mean	1.0233	1.0263	0.8906	0.8926
Minimum	0	0	0	0
Maximum	8	9	6	5

D. WORK FORCE STATUS

We analyzed the employment trends of three distinct groups of people in the CPS sample: men and women in two-parent families and women in single-parent families. The tables below present the results of our analysis.

Table VI3: Work Status of Men in Two-parent Families

	1974	1975	1993	1994
No Work	12.10%	16.60%	4.60%	5.10%
Full Year Full Time	71.00%	65.90%	77.00%	77.90%
Full Year Part Time	5.10%	6.00%	1.70%	2.00%
Part Year Full Time	9.30%	8.60%	14.50%	13.10%
Part Year Part Time	2.50%	2.90%	2.20%	1.90%

1. Men in Two-parent Families

The percentage of men in two-parent families who were not working was highest in 1975 at 16.60 percent and lowest in 1994 at 4.60 percent; it rose slightly to 5.10 percent in 1995. Overall, the percentage has been more than cut in half over the twenty-year period. Numbers of men in two-parent families who work full-year, full-time (defined as 35 or more hours per week, 52 or more weeks per year, respectively) increased by 6 percentage points from 1974 to 1994, but remained relatively constant from 1993 to 1994. Full-year, part-time employment decreased, while part-year, full-time employment increased by 3.8 percentage points (or 40% from 1974) over the twenty-year period.

Table VI4: Work Status of Women in Two-parent Families

	1974	1975	1993	1994
No Work	72.40%	72.70%	34.60%	33.70%
Full Year Full Time	8.70%	9.00%	28.70%	28.60%
Full Year Part Time	4.70%	5.20%	10.00%	10.70%
Part Year Full Time	6.60%	5.90%	11.60%	12.30%
Part Year Part Time	7.60%	7.30%	15.10%	14.70%

2. Women in Two-parent Families

The percentage of women in two-parent families in 1974 who did not work was 72.40; that number was only 33.70 percent by 1994, indicating a marked increase in the number of women in the workforce. Women in two-parent families increased

their labor force participation in each of the four employment categories with the percentage who worked full-year, full-time showing the largest increase over the twenty-year period, from 8.70 percent in 1974 to 28.60 percent in 1994.

Table VI5: Work Status of Women in Single-parent Families

	1974	1975	1993	1994
No Work	63.90%	64.10%	44.30%	44.20%
Full Year Full Time	14.30%	14.70%	24.20%	24.50%
Full Year Part Time	5.20%	4.90%	5.20%	5.50%
Part Year Full Time	10.60%	9.10%	15.40%	15.60%
Part Year Part Time	5.90%	7.20%	10.90%	10.20%

3. Women in Single-parent Families

The percentage of women in single-parent families who did not work went down from 1974 to 1994, although the drop was smaller than the decrease among women in two-parent families. The number of unemployed women in two-parent families dropped by 38.7 percentage points (from 72.4 percent to 32.7 percent), while the number of nonworking single-parent women fell 19.7 percentage points (from 63.9 percent to 44.2 percent) in twenty years. Full-time work, both full-year and part-year, rose significantly among female single parents. Women working full-year full-time rose from 14.30 percent in 1974 to 24.50 percent in 1994. Those who worked part-year full-time rose from 10.60 percent in 1974 to 15.60 percent in 1994.

E. INCOME LEVELS AND DISTRIBUTION

We identified trends in the money and labor income distributions of all families and, separately, for two-parent and single-parent families. Money income includes labor income and transfer income (e.g., Aid to Families with Dependent Children and welfare payments). Labor income reflects only parents' wages for labor performed. We also examined the changes in money and labor income by race. All income figures were converted to 1995 dollars using the same conversion scale used for the PSID income figures (Department of Political Science, OSU, 1996). The tables below present the results of our analysis.

Table VI6: Money Income Distribution for All Families

	1974	1975	1993	1994
$1- < $10,000	10.27%	11.97%	20.12%	20.71%
$10,000 - < $20,000	14.61%	15.20%	15.34%	15.96%
$20,000 - < $30,000	17.37%	18.51%	13.41%	13.98%
$30,000 - < $40,000	20.81%	19.96%	12.01%	11.34%
$40,000 - < $50,000	16.22%	14.72%	11.67%	10.18%
$50,000 - < $60,000	8.80%	9.38%	8.48%	8.21%
$60,000 - < $70,000	5.16%	4.26%	6.35%	5.84%
$70,000 - < $80,000	2.73%	2.52%	3.63%	3.71%
$80,000 - < $90,000	1.16%	1.24%	2.46%	2.56%
$90,000 - < $100,000	0.85%	0.64%	1.65%	1.63%
$100,000 +	2.03%	1.59%	4.87%	5.88%

Table VI7: Changes in Money Income Distribution for All Families

	White	Black	Hispanic	Total
$1- < $10,000	-6.34 pt	-5.05 pt	11.60 pt	10.44 pt
$10,000 - < $20,000	-2.84 pt	-9.08 pt	11.62 pt	1.35 pt
$20,000 - < $30,000	-10.30 pt	2.46 pt	7.84 pt	-3.39 pt
$30,000 - < $40,000	-6.38 pt	0.79 pt	5.59 pt	-9.47 pt
$40,000 - < $50,000	-2.92 pt	-0.29 pt	3.22 pt	-6.04 pt
$50,000 - < $60,000	-1.99 pt	0.08 pt	1.91 pt	-0.59 pt
$60,000 - < $70,000	-4.25 pt	2.41 pt	1.86 pt	0.68 pt
$70,000 - < $80,000	-3.54 pt	0.98 pt	2.57 pt	0.98 pt
$80,000 - < $90,000	-4.78 pt	2.31 pt	2.47 pt	1.40 pt
$90,000 - < $100,000	-0.42 pt	-1.68 pt	2.10 pt	0.78 pt
$100,000 +	-2.64 pt	0.02 pt	2.62 pt	3.85 pt

Note: pt = percentage point change

1. Money Income Distribution

a. All Families

The distribution of money income has become flatter over this period, with increases both in the number of people earning less than $10,000 and those earning more than $100,000. The rich are getting richer and the poor are getting poorer. In 1974, 10.27 percent of all families earned less than $10,000. By 1994, 20.71 percent of families were in this income bracket. As the percentage of families earning between $30,000 and $40,000 decreased from 20.81 percent in 1974 to 11.34 percent in 1994, we suspect that many families slipped from the higher income level to the lower income bracket. Percentage increases in income categories over $60,000 were small.

While the total percentage of families earning less than $10,000 increased by 10.44 percentage points from 1974 to 1994, the changes varied among racial groups. Specifically, the numbers of white and black families in this income bracket fell by 6.34 and 5.05 percentage points, respectively, while the number of Hispanics increased by 11.60 percentage points. In fact, the percentage of Hispanics in all income levels increases over the twenty-year period, the largest increases occurring in under $40,000 brackets. Blacks earning between $20,000 and $30,000 increased by 2.46 percentage points, and those earning between $60,000 and $70,000 increased by 2.41 percentage points. The percentages of white families were lower in all income categories between 1974 and 1994,

offsetting the increase in the percentages of Hispanics. The smallest decrease for white families occurred in the $90,000 to $100,000 income bracket: 0.42 percentage points.

Table VI8: Money Income Distribution for Two-parent Families

	1974	1975	1993	1994
$1- < $10,000	2.99%	4.11%	5.24%	5.72%
$10,000 - < $20,000	10.60%	10.99%	12.51%	13.08%
$20,000 - < $30,000	18.74%	20.25%	14.73%	15.40%
$30,000 - < $40,000	24.10%	23.34%	14.80%	14.20%
$40,000 - < $50,000	19.04%	17.63%	15.10%	13.53%
$50,000 - < $60,000	10.40%	11.31%	11.59%	11.10%
$60,000 - < $70,000	6.13%	5.14%	8.70%	8.00%
$70,000 - < $80,000	3.22%	3.03%	4.99%	5.09%
$80,000 - < $90,000	1.38%	1.49%	3.41%	3.54%
$90,000 - < $100,000	1.00%	0.78%	2.26%	2.24%
$100,000 +	2.40%	1.90%	6.66%	8.09%

Table VI9: Changes in Money Income Distribution for Two-Parent Families

	White	Black	Hispanic	Total
$1- < $10,000	-8.50 pt	-12.18 pt	20.68 pt	2.73 pt
$10,000 - < $20,000	-7.55 pt	-9.49 pt	17.05 pt	2.48 pt
$20,000 - < $30,000	-9.21 pt	0.69 pt	8.52 pt	-3.34 pt
$30,000 - < $40,000	-5.33 pt	-0.25 pt	5.57 pt	-9.90 pt
$40,000 - < $50,000	-1.96 pt	-1.16 pt	3.13 pt	-5.51 pt
$50,000 - < $60,000	-1.82 pt	-0.13 pt	1.95 pt	0.70 pt
$60,000 - < $70,000	-4.28 pt	2.39 pt	1.89 pt	1.87 pt
$70,000 - < $80,000	-3.68 pt	1.04 pt	2.64 pt	1.87 pt
$80,000 - < $90,000	-4.88 pt	2.37 pt	2.51 pt	2.16 pt
$90,000 - < $100,000	-0.48 pt	-1.65 pt	2.13 pt	1.24 pt
$100,000 +	-2.63 pt	-0.12 pt	2.75 pt	5.69 pt

Note: pt = percentage point change

b. Two-parent Families

The distribution of money income among two-parent families is similar to the distribution for all families in the CPS. This is not surprising, since two-parent families comprise 84 percent of the 1974/75 sample and 72 percent of the 1994/95 sample. We found, however, that the percentage of two-parent families in income brackets under $40,000 increased less than the percentage of two-parent families in the income brackets over $40,000. This indicates an upward shift in two-parent family income due, in large part, to the increase in women's labor force participation.

Changes by race closely resemble the changes for all families. Hispanics post the largest increase, 20.68 percentage points, in the under $10,000 income bracket, while blacks gain the most, 2.39 percentage points, in the $60,000 to $70,000 income bracket. The percentages of white two-parent families are smaller in all categories, the smallest decrease of 0.48 percentage points occurring in the $90,000 to $100,000 income bracket.

Table VI10: Money Income Distribution for Single-parent Families

	1974	1975	1993	1994
$1- < $10,000	48.44%	48.50%	58.31%	58.29%
$10,000 - < $20,000	35.62%	34.75%	22.60%	23.17%
$20,000 - < $30,000	10.15%	10.41%	10.02%	10.43%
$30,000 - < $40,000	3.57%	4.25%	4.85%	4.17%
$40,000 - < $50,000	1.41%	1.23%	2.87%	1.77%
$50,000 - < $60,000	0.41%	0.36%	0.50%	0.97%
$60,000 - < $70,000	0.12%	0.19%	0.31%	.043%
$70,000 - < $80,000	0.16%	0.12%	0.13%	0.24%
$80,000 - < $90,000	0.00%	0.06%	0.03%	0.10%
$90,000 - < $100,000	0.03%	0.00%	0.11%	0.09%
$100,000 +	0.09%	0.12%	0.27%	0.34%

Table VI11: Changes in Money Income Distribution for Single-parent Families

	White	Black	Hispanic	Total
$1- < $10,000	-4.73 pt	-4.82 pt	9.54 pt	9.85 pt
$10,000 - < $20,000	5.14 pt	-9.95 pt	4.82 pt	-12.45 pt
$20,000 - < $30,000	-10.78 pt	1.34 pt	9.44 pt	0.28 pt
$30,000 - < $40,000	-12.62 pt	3.25 pt	9.37 pt	0.60 pt
$40,000 - < $50,000	-25.95 pt	17.80 pt	8.15 pt	0.36 pt
$50,000 - < $60,000	13.72 pt	-11.73 pt	-1.98 pt	0.56 pt
$60,000 - < $70,000	-9.10 pt	6.24 pt	2.86 pt	0.31 pt
$70,000 - < $80,000	0.00 pt	0.00 pt	0.00 pt	0.08 pt
$80,000 - < $90,000	100.00 pt	0.00 pt	0.00 pt	0.10 pt
$90,000 - < $100,000	0.00 pt	0.00 pt	0.00 pt	0.06 pt
$100,000 +	14.61 pt	9.95 pt	-24.56 pt	0.25 pt

Note: pt = percentage point change

c. Single-parent Families

The interesting trend to note here for single-parent families is that not much changes in terms of the distribution of money income. In 1974, 48.44 percent of single-parent families were earning less than $10,000. In 1994, this percentage rose to 58.29 percent. The only other major shift was for those in the $10,000 to $20,000 income bracket. In 1974, 35.62 percent received money income between $10,000 and $20,000, while in 1994 this percentage decreased to 23.17 percent. Again, since no other income category rose by more than 2 percentage points, we estimate that many families who had been earning between $20,000 and $30,000 were earning less than $20,000 by 1994.

The percentages of white families earning under $10,000, between $20,000 and $30,000, and between $40,000 to $50,000 decreased by 4.73, 10.78 and 25.95 percent, respectively. A small number of white single-parent families accounted for a 100 percent increase in the $80,000 to $90,000 income bracket. Hispanics again showed significant increases in the income brackets under $50,000, with the largest increase, 9.54 percentage points, under $10,000. Blacks showed a 17.80 percentage point increase in the $40,000 to $50,000 income bracket, and decreases of 4.82 percentage points and 9.95 percentage points in the under $10,000 and $10,000 to $20,000 income brackets, respectively.

Table VI12: Labor Income Distribution for All Families

	1974	1975	1993	1994
$1- < $10,000	21.44%	23.23%	28.93%	29.54%
$10,000 - < $20,000	11.07%	11.61%	13.32%	13.90%
$20,000 - < $30,000	15.77%	17.37%	12.93%	13.38%
$30,000 - < $40,000	19.87%	18.95%	10.78%	10.18%
$40,000 - < $50,000	15.05%	13.10%	11.04%	9.52%
$50,000 - < $60,000	7.64%	8.12%	7.75%	7.41%
$60,000 - < $70,000	4.55%	3.58%	5.41%	5.22%
$70,000 - < $80,000	2.15%	2.01%	2.94%	2.98%
$80,000 - < $90,000	0.82%	0.72%	2.18%	2.14%
$90,000 - < $100,000	0.56%	0.48%	1.15%	1.29%
$100,000 +	1.09%	0.86%	3.55%	4.46%

Table VI13: Changes in Labor Income Distribution for All Families

	White	Black	Hispanic	Total
$1- < $10,000	-9.04 pt	-1.35 pt	10.39 pt	8.10 pt
$10,000 - < $20,000	-9.05 pt	-3.17 pt	12.23 pt	2.83 pt
$20,000 - < $30,000	-7.94 pt	0.83 pt	7.10 pt	-2.39 pt
$30,000 - < $40,000	-6.31 pt	1.21 pt	5.09 pt	-9.69 pt
$40,000 - < $50,000	-1.94 pt	-0.61 pt	2.55 pt	-5.53 pt
$50,000 - < $60,000	-3.56 pt	1.32 pt	2.24 pt	-0.23 pt
$60,000 - < $70,000	-3.31 pt	1.50 pt	1.81 pt	0.67 pt
$70,000 - < $80,000	-3.44 pt	1.98 pt	1.46 pt	0.83 pt
$80,000 - < $90,000	-3.60 pt	0.57 pt	3.02 pt	1.32 pt
$90,000 - < $100,000	-0.41 pt	-2.30 pt	2.71 pt	0.73 pt
$100,000 +	-1.97 pt	-0.97 pt	2.95 pt	3.37 pt

Note: pt = percentage point change

2. Labor Income Distribution

a. All Families

A significant change in labor income distribution over the twenty-year period occurs in the $30,000 to $40,000 income bracket. In 1974, 19.87 percent of families were in this income bracket; in 1994, this percentage dropped to 10.18 percent. The percentage of families earning under $10,000 jumps from 21.44 percent in 1974 to 29.54 percent by 1994. The income brackets above $50,000 showed only minor gains over the twenty-year period. Many families are earning significantly less income. Increases occur at both ends of the scale, in both the under $10,000 and $100,000+ income brackets. This flattening of the labor income distribution is evident by looking at the graph. As we noted in our discussion of total money income, the poor are becoming worse off while the rich are becoming better off.

b. Changes in Labor Income by Race

The changes in labor income by race show that white non-Hispanics experienced decreases in all income categories, while Hispanic percentages increased. This may be due to a deliberate attempt in later years to get a more representative sample of the population; i.e., to include more Hispanic families. White non-Hispanics showed the smallest decrease, 0.41 percentage points, in the $90,000 to $100,000 income bracket. Hispanics showed the largest increase, 12.23 percentage points, in the $10,000 to $20,000 labor income bracket. Blacks were fewer by 3.17 percentage points in the

$10,000 to $20,000 labor income bracket and more numerous by 1.21, 1.32, 1.50, and 1.98 percentage points, respectively, in each category from $30,000 to $80,000. This shows that the gap between black and white labor income tended to close over this period.

Table VI14: Labor Income Distribution for Two-parent Families

	1974	1975	1993	1994
$1- < $10,000	11.04%	12.67%	13.73%	13.67%
$10,000 - < $20,000	10.43%	10.36%	12.05%	12.86%
$20,000 - < $30,000	17.64%	19.66%	14.51%	15.30%
$30,000 - < $40,000	23.16%	22.53%	13.59%	12.96%
$40,000 - < $50,000	17.78%	15.70%	14.53%	12.78%
$50,000 - < $60,000	9.08%	9.81%	10.65%	10.15%
$60,000 - < $70,000	5.37%	4.34%	7.46%	7.22%
$70,000 - < $80,000	2.55%	2.43%	4.05%	4.11%
$80,000 - < $90,000	0.98%	0.87%	2.96%	2.97%
$90,000 - < $100,000	0.66%	0.58%	1.58%	1.79%
$100,000 +	1.30%	1.04%	4.89%	6.19%

Table VI15: Changes in Labor Income Distribution for Two-parent Families

	White	Black	Hispanic	Total
$1- < $10,000	-12.55 pt	-2.48 pt	15.02 pt	2.63 pt
$10,000 - < $20,000	-6.96 pt	-8.28 pt	15.24 pt	2.43 pt
$20,000 - < $30,000	-6.25 pt	-1.21 pt	7.46 pt	-2.34 pt
$30,000 - < $40,000	-5.49 pt	0.28 pt	5.22 pt	-10.20 pt
$40,000 - < $50,000	-1.35 pt	-1.25 pt	2.60 pt	-5.00 pt
$50,000 - < $60,000	-3.40 pt	1.08 pt	2.31 pt	1.07 pt
$60,000 - < $70,000	-3.15 pt	1.38 pt	1.77 pt	1.85 pt
$70,000 - < $80,000	-3.56 pt	2.05 pt	1.51 pt	1.56 pt
$80,000 - < $90,000	-3.67 pt	0.61 pt	3.06 pt	1.99 pt
$90,000 - < $100,000	-0.46 pt	-2.27 pt	2.73 pt	1.13 pt
$100,000 +	-1.88 pt	-1.02 pt	2.91 pt	4.89 pt

Note: pt = percentage point change

c. Labor Income Distribution, Two-parent Families

The labor income distribution for two-parent families closely resembles that of the entire sample. In 1974, only 11.04 percent of two-parent families earned labor income under $10,000. This figure rose slightly in 1994 to 13.67 percent, still significantly below the 29.54 percent figure for the entire sample. Thus, single-parent families must account for the majority of laborers earning less than $10,000. Conversely, two-parent families were responsible for the largest drop in the $30,000 to $40,000 labor income bracket; from 23.16 percent in 1974 to 12.96 percent in 1994. Labor income brackets above $50,000 showed larger increases than those under $30,000, reflecting the redistribution of labor income to levels above $50,000. More two-parent

families were in the higher income brackets in 1994 than in 1974, with a marked increase in the $100,000+ bracket, which increased from 1.30 percent in 1974 to 6.19 percent in 1994. The increase in the percentage of two-parent families in higher income brackets is partly explained by the increased numbers of dual-earner couples in the labor force.

d. Changes in Labor Income Distribution by Race

We see an across-the-board decrease in the percentage of white families in each income bracket while the percentages of Hispanics increase. Blacks showed decreases of 2.48, 8.28 and 1.21 percentage points in income brackets under $30,000, while posting gains of 1.08, 1.38, and 2.05 percentage points in the $50,000 to $60,000, $60,000 to $70,000, and $70,000 to $80,000 labor income brackets, respectively.

Table VI16: Labor Income Distribution for Single-parent Families

	1974	1975	1993	1994
$1- < $10,000	75.95%	72.29%	67.94%	69.31%
$10,000 - < $20,000	14.41%	17.40%	16.58%	16.51%
$20,000 - < $30,000	5.98%	6.69%	8.88%	8.56%
$30,000 - < $40,000	2.60%	2.31%	3.55%	3.19%
$40,000 - < $50,000	0.70%	1.00%	2.11%	1.34%
$50,000 - < $60,000	0.11%	0.23%	0.33%	0.55%
$60,000 - < $70,000	0.22%	0.02%	0.17%	0.19%
$70,000 - < $80,000	0.03%	0.06%	0.10%	0.13%
$80,000 - < $90,000	0.00%	0.00%	0.18%	0.06%
$90,000 - < $100,000	0.00%	0.00%	0.03%	0.03%
$100,000 +	0.00%	0.00%	0.12%	0.13%

Table VI17: Changes in Labor Income Distribution for Single-parent Families

	White	Black	Hispanic	Total
$1- < $10,000	-1.62 pt	-5.89 pt	7.51 pt	-6.64 pt
$10,000 - < $20,000	-8.98 pt	0.56 pt	9.53 pt	2.10 pt
$20,000 - < $30,000	-13.06 pt	1.85 pt	11.21 pt	2.58 pt
$30,000 - < $40,000	-7.75 pt	0.27 pt	7.48 pt	0.59 pt
$40,000 - < $50,000	-17.11 pt	12.24 pt	4.88 pt	0.64 pt
$50,000 - < $60,000	39.51 pt	-15.18 pt	-24.33 pt	0.44 pt
$60,000 - < $70,000	-20.79 pt	14.26 pt	6.53 pt	-0.03 pt
$70,000 - < $80,000	0.00 pt	0.00 pt	0.00 pt	0.10 pt
$80,000 - < $90,000	100 pt	0.00 pt	0.00 pt	0.06 pt
$90,000 - < $100,000	100 pt	0.00 pt	0.00 pt	0.03 pt
$100,000 +	82.45 pt	7.89 pt	9.66 pt	0.13 pt

Note: pt = percentage point change

e. *Labor Income Distribution, Single-parent Families*

Again, few changes occurred in the distribution of labor income over the twenty-year period among single-parent families. In 1974, 75.95 percent were earning less than $10,000; in 1994, this percentage dropped only slightly to 69.31 percent. In 1974, 14.41 percent had labor income between $10,000 and $20,000, while in 1994, this increased to 16.51 percent. Single-parent families in the $20,000 to $30,000 bracket rose from 5.98 percent in 1974 to 8.56 percent in 1994. The increases above $10,000 and the simultaneous decrease under $10,000 reveal a shift in labor force participation. In 1974, most single-parent family income came from transfer payments; in 1994 more parents were working.

f. *Change in Labor Income Distribution, Single-parent Families*

Only minor changes occurred over the twenty-year period in the distribution of labor income among the racial groups. The 100 percent increases for white families in each of the top three labor income categories could be explained by changes in their single-parent-family status because of the death of a spouse or because of divorce. Black families posted a significant increase of 12.24 percentage points in the $40,000 to $50,000 labor income bracket.

Table VI18. Income Distribution Means, Medians, and Changes

Weighted Income Distribution - Means and Medians					
Variable	**Year** (All values converted to 1995 Dollar equivalents)				**Difference between 1994 and 1974**
Entire Sample	**1974**	**1975**	**1993**	**1994**	
Total Family Money Income- Mean	$36,263	$34,597	$37,135	$37,351	+ $1,088
Total Family Money Income- Median	$34,006	$32,577	$25,316	$24,691	- $4,279
Total Family Labor Income- Mean	$31,030	$29,494	$31,459	$31,558	+ $528
Total Family Labor Income- Median	$30,959	$29,036	$25,316	$24,691	- $6,268
Single-parent Families	**1974**	**1975**	**1993**	**1994**	
Total Family Money Income- Mean	$12,479	$12,452	$12,261	$12,366	- $113
Total Family Money Income- Median	$10,402	$10,220	$8,354	$8,230	- $2,172
Total Family Labor Income- Mean	$6,143	$6,774	$8,395	$7,927	+ $1,784
Total Family Labor Income- Median	$975	$1,249	$1,687	$1,439	+ $464
Two-parent Families	**1974**	**1975**	**1993**	**1994**	
Total Family Money Income- Mean	$40,800	$39,362	$46,830	$47,319	+ $6,519
Total Family Money Income- Median	$37,210	$36,572	$40,084	$40,432	+ $3,222
Total Family Labor Income- Mean	$35,778	$34,383	$40,450	$40,986	+ $5,208
Total Family Labor Income- Median	$34,365	$33,994	$35,864	$35,570	+ $1,205

g. Income Distribution Means and Medians

Table VI18 shows the weighted means and medians for both money and labor income by category: entire sample and single-parent and two-parent families. The drop of $4,279 in median income reveals that the income distribution has shifted toward the lower income brackets. The large decrease in median labor income, $6,268, again supports the conclusion that a flattening of the income distribution has occurred. Also, we note that the mean values of money and labor income rose slightly, even though the median values dropped significantly, again providing evidence of a flattened income distribution. For single-parent families, while the mean value of money income dropped by $113 over the twenty-year period, the median value dropped by $2,172, indicating that a majority of single-parent families were worse off in 1994 than they were in 1974. Conversely, we see the opposite trend for two-parent families. Both the mean and median values of money and labor income rose significantly from 1974 to 1994.

F. PARENTS' EDUCATION

We explored trends in the educational attainment of mothers and fathers separately and in the highest level of education attained by either parent. The tables below present the trends we identified.

Table VI19. Educational Attainment of White Mothers

	Non HSDG	HSDG	Some College	College Degree	Unknown
1974	21.36%	50.55%	16.19%	11.80%	0.01%
1975	20.95%	49.55%	16.74%	12.69%	0.01%
1993	11.05%	36.22%	28.90%	23.84%	0.00%
1994	10.69%	34.29%	30.58%	24.42%	0.02%

Table VI20. Educational Attainment of Black Mothers

	Non HSDG	HSDG	Some College	College Degree	Unknown
1974	45.79%	40.33%	9.79%	4.06%	0.00%
1975	44.29%	40.22%	10.94%	4.55%	0.00%
1993	26.62%	41.01%	24.50%	7.87%	0.00%
1994	26.31%	38.75%	27.30%	7.59%	0.05%

Table VI21. Educational Attainment of Hispanic Mothers

	Non HSDG	HSDG	Some College	College Degree	Unknown
1974	57.69%	30.54%	6.73%	3.38%	1.66%
1975	58.85%	27.29%	7.88%	3.33%	2.65%
1993	48.38%	29.72%	16.08%	5.81%	0.00%
1994	51.10%	25.52%	18.12%	5.25%	0.00%

1. Mothers' Education

White mothers in both single- and two-parent families showed significant decreases, from 21.36 percent in 1974 to 10.69 percent in 1994, in non-high school graduates over the twenty-year period. Also, fewer white mothers complete high

school, 50.55 percent in 1974 to 34.29 percent in 1994. The percentages of white mothers attending college rose from 16.19 percent in 1974 to 30.58 percent in 1994. The percentage who graduated from college rose from 11.80 percent in 1974 to 24.42 percent in 1994.

Black mothers are significantly more likely to attend college and get college degrees. In 1974, only 9.79 percent attended college, but this figure jumped to 27.30 percent by 1994. In 1974, only 4.06 percent of black mothers had college degrees, by 1994 7.59 percent did. When comparing the percentages of high school dropouts to graduates, we find a 19.48 percentage point decrease for dropouts (from 45.79 percent in 1974 to 26.31 percent in 1994) and a 1.58 percentage point decrease for graduates.

More Hispanic mothers attend college and get college degrees, but not to the same extent as black mothers. In 1974, the percentage of Hispanic mothers who attended college was 6.73 percent; this increased to 18.12 percent by 1994. The percentages who obtained a college degree were 3.38 percent in 1974 and 5.25 percent in 1994. Comparing non-high school graduates to graduates, we find a 6.59 percentage point decrease (from 57.69 percent in 1974 to 51.10 percent in 1994) in non-high school graduates and a 5.02 percentage point decrease in graduates.

Table VI22. Educational Attainment of White Fathers

	Non HSDG	HSDG	Some College	College Degree	Unknown
1974	20.54%	38.47%	18.26%	22.70%	0.03%
1975	18.62%	38.15%	20.10%	23.07%	0.05%
1993	9.15%	33.07%	25.18%	32.60%	0.00%
1994	9.08%	31.62%	26.37%	31.93%	0.00%

Table VI23. Educational Attainment of Black Fathers

	Non HSDG	HSDG	Some College	College Degree	Unknown
1974	43.86%	37.02%	12.72%	6.26%	0.13%
1975	42.64%	36.74%	14.06%	6.31%	0.26%
1993	16.51%	42.14%	28.29%	13.06%	0.00%
1994	13.12%	45.36%	27.00%	14.52%	0.00%

Table VI24. Educational Attainment of Hispanic Fathers

	Non HSDG	HSDG	Some College	College Degree	Unknown
1974	54.32%	25.17%	12.79%	5.50%	2.21%
1975	53.88%	24.40%	11.40%	7.16%	3.15%
1993	51.53%	25.25%	16.16%	7.06%	0.00%
1994	49.18%	25.83%	17.07%	7.92%	0.00%

2. Fathers' Education

White fathers in both single- and two-parent families show a significant decrease, from 20.54 percent in 1974 to 9.08 percent in 1994, in non-high school graduates over the twenty-year period. White fathers also are less likely to

graduate from high school, from 38.47 percent in 1974 to 31.62 percent in 1994. (This decrease is due partly to the under representation of Hispanics in the sample population in the earlier years and a more representative sample in the later years.) White fathers also show substantial increases in attending and graduating from college. The percentage attending college rises from 18.26 percent in 1974 to 26.37 percent in 1994. The percentage of white fathers obtaining a college degree rose from 22.70 percent in 1974 to 31.93 percent in 1994.

Black fathers show significant increases in the percentages attending college and getting college degrees. In 1974, only 12.72 percent of these fathers attended college, but this percentage more than doubled to 27.02 percent by 1994. In 1974, only 6.26 percent of black fathers held college degrees; the percentage rose to 14.52 percent, more than doubling, by 1994. When comparing the percentages of non-high school graduates to high school graduates, we find a 30.74 percentage point decrease for non-high school graduates (from 43.86 percent in 1974 to 13.12 percent in 1994) and an 8.34 percentage point increase for high school graduates.

Hispanic fathers showed an increase in the percentages attending college and getting college degrees, but not to the same extent as black fathers did. In 1974, the percentage of Hispanic fathers who attended college was 12.79; that percentage increased to 17.07 by 1994. The percentage who obtained a college degree was 5.50 percent in 1974, and this rose to

7.92 percent in 1994. When comparing non-high school graduates to high school graduates, we find a 5.14 percentage point decrease (from 54.32 percent in 1974 to 49.18 percent in 1994) in non-high school graduates and a 0.66 percentage point increase in high school graduates.

Table VI25. Highest Educational Attainment of Either Parent in White Households

	Non HSDG	HSDG	Some College	College Degree	Unknown	Missing
1974	13.25%	42.71%	20.44%	23.54%	0.01%	0.04%
1975	12.47%	41.71%	21.73%	24.06%	0.04%	0.00%
1993	7.91%	28.92%	29.03%	34.15%	0.00%	0.00%
1994	7.40%	27.43%	30.40%	34.76%	0.00%	0.02%

Table VI26. Highest Educational Attainment of Either Parent in Black Households

	Non HSDG	HSDG	Some College	College Degree	Unknown	Missing
1974	41.18%	40.28%	12.40%	6.12%	0.00%	0.03%
1975	39.49%	40.36%	13.84%	6.31%	0.00%	0.00%
1993	23.55%	40.16%	25.67%	10.62%	0.00%	0.00%
1994	23.99%	37.15%	28.57%	10.24%	0.00%	0.05%

Table VI27. Highest Educational Attainment of Either Parent in Hispanic Households

	Non HSDG	HSDG	Some College	College Degree	Unknown	Missing
1974	50.11%	30.98%	12.15%	5.63%	0.66%	0.46%
1975	50.50%	27.98%	12.75%	6.53%	1.12%	1.12%
1993	43.83%	29.26%	19.25%	7.66%	0.00%	0.00%
1994	44.71%	26.75%	20.70%	7.84%	0.00%	0.00%

3. Highest Educational Level of Either Parent

For white parents, we see a 5.85 percentage point decrease in non-high school graduates (from 13.25 percent in 1974 to 7.40 percent in 1994) and a 15.28 percentage point decrease (from 42.71 percent in 1974 to 27.43 percent in 1994) in high school graduates. White parents also show a substantial increase in the percentage of either parent, or both, obtaining a college degree, rising from 23.54 percent in 1974 to 34.76 percent in 1994.

Black parents show a 17.19 percentage point decrease in non-high school graduates (from 41.18 percent in 1974 to 23.99 percent in 1994) and a 3.13 percentage point decrease (from 40.28 percent in 1974 to 37.15 percent in 1994) in high school graduates. It is possible that the effect of fewer black mothers graduating from high school is over-riding the increase in the percentage of black fathers graduating from high school, thus causing an overall decrease for blacks. Black parents also show an increase in the percentage of

either parent, or both, obtaining a college degree, rising from 6.12 percent in 1974 to 10.24 percent in 1994.

Hispanic parents show a 5.40 percentage point decrease in non-high school graduates (from 50.11 percent in 1974 to 44.71 percent in 1994) and a 4.23 percentage point decrease (from 30.98 percent in 1974 to 26.75 percent in 1994) in high school graduates. It is possible that the effect of fewer Hispanic mothers graduating from high school is over-riding the increase in the percentage of Hispanic fathers graduating from high school, thus causing an overall decrease for Hispanics. Hispanic parents also show an increase in the percentage of either parent, or both, obtaining a college degree, rising from 5.63 percent in 1974 to 7.84 percent in 1994.

The results for the highest educational level of either parent seem to contradict the results for blacks and Hispanics where we earlier noted increases in the number of high school graduates, specifically for fathers. Part of this effect may be due to the mix of single- and two-parent families in each racial subgroup. The number of Hispanic single-parent families increased from 1974 to 1994, while the number of black single-parent families remained about the same. In theory, it is easier for a spouse in a two-parent family to obtain further education, which may account for some of the contradiction.

VII. STAGE III RESULTS: SIMULATION OF CHILDREN'S EDUCATIONAL ATTAINMENT

In Stage III, our goal was to estimate the effects of the changes in family background over time on future educational attainment. To do so, we combined the information from our Stage I analysis on the PSID sample about the effects of family circumstances, with the information from our Stage II analysis of the CPS about the family circumstances of representative samples of the U.S. population in the early 1970s and the early 1990s. This chapter discusses those results.

A. METHODOLOGY OF STAGE III ANALYSIS

As noted in Chapter V, the Stage I analysis provided us with measures of the effects of family circumstances on children's educational attainments. For instance, we estimated that the effect on children of growing up with a father who had not completed high school was a reduced likelihood of them completing high school or attending college. The measure of the effect for the PSID sample is the β coefficient for the dummy variable FE1 (father is not a high school graduate). In Chapter VI, we detailed our Stage II analysis of four samples of children from the CPS, 1974/ 1975 and 1993/1994. That analysis yielded data sets that contained information about children in the early 1970s and children in the early 1990s regarding their family circumstances measured by the same variables we defined in Stage I. In effect, we

had measures of the impact of family characteristics on attainments for one sample of children and values for the actual characteristics for four different samples. For the purposes of our analysis, we combined the 1974/1975 and 1993/1994 samples to create two data sets (instead of four) since our primary purpose was to determine the changes in educational attainment over time that resulted from changes in family circumstances.

To determine whether or not the changes in family circumstances we noted in Stage II resulted in changes in the educational attainments of children, we simulated the levels of children's attainment in both CPS samples and compared them to each other. For each child record in each sample, we computed a value for the following equation:

$$\mathbf{YBETA} = \mathbf{X}\,\beta$$

where **YBETA** is a value between 0 and 1, **X** is a vector of variables that represent the family characteristics of children from the CPS samples, and β is a vector of coefficients from the PSID sample that measures the impact of each family circumstance. Because we are estimating the likelihood that each child completed high school or attended college, a dichotomous outcome, it was necessary to transform the **YBETA** continuous values into dichotomous values that included a random error term. To do so, we created the variable **YHAT,** which is equal to the sum of **YBETA** and a random error term

from a normal distribution, according to the following formula:

$$\mathbf{YHAT = YBETA + (rannor)}$$

where **(rannor)** is a computer-generated random number from distribution **N(0,1)**. If the value of **YHAT** was greater than or equal to minus the intercept threshold value plus the error term, the child was determined to be likely to complete high school or attend college, and **YHAT** was set to 1 for that child. If the value of **YHAT** was less than the threshold value plus the error term, **YHAT** was set to 0. This procedure thus simulated the educational outcomes of children based upon measures of the effects of family circumstances and their actual family circumstances.

B. WHAT STAGE III RESULTS DO NOT REPRESENT

Before discussing the results of this analysis, it is important to clarify what we believe our Stage III analysis reveals about the simulated educational attainments of children, and what we believe the analysis does not reveal. First, as noted earlier, our research results are based upon the assumption that the estimated effects of family circumstances do not change (i.e.; that the β values remain constant) not only over time, but also across samples. Secondly, we are not attempting to *predict* either the percentages or the numbers of children who will either complete high school or attend college in the future. We recognize that there are too

many factors not measured by the variables in our models that influence the likelihood of educational success, and that the statistical modeling is not sophisticated enough to provide β estimates for predicting such outcomes with the level of accuracy needed for predictions. Rather, we are interested in identifying *changes* in the likelihood of educational success, *given* the children's family circumstances, again assuming the impact of different circumstances is the same for different samples of children. Finally, we assume that our simulated outcomes will reflect changes that may occur due to changes in circumstances in the absence of exogenous events that affect educational outcomes that are independent of the previously-measured impact of family circumstances. For example, if more money is provided by the federal government to fund college education for disadvantaged children, the likelihood of minority children attending college may increase, though our measure of the effect of family labor income on the likelihood of children attending college remains the same.

C. RESULTS

The results of the Stage III simulation are summarized in Tables VII1 and VII2, below.

Table VII1. Simulation of High School Completion Probabilities (in percent)

OUTCOME	OVERALL	WHITE	BLACK	HISP
HSGRAD 74/75	72.6	79.5	46.8	54.5
HSGRAD 93/94	63.8	74.7	31.5	44.4
CHANGE	-8.8	-4.8	-15.3	-10.1
74/75 CPS	--	77.3	14.1	8.6
NET CHANGE	--	-3.7	-2.2	-.8

Note: 74/75 CPS = proportion of sample in 74/75 in each respective racial group

Table VII2. Simulation of College Attendance Probabilities (in percent)

OUTCOME	OVERALL	WHITE	BLACK	HISP
ATTCOL 74/75	29.2	32.0	16.7	25.7
ATTCOL 93/94	29.5	34.9	13.4	20.2
CHANGE	+.3	+2.9	-3.3	-5.5
74/75 CPS	--	77.3	14.1	8.6
NET CHANGE	--	+2.2	-.5	-.5

Note: 74/75 CPS = proportion of sample in 74/75 in each respective racial group

The results in Table VII1 reflect our simulation of the probability of completing high school for the 1974/1975 and 1993/1994 samples of children, for all children and by race, given their family circumstances. The results show that, over the period of our study, changes in the family circumstances of children may lead to a decreased likelihood of all children completing high school in the future of 6.7 percentage points. Decreases for minority children are between two and three times greater than those for white children. To determine the

change in outcomes due only to changes in family circumstances (independent of race), we multiplied the percentage changes in outcomes by the proportion of each racial group in the overall population in 1974/1975. Net changes represent the simulated changes in educational attainment due solely to changes in family background (holding the racial composition of the population constant).

The results in Table VII2 reflect our simulation of the likelihood of attending college for the 1974/1975 and 1993/1994 samples of children, for all children and by race, given their family circumstances. The results indicate that children of all races are 1.3 percentage points more likely to attend college in the future. The results differ markedly by race, however. While white children are more likely to attend college, minority children are less likely to do so. The net changes by race are much smaller after factoring out the independent effect of race, but still they indicate that minority children are somewhat less likely to attend college, given the changes in their family circumstances. These results presume that children who attend college have completed high school, a fair presumption. We should caution, however, that we did not attempt to restrict our analysis of individuals who attended college to those who had first graduated from high school. To have done so would have resulted in a sample size in the PSID sample that was too small for meaningful analysis.

VIII. SUMMARY AND CONCLUSIONS

A. PURPOSE OF RESEARCH

The purposes of this thesis were to (1) estimate the effect of family background on educational attainment; (2) examine trends in family background characteristics over time; and (3) determine the implications of identified trends on future educational attainment.

B. SUMMARY AND CONCLUSIONS

Our first results agree with the results of other researchers; family circumstances have significant effects on the chances of educational success in children. Growing up in poor households, with poorly-educated parents and many siblings adversely affect children's likelihood of completing high school. Growing up in smaller families with highly-educated parents significantly increases the likelihood of success in school.

Unfortunately, the trends in family circumstances, if they continue, may reduce the likelihood of success for many of today's children. Specifically, increases in single-parent families, wage stagnation, and the decreasing likelihood that parents complete high school, could produce young adults who are less likely to finish high school. Not all of the trends we identified have adverse effects, however. Increasingly parents are attending and graduating college and reducing family size, trends that should improve children's likelihood of success.

C. IMPLICATIONS FOR DOD

Changes in the educational attainments of children affect the composition of youth labor pools and, consequently, the numbers of qualified youth available for military service. Changes in youth labor pools affect the ability of the military services to recruit sufficient numbers of enlistees and officer candidates. When coupled with shrinking labor pools, noted in Klerman and Karoly (1994), the presence of fewer high school graduates and increased numbers of college attendees among young adults means that the military will find it increasingly more difficult to fill its enlisted ranks. In response, we may be forced to spend more money on recruiting or to lower acceptance standards and enlist a lower percentage of high school graduates. Additionally, to the extent that high school completion is a proxy for aptitude, accession of fewer high school graduates could adversely affect our ability to train enlisted personnel to operate increasingly sophisticated weapons systems.

The decreasing percentages of young minority adults who attend college signal the possibility that we will also have more difficulty finding qualified minority officer candidates. As a result, the Department of the Navy may find it more difficult to achieve its goal of increasing the racial diversity of its officer Corps, a goal that has been elusive in recent years.

Perhaps most important, this research shows that military manpower planners must keep abreast of demographic trends

among future labor pools in order to plan recruiting and training programs that match the qualifications of entrants with the military's needs. To do so, they must monitor the projected size and composition of youth cohorts. Our research shows that military planners can improve the planning process by anticipating not only the size and demographic composition of future youth cohorts, but also their educational qualifications. The databases we used are readily available and updated continuously. The benefits of such research should be clear: the more information we have about the future, the better able we are to plan.

The military services also can use the information they obtain from similar research to influence the nature of future cohorts by sponsoring programs to improve children's likelihood of educational success. In this way, they can take a proactive approach to shaping the labor pools from which they will draw recruits. Examples include supporting efforts to improve public education and encouraging active duty personnel to participate in programs that help disadvantaged youth.

D. SUGGESTIONS FOR FURTHER RESEARCH

A number of future research directions should be pursued. The PSID is an extremely rich database that can be used to further refine the list of variables used to model the effects of family circumstances on educational attainment. It contains information about parents' labor force participation, income sources, poverty status, participation in welfare programs, and institutionalization, as well as information

about the outcomes of their children (e.g., earnings and labor force participation). The PSID also contains geographic information at the individual county level that could be used to determine if trends in educational attainment differ by region. In addition, the longitudinal nature of the database can be exploited to get measures of the impacts of year-to-year changes in family characteristics or of the differences between the effects of circumstances on children in early childhood versus adolescence. We encourage DoD to take advantage of the research opportunities in the PSID.

APPENDIX A. CPS DATA MANIPULATION

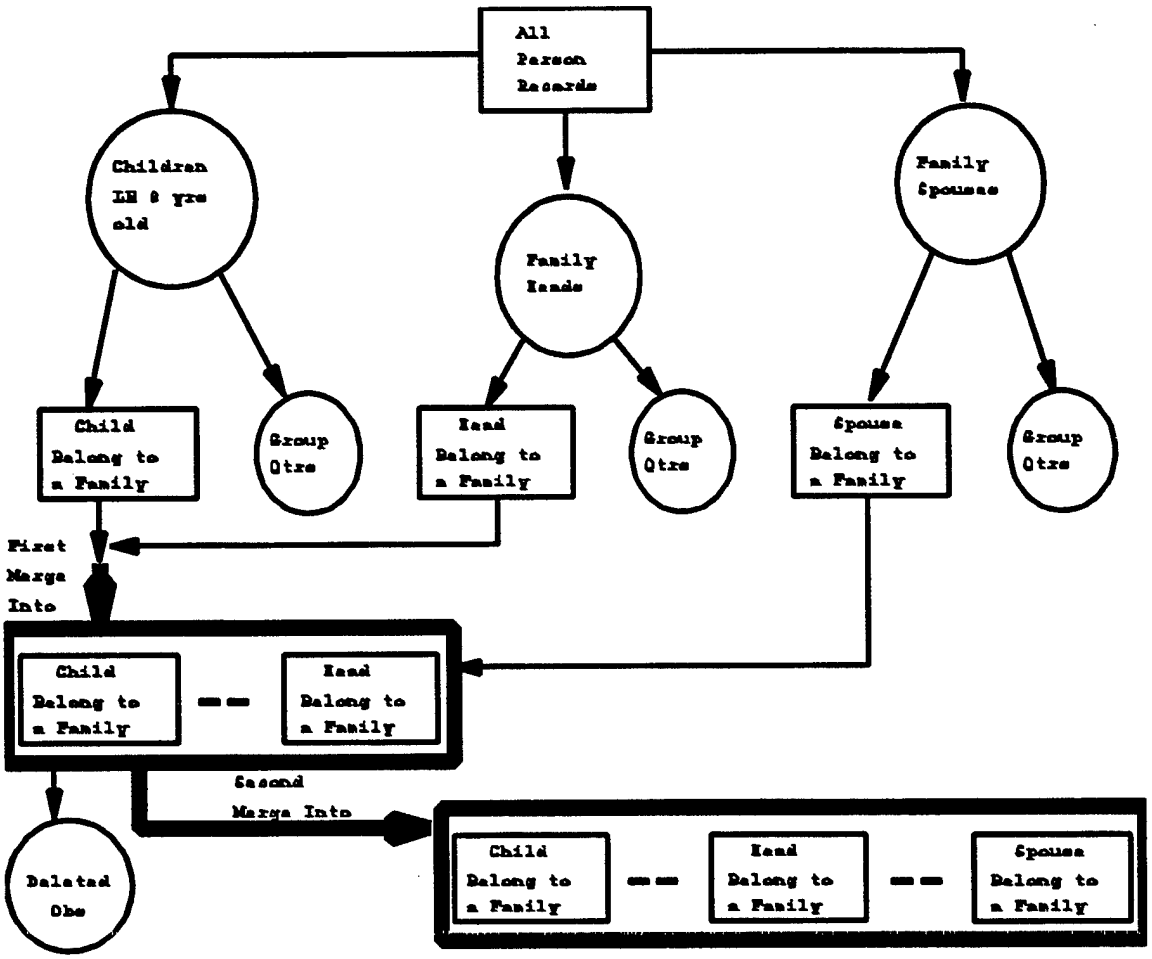


Figure A1. Diagram of 1974/1975 Data Manipulation

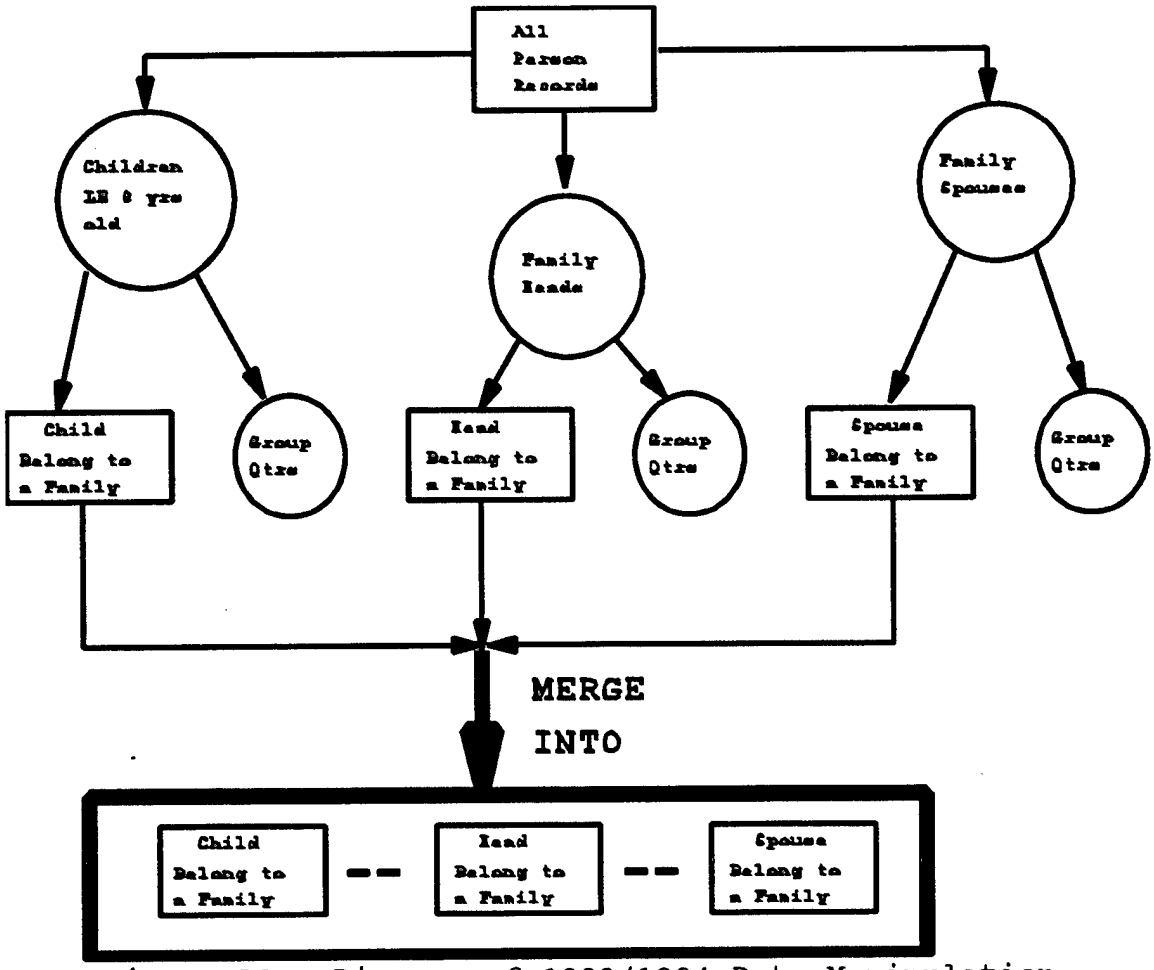
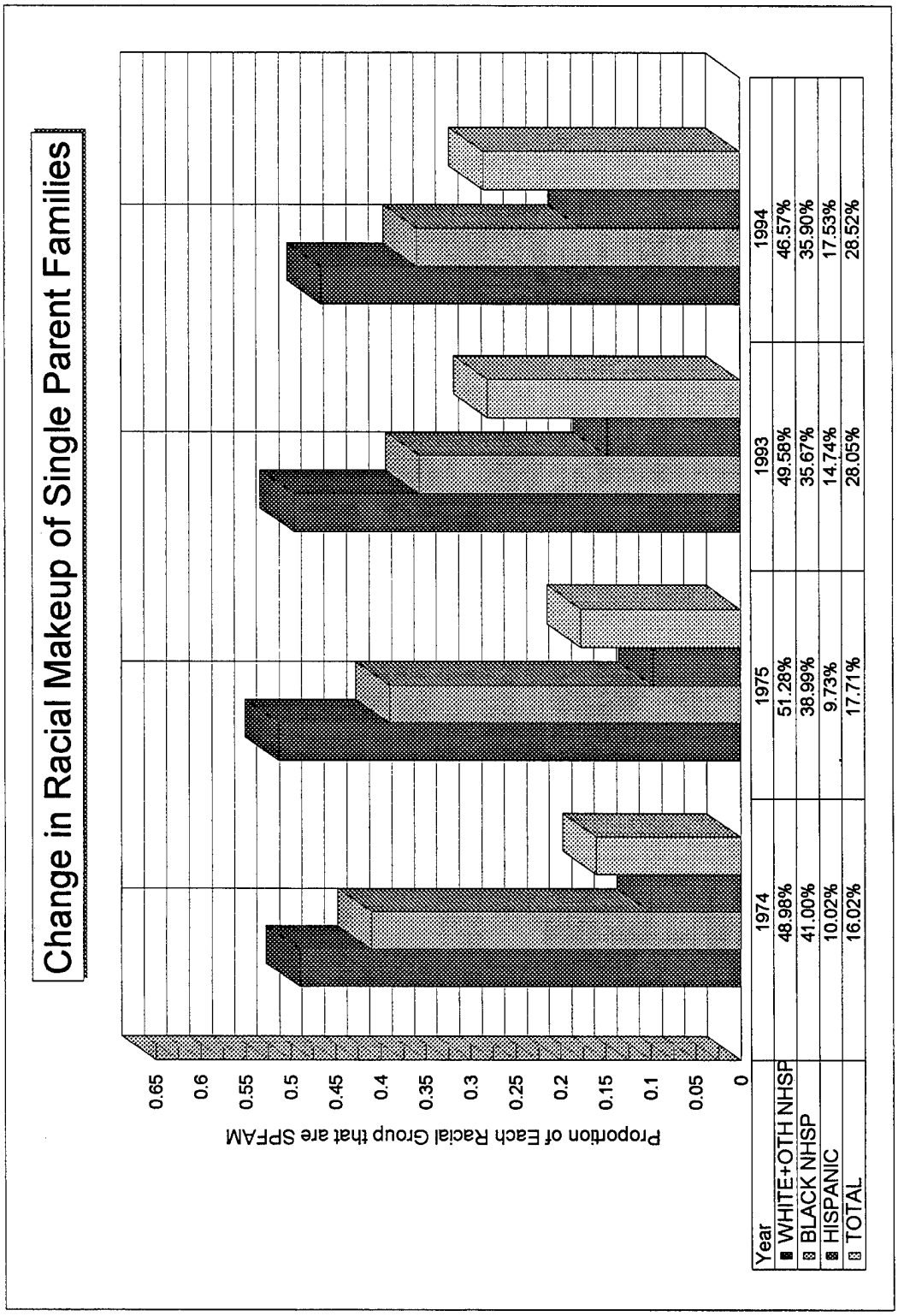


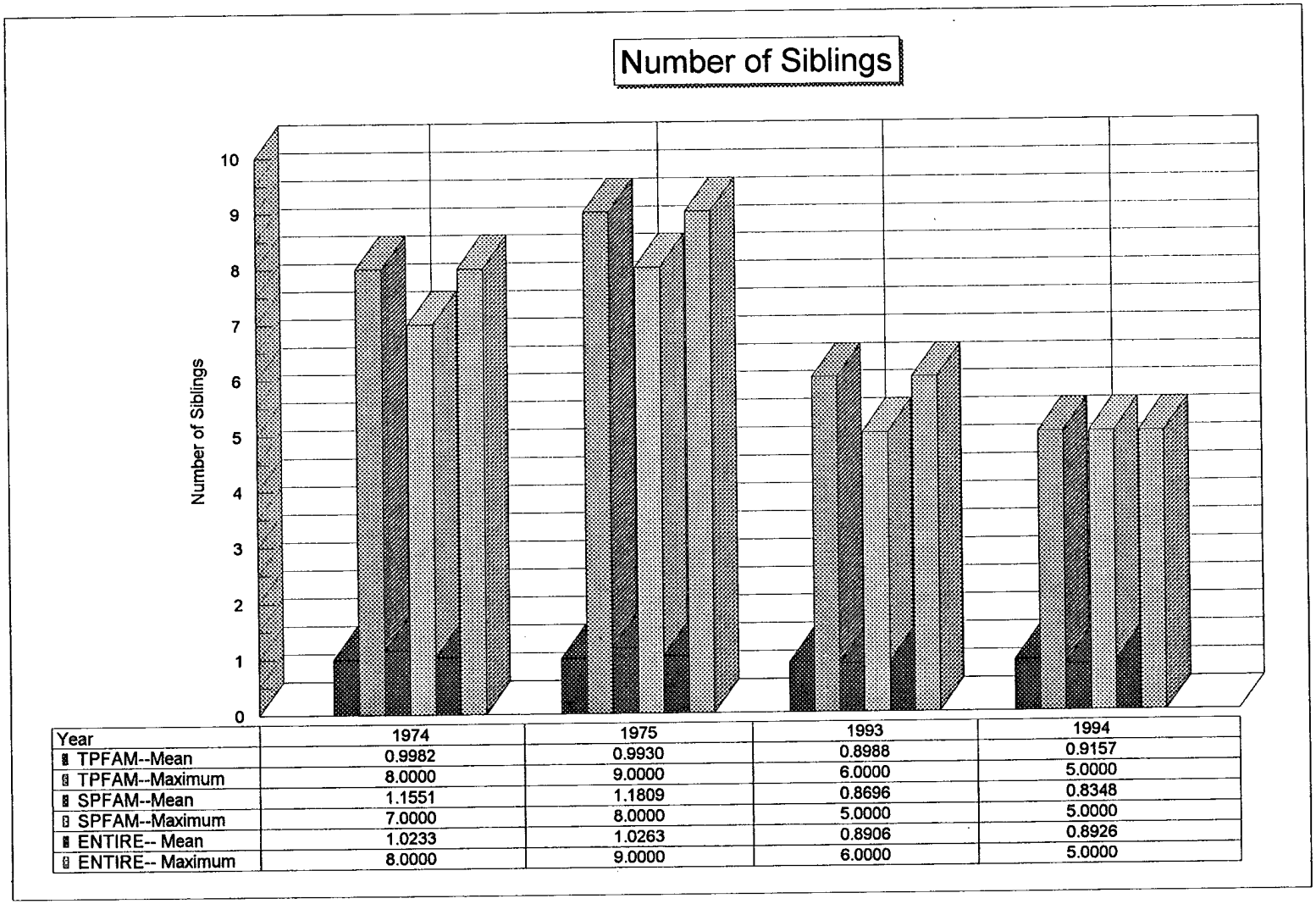
Figure A2. Diagram of 1993/1994 Data Manipulation

Table A1. Summary of Sample Size Reductions
(number of observations deleted in parentheses)

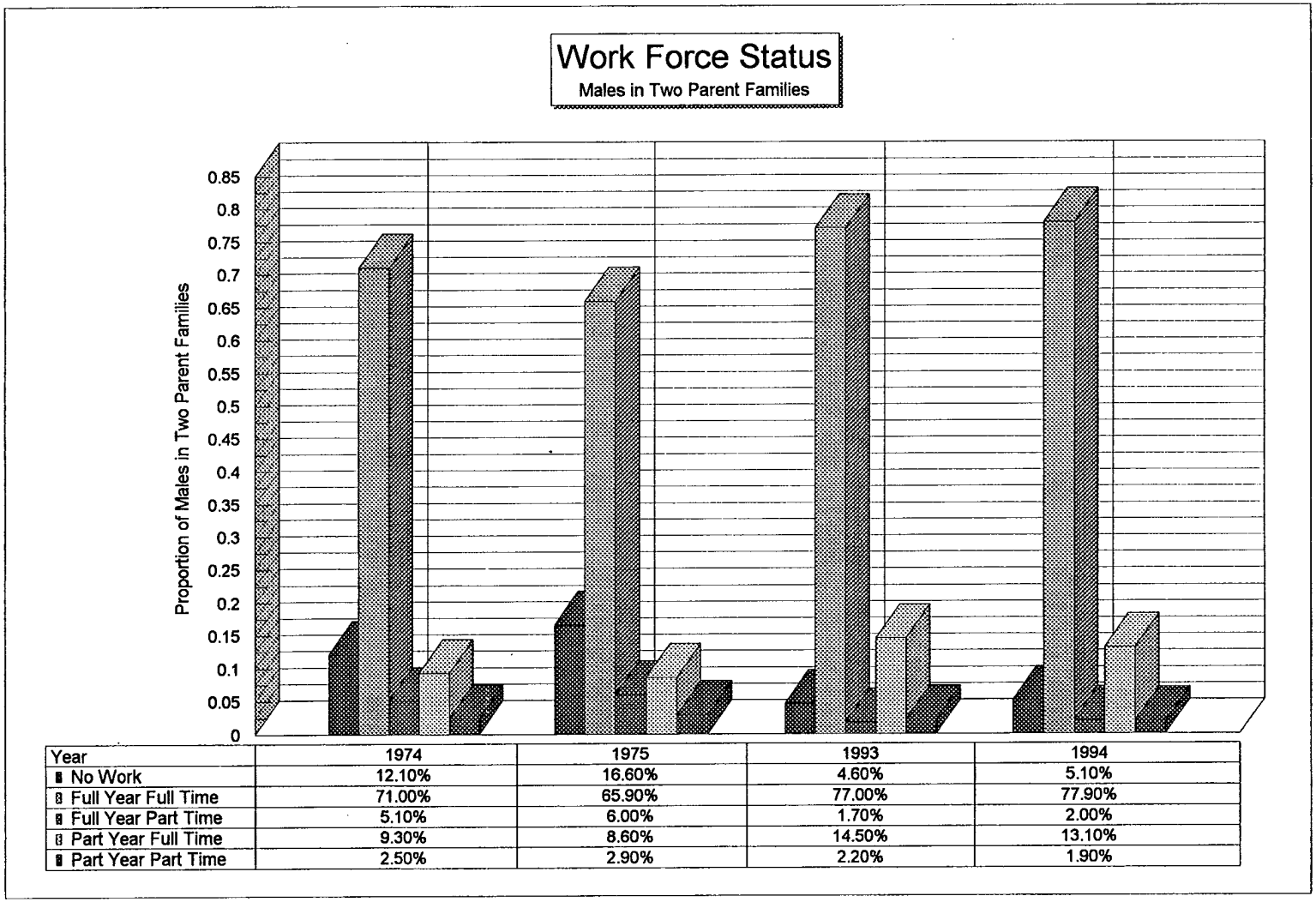
Reason / Year	1974	1975	1993	1994
Initial N	133,282 **(0)**	130,124 **(0)**	155,197 **(0)**	150,943 **(0)**
Initial Children With Age LE 8 yrs old	19,675 **(0)**	19,028 **(0)**	22,283 **(0)**	21,809 **(0)**
Belong to a Family	19,665 **(100)**	18,946 **(82)**	22,174 **(109)**	21,609 **(200)**
Not Matchable to Parents	19,615 **(50)**	18,914 **(32)**	-----	-----
Head/Spouse age less than or equal to 12	-----	-----	-----	21,604 **(5)**
Final Number of Observations	19,615	18,914	22,174	21,604
Total Deletions	**(150)**	**(114)**	**(109)**	**(205)**
Percent of usable sample deleted (Total Dels/Age LE 8)	**0.759 %**	**0.599 %**	**0.489 %**	**0.940 %**

APPENDIX B. CHARTS OF TRENDS IN FAMILY CIRCUMSTANCES

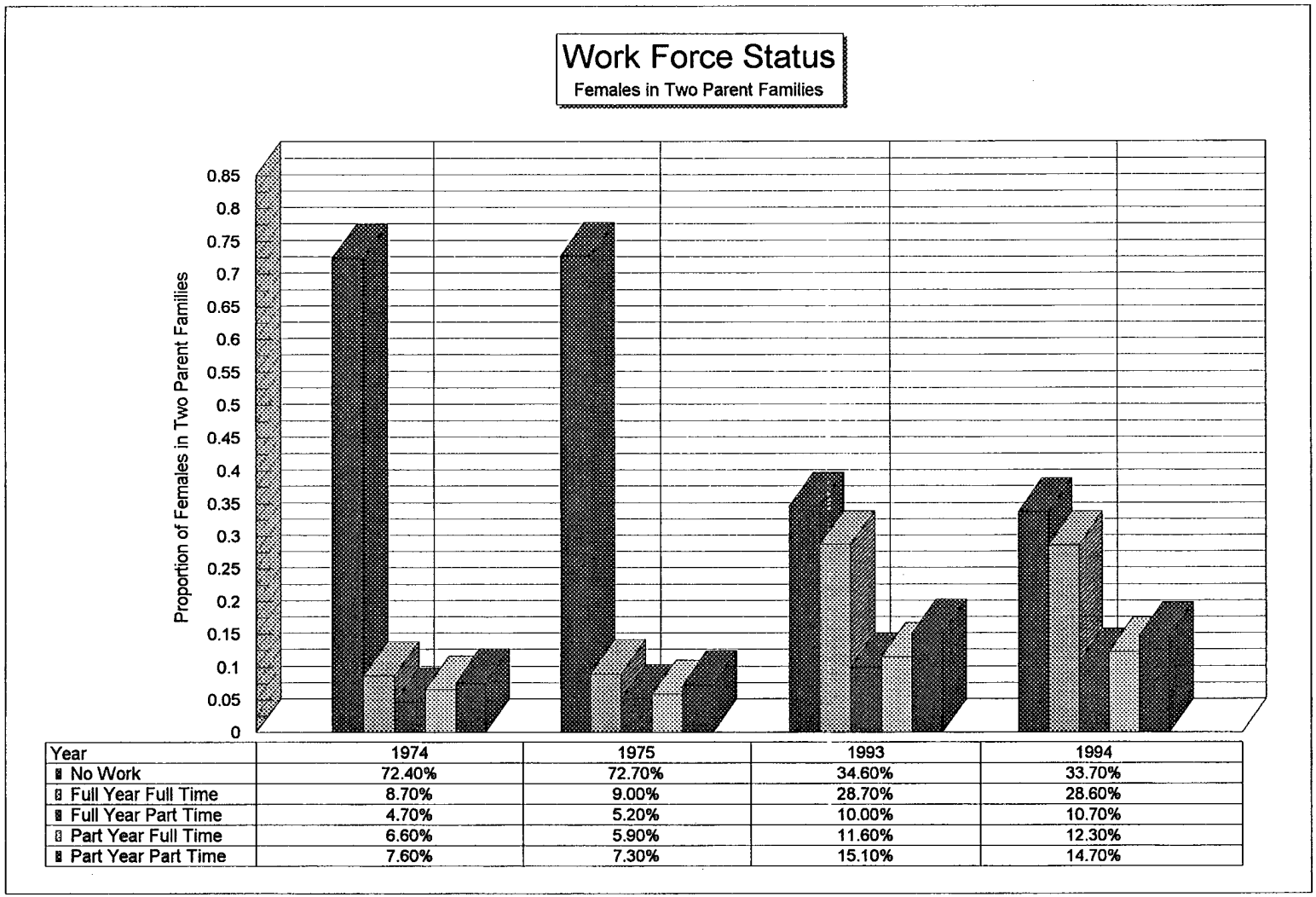




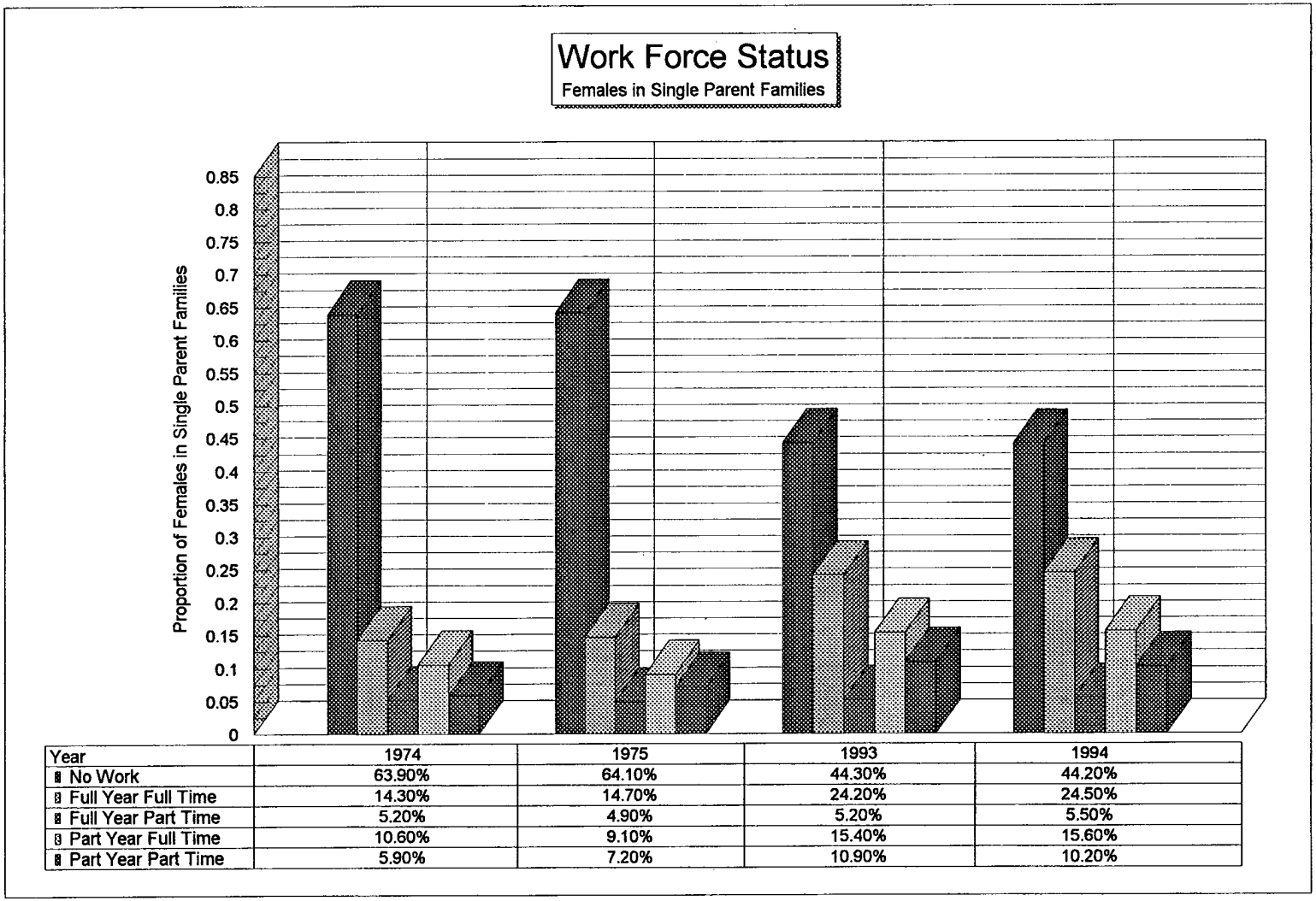
Year	1974	1975	1993	1994
TPFAM--Mean	0.9982	0.9930	0.8988	0.9157
TPFAM--Maximum	8.0000	9.0000	6.0000	5.0000
SPFAM--Mean	1.1551	1.1809	0.8696	0.8348
SPFAM--Maximum	7.0000	8.0000	5.0000	5.0000
ENTIRE-- Mean	1.0233	1.0263	0.8906	0.8926
ENTIRE-- Maximum	8.0000	9.0000	6.0000	5.0000



Year	1974	1975	1993	1994
No Work	12.10%	16.60%	4.60%	5.10%
Full Year Full Time	71.00%	65.90%	77.00%	77.90%
Full Year Part Time	5.10%	6.00%	1.70%	2.00%
Part Year Full Time	9.30%	8.60%	14.50%	13.10%
Part Year Part Time	2.50%	2.90%	2.20%	1.90%



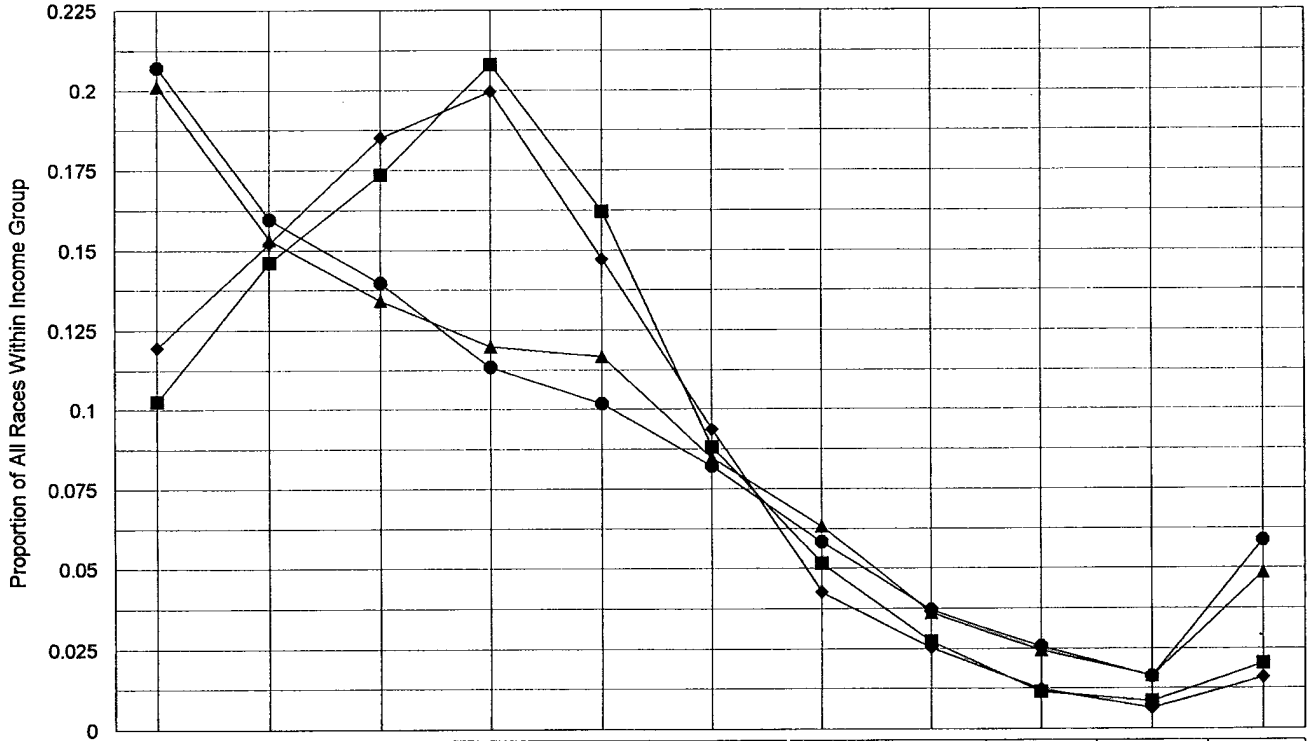
Year	1974	1975	1993	1994
No Work	72.40%	72.70%	34.60%	33.70%
Full Year Full Time	8.70%	9.00%	28.70%	28.60%
Full Year Part Time	4.70%	5.20%	10.00%	10.70%
Part Year Full Time	6.60%	5.90%	11.60%	12.30%
Part Year Part Time	7.60%	7.30%	15.10%	14.70%



Year	1974	1975	1993	1994
No Work	63.90%	64.10%	44.30%	44.20%
Full Year Full Time	14.30%	14.70%	24.20%	24.50%
Full Year Part Time	5.20%	4.90%	5.20%	5.50%
Part Year Full Time	10.60%	9.10%	15.40%	15.60%
Part Year Part Time	5.90%	7.20%	10.90%	10.20%

Total Money Income Distribution Over the Years

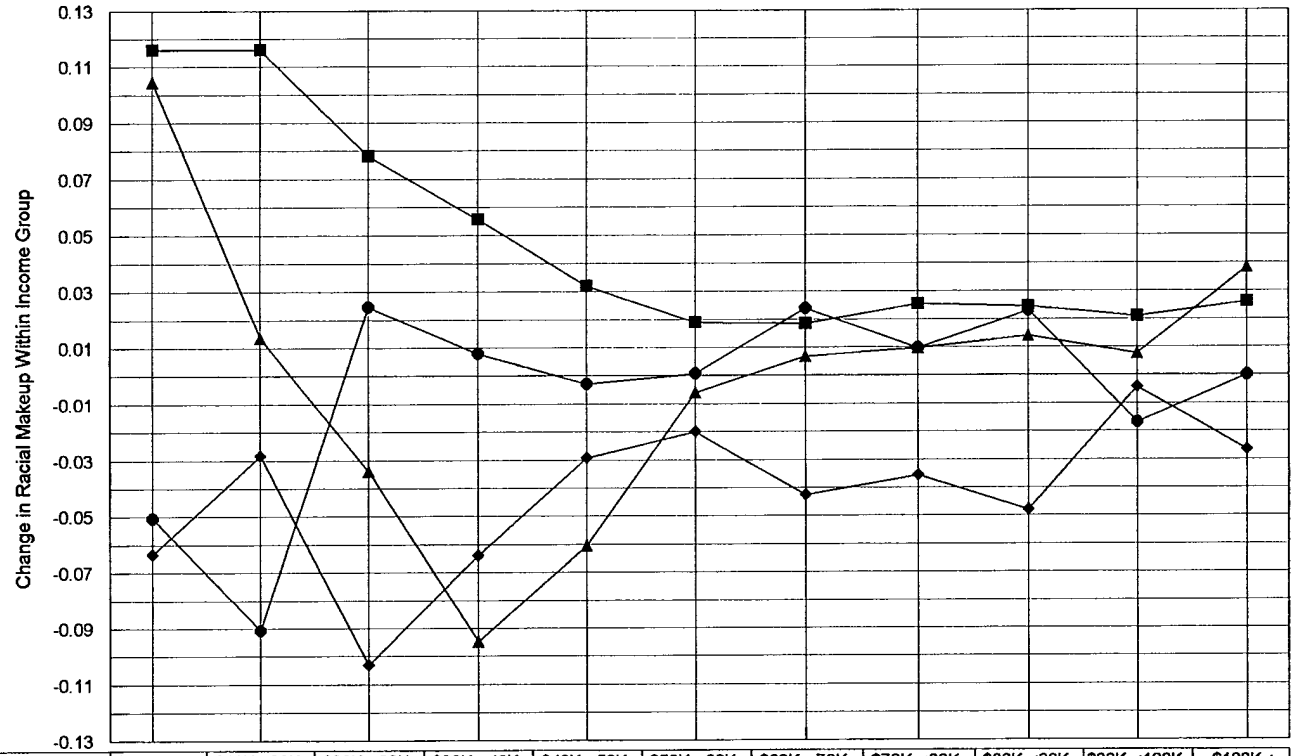
Entire Sample 1974-1975-1993-1994



Income Group	$1-<10K	$10K-<20K	$20K-<30K	$30K-<40K	$40K-<50K	$50K-<60K	$60K-<70K	$70K-<80K	$80K-<90K	$90K-<100K	$100K +
■ 1974	10.27%	14.61%	17.37%	20.81%	16.22%	8.80%	5.16%	2.73%	1.16%	0.85%	2.03%
◆ 1975	11.97%	15.20%	18.51%	19.96%	14.72%	9.38%	4.26%	2.52%	1.24%	0.64%	1.59%
▲ 1993	20.12%	15.34%	13.41%	12.01%	11.67%	8.48%	6.35%	3.63%	2.46%	1.65%	4.87%
● 1994	20.71%	15.96%	13.98%	11.34%	10.18%	8.21%	5.84%	3.71%	2.56%	1.63%	5.88%

Change in Total Money Income Distribution for Each Racial Group

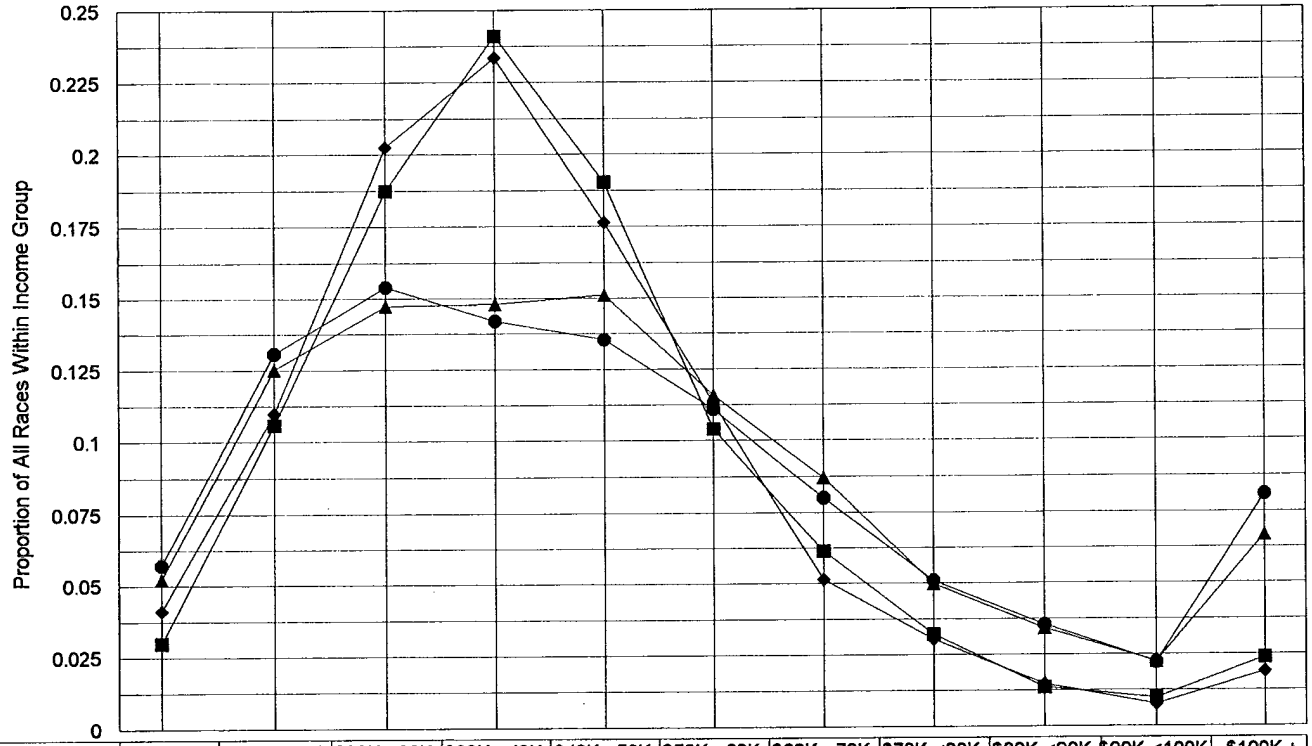
Entire Sample 1974-1994



Income Group	$1-<10K	$10K-<20K	$20K-<30K	$30K-<40K	$40K-<50K	$50K-<60K	$60K-<70K	$70K-<80K	$80K-<90K	$90K-<100K	$100K +
◆ WHITE+OTH NHSP	-6.34%	-2.84%	-10.30%	-6.38%	-2.92%	-1.99%	-4.25%	-3.54%	-4.78%	-0.42%	-2.64%
● BLACK NHSP	-5.05%	-9.08%	2.46%	0.79%	-0.29%	0.08%	2.41%	0.98%	2.31%	-1.68%	0.02%
■ HISPANIC	11.60%	11.62%	7.84%	5.59%	3.22%	1.91%	1.86%	2.57%	2.47%	2.10%	2.62%
▲ TOTAL	10.44%	1.35%	-3.39%	-9.47%	-6.04%	-0.59%	0.68%	0.98%	1.40%	0.78%	3.85%

Total Money Income Distribution Over the Years

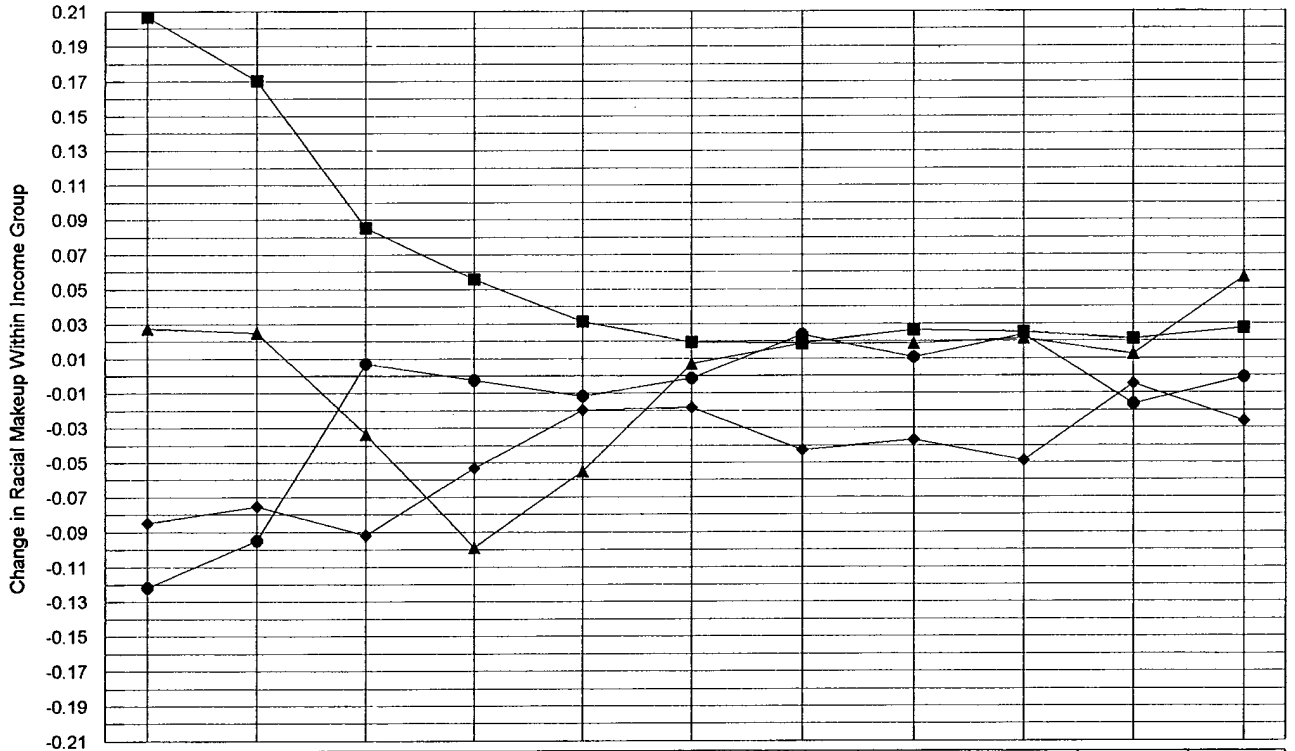
Two Parent Families 1974-1975-1993-1994



Income Group	$1-<10K	$10K-<20K	$20K-<30K	$30K-<40K	$40K-<50K	$50K-<60K	$60K-<70K	$70K-<80K	$80K-<90K	$90K-<100K	$100K +
■ 1974	2.99%	10.60%	18.74%	24.10%	19.04%	10.40%	6.13%	3.22%	1.38%	1.00%	2.40%
◆ 1975	4.11%	10.99%	20.25%	23.34%	17.63%	11.31%	5.14%	3.03%	1.49%	0.78%	1.90%
▲ 1993	5.24%	12.51%	14.73%	14.80%	15.10%	11.59%	8.70%	4.99%	3.41%	2.26%	6.66%
● 1994	5.72%	13.08%	15.40%	14.20%	13.53%	11.10%	8.00%	5.09%	3.54%	2.24%	8.09%

Change In Total Money Income Distribution For each Racial Group

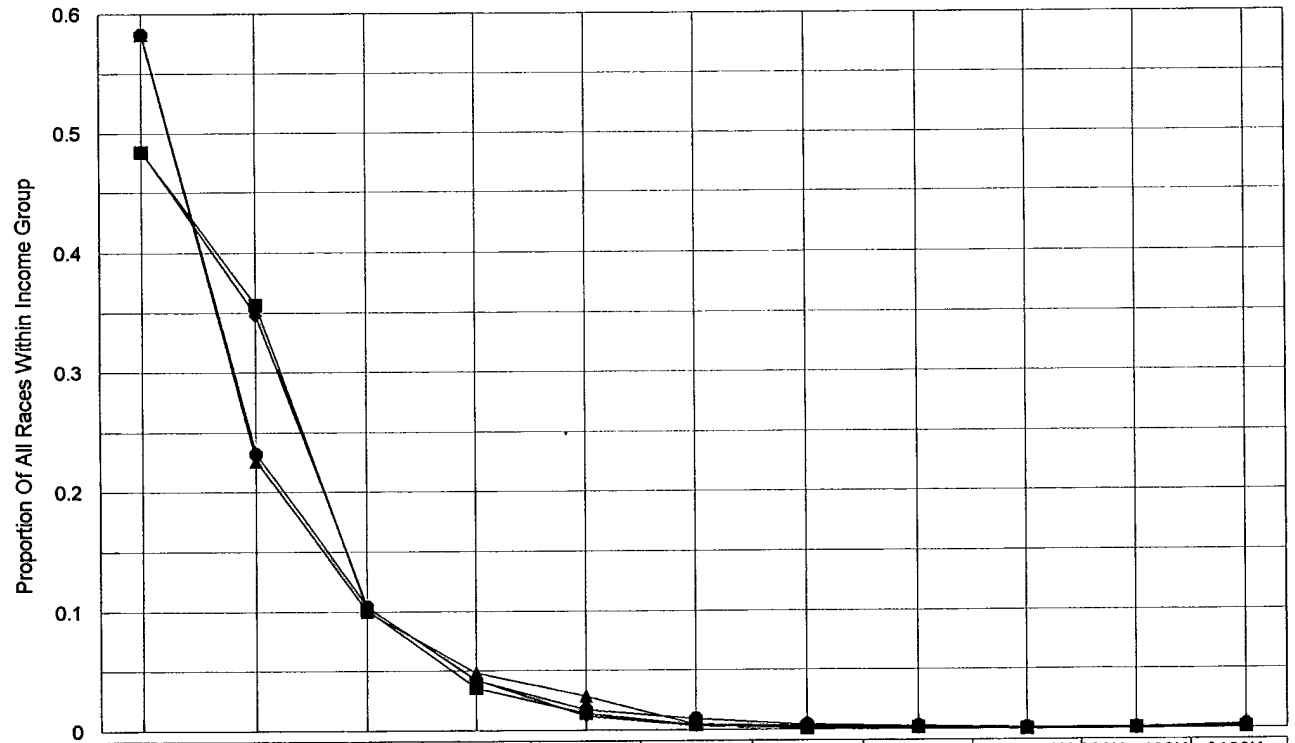
Two Parent Families 1974-1994



Income Group	$1-<10K	$10K-<20K	$20K-<30K	$30K-<40K	$40K-<50K	$50K-<60K	$60K-<70K	$70K-<80K	$80K-<90K	$90K-<100K	$100K +
◆ WHITE+OTH NHSP	-8.50%	-7.55%	-9.21%	-5.33%	-1.96%	-1.82%	-4.28%	-3.68%	-4.88%	-0.48%	-2.63%
● BLACK NHSP	-12.18%	-9.49%	0.69%	-0.25%	-1.16%	-0.13%	2.39%	1.04%	2.37%	-1.65%	-0.12%
■ HISPANIC	20.68%	17.05%	8.52%	5.57%	3.13%	1.95%	1.89%	2.64%	2.51%	2.13%	2.75%
▲ TOTAL	2.73%	2.48%	-3.34%	-9.90%	-5.51%	0.70%	1.87%	1.87%	2.16%	1.24%	5.69%

Total Money Income Distribution Over the Years

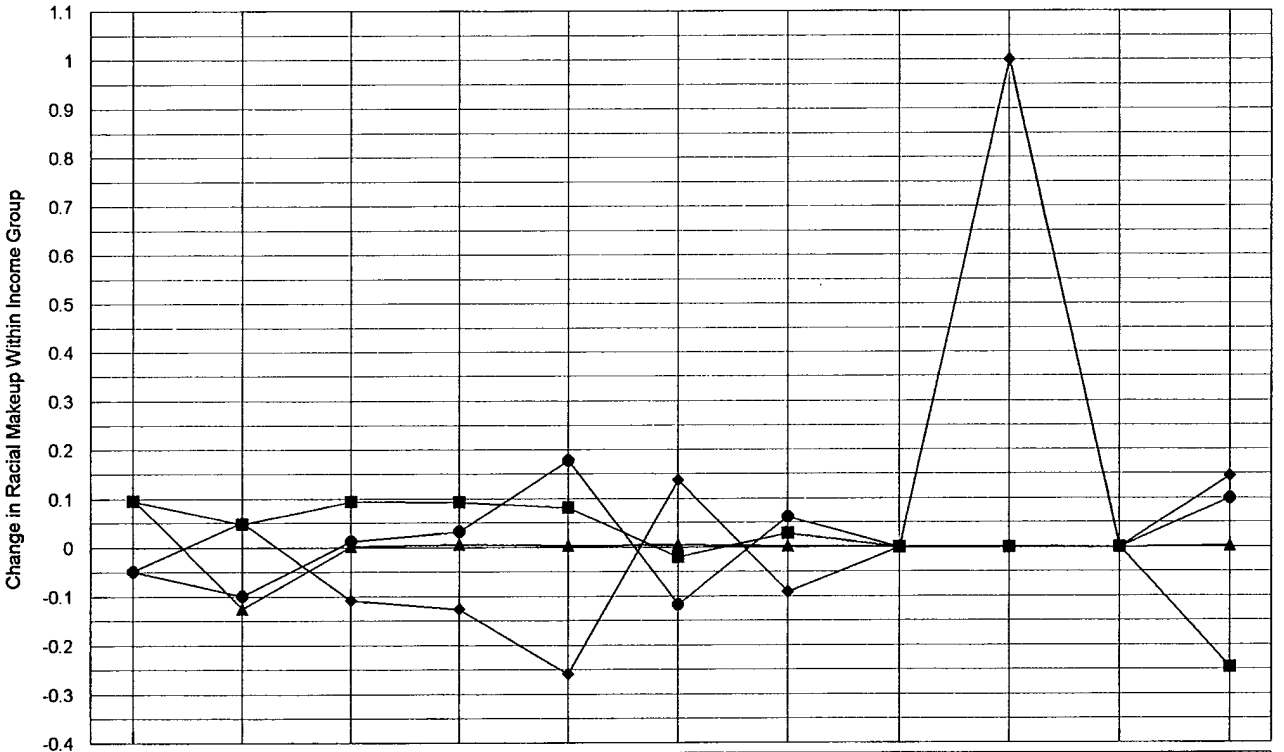
One Parent Families 1974-1975-1993-1994



Income Group	$1-<10K	$10K-<20K	$20K-<30K	$30K-<40K	$40K-<50K	$50K-<60K	$60K-<70K	$70K-<80K	$80K-<90K	$90K-<100K	$100K +
■ 1974	48.44%	35.62%	10.15%	3.57%	1.41%	0.41%	0.12%	0.16%	0.00%	0.03%	0.09%
◆ 1975	48.50%	34.75%	10.41%	4.25%	1.23%	0.36%	0.19%	0.12%	0.06%	0.00%	0.12%
▲ 1993	58.31%	22.60%	10.02%	4.85%	2.87%	0.50%	0.31%	0.13%	0.03%	0.11%	0.27%
● 1994	58.29%	23.17%	10.43%	4.17%	1.77%	0.97%	0.43%	0.24%	0.10%	0.09%	0.34%

Change In Total Money Income Distribution For Each Racial Group

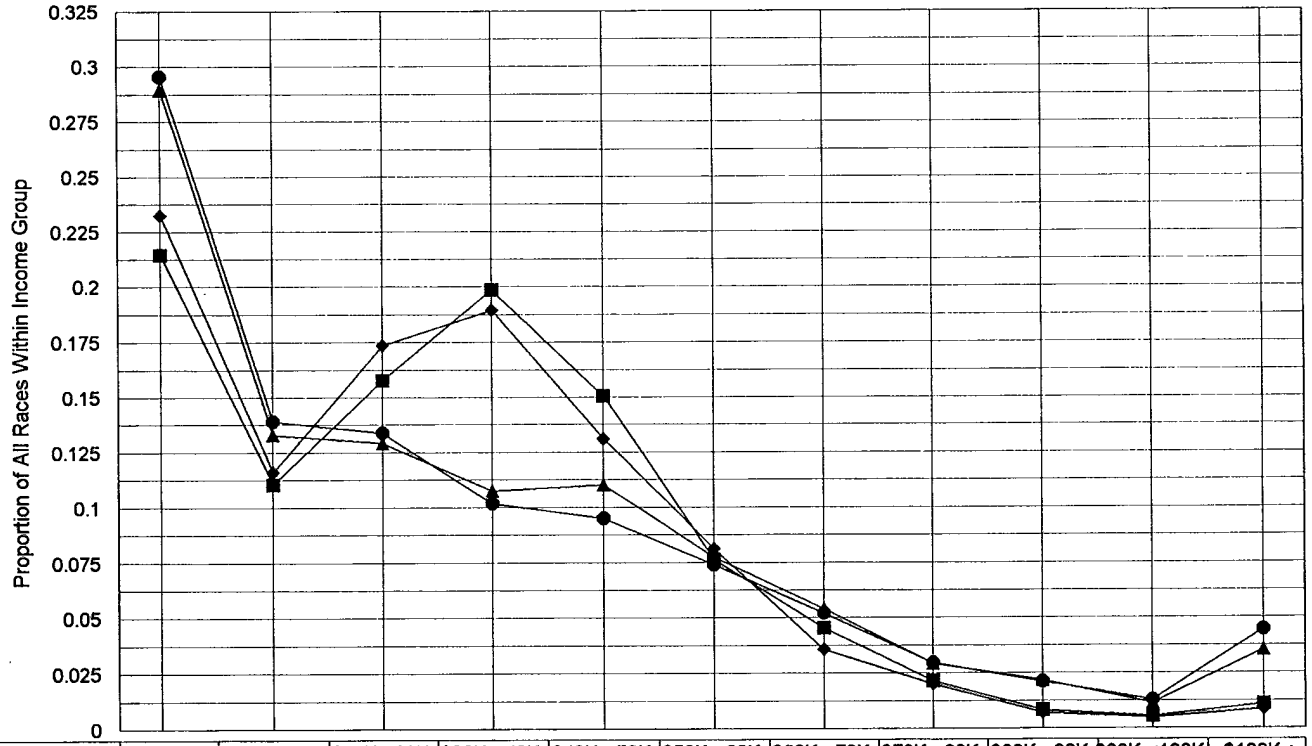
One Parent Families 1974-1994



Income Group	$1-<10K	$10K-<20K	$20K-<30K	$30K-<40K	$40K-<50K	$50K-<60K	$60K-<70K	$70K-<80K	$80K-<90K	$90K-<100K	$100K +
◆ WHITE+OTH NHSP	-4.73%	5.14%	-10.78%	-12.62%	-25.95%	13.72%	-9.10%	0.00%	100.00%	0.00%	14.61%
● BLACK NHSP	-4.82%	-9.95%	1.34%	3.25%	17.80%	-11.73%	6.24%	0.00%	0.00%	0.00%	9.95%
■ HISPANIC	9.54%	4.82%	9.44%	9.37%	8.15%	-1.98%	2.86%	0.00%	0.00%	0.00%	-24.56%
▲ TOTAL	9.85%	-12.45%	0.28%	0.60%	0.36%	0.56%	0.31%	0.08%	0.10%	0.06%	0.25%

Total Labor Income Distribution Over the Years

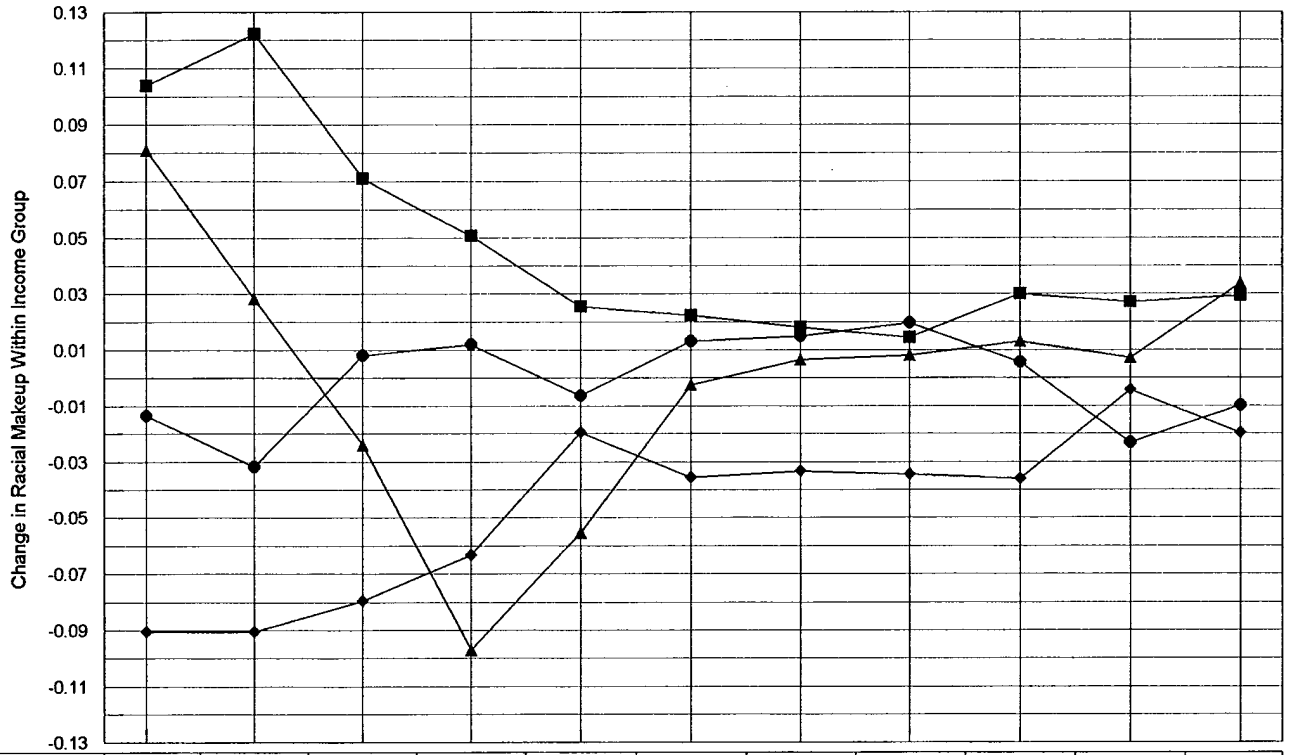
Entire Sample 1974-1975-1993-1994



Income Group	$1-<10K	$10K-<20K	$20K-<30K	$30K-<40K	$40K-<50K	$50K-<60K	$60K-<70K	$70K-<80K	$80K-<90K	$90K-<100K	$100K +
■ 1974	21.44%	11.07%	15.77%	19.87%	15.05%	7.64%	4.55%	2.15%	0.82%	0.56%	1.09%
◆ 1975	23.23%	11.61%	17.37%	18.95%	13.10%	8.12%	3.58%	2.01%	0.72%	0.48%	0.86%
▲ 1993	28.93%	13.32%	12.93%	10.78%	11.04%	7.75%	5.41%	2.94%	2.18%	1.15%	3.55%
● 1994	29.54%	13.90%	13.38%	10.18%	9.52%	7.41%	5.22%	2.98%	2.14%	1.29%	4.46%

Change in Total Labor Income Distribution For Each Racial Group

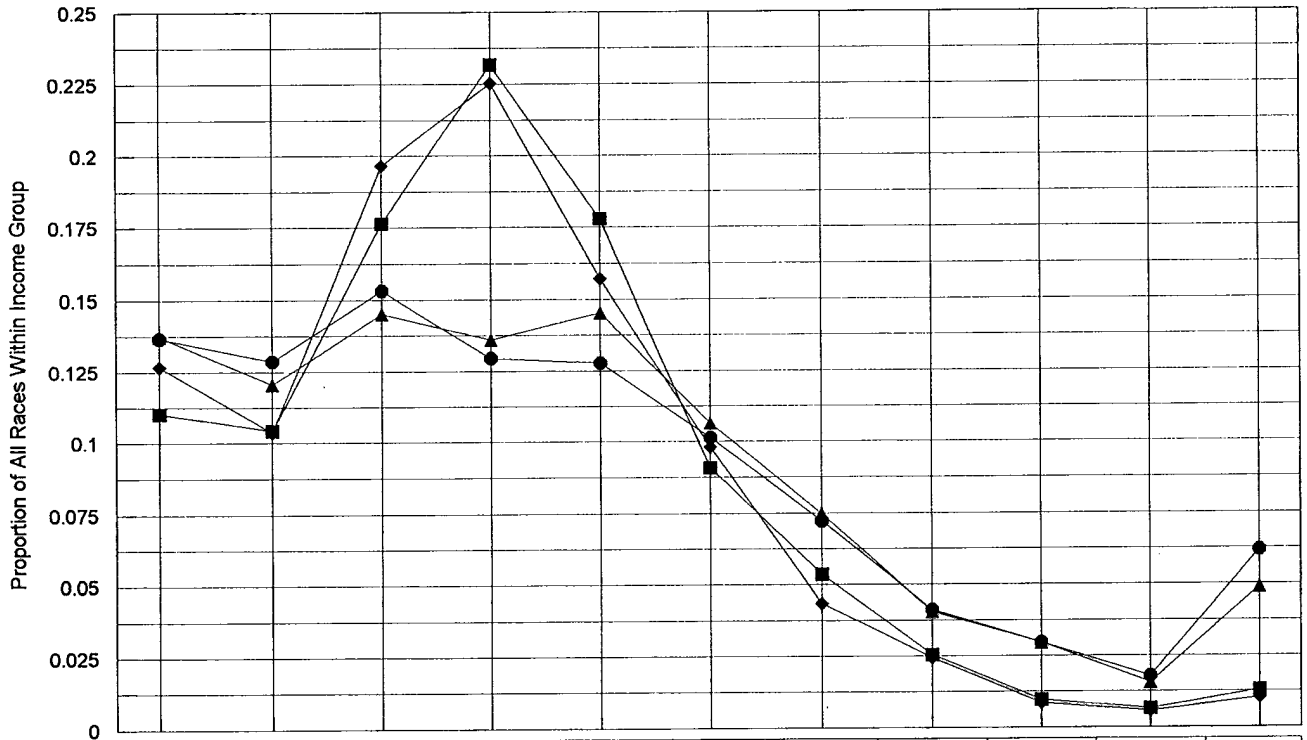
Entire Sample 1974-1994



Income Group	$1-<10K	$10K-<20K	$20K-<30K	$30K-<40K	$40K-<50K	$50K-<60K	$60K-<70K	$70K-<80K	$80K-<90K	$90K-<100K	$100K +
◆ WHITE+OTH NHSP	-9.04%	-9.05%	-7.94%	-6.31%	-1.94%	-3.56%	-3.31%	-3.44%	-3.60%	-0.41%	-1.97%
● BLACK NHSP	-1.35%	-3.17%	0.83%	1.21%	-0.61%	1.32%	1.50%	1.98%	0.57%	-2.30%	-0.97%
■ HISPANIC	10.39%	12.23%	7.10%	5.09%	2.55%	2.24%	1.81%	1.46%	3.02%	2.71%	2.95%
▲ TOTAL	8.10%	2.83%	-2.39%	-9.69%	-5.53%	-0.23%	0.67%	0.83%	1.32%	0.73%	3.37%

Total Labor Income Distribution Over the Years

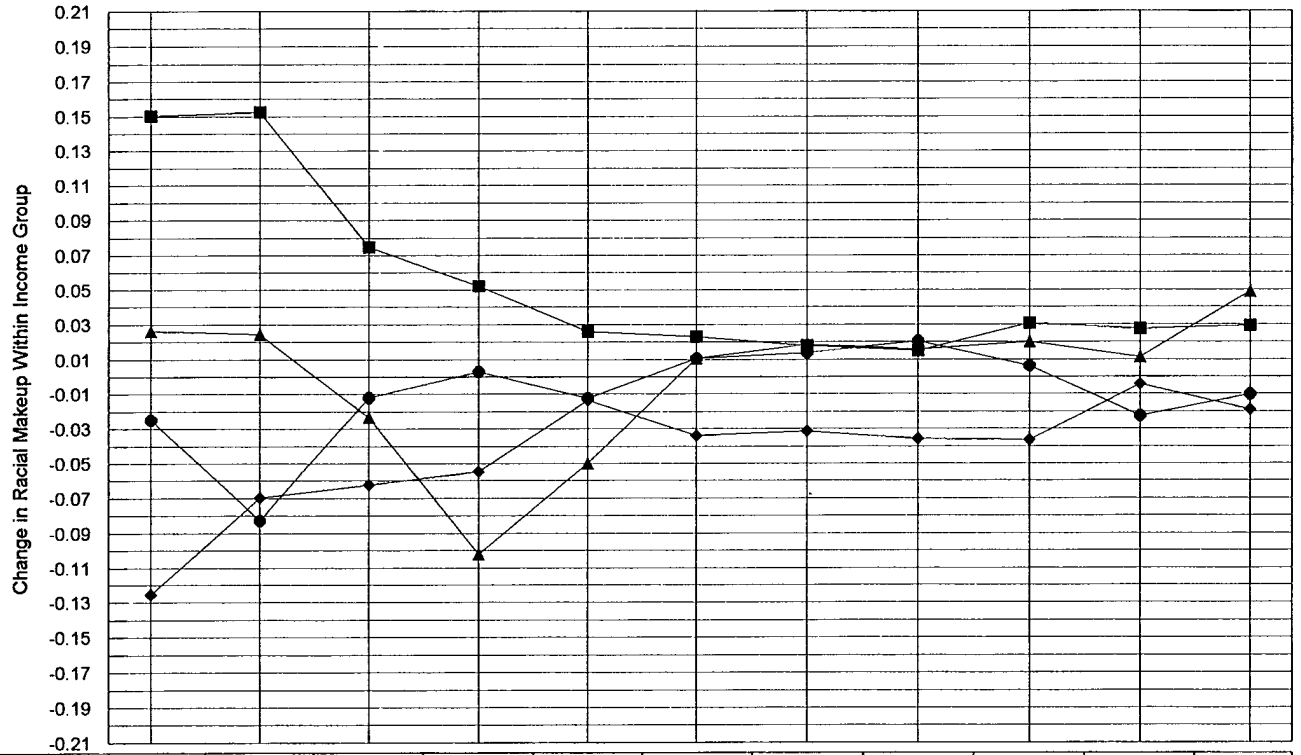
Two Parent Families 1974-1975-1993-1994



Income Group	$1-<10K	$10K-<20K	$20K-<30K	$30K-<40K	$40K-<50K	$50K-<60K	$60K-<70K	$70K-<80K	$80K-<90K	$90K-<100K	$100K +
■ 1974	11.04%	10.43%	17.64%	23.16%	17.78%	9.08%	5.37%	2.55%	0.98%	0.66%	1.30%
◆ 1975	12.67%	10.36%	19.66%	22.53%	15.70%	9.81%	4.34%	2.43%	0.87%	0.58%	1.04%
▲ 1993	13.73%	12.05%	14.51%	13.59%	14.53%	10.65%	7.46%	4.05%	2.96%	1.58%	4.89%
● 1994	13.67%	12.86%	15.30%	12.96%	12.78%	10.15%	7.22%	4.11%	2.97%	1.79%	6.19%

Change in Total Labor Income Distribution For Each Racial Group

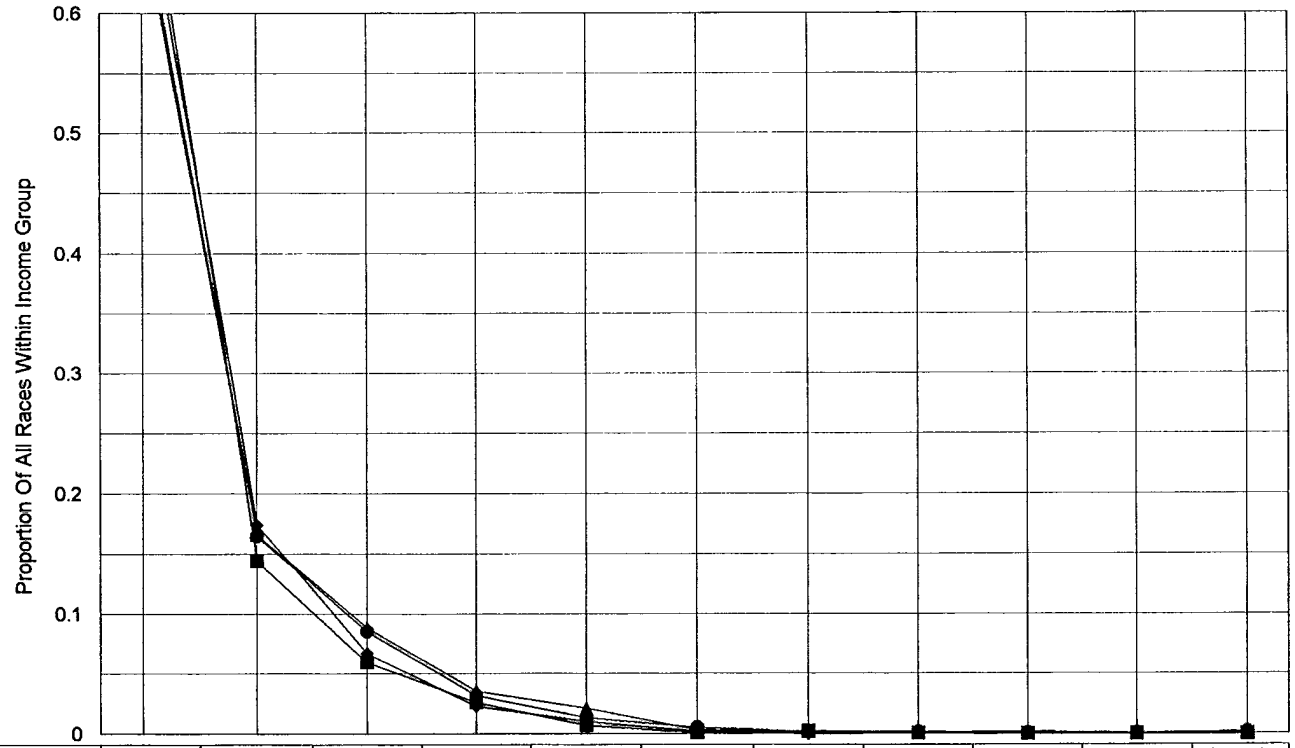
Two Parent Families 1974-1994



Income Group	$1-<10K	$10K-<20K	$20K-<30K	$30K-<40K	$40K-<50K	$50K-<60K	$60K-<70K	$70K-<80K	$80K-<90K	$90K-<100K	$100K +
◆ WHITE+OTH NHSP	-12.55%	-6.96%	-6.25%	-5.49%	-1.35%	-3.40%	-3.15%	-3.56%	-3.67%	-0.46%	-1.88%
● BLACK NHSP	-2.48%	-8.28%	-1.21%	0.28%	-1.25%	1.08%	1.38%	2.05%	0.61%	-2.27%	-1.02%
■ HISPANIC	15.02%	15.24%	7.46%	5.22%	2.60%	2.31%	1.77%	1.51%	3.06%	2.73%	2.91%
▲ TOTAL	2.63%	2.43%	-2.34%	-10.20%	-5.00%	1.07%	1.85%	1.56%	1.99%	1.13%	4.89%

Total Labor Income Distribution Over the Years

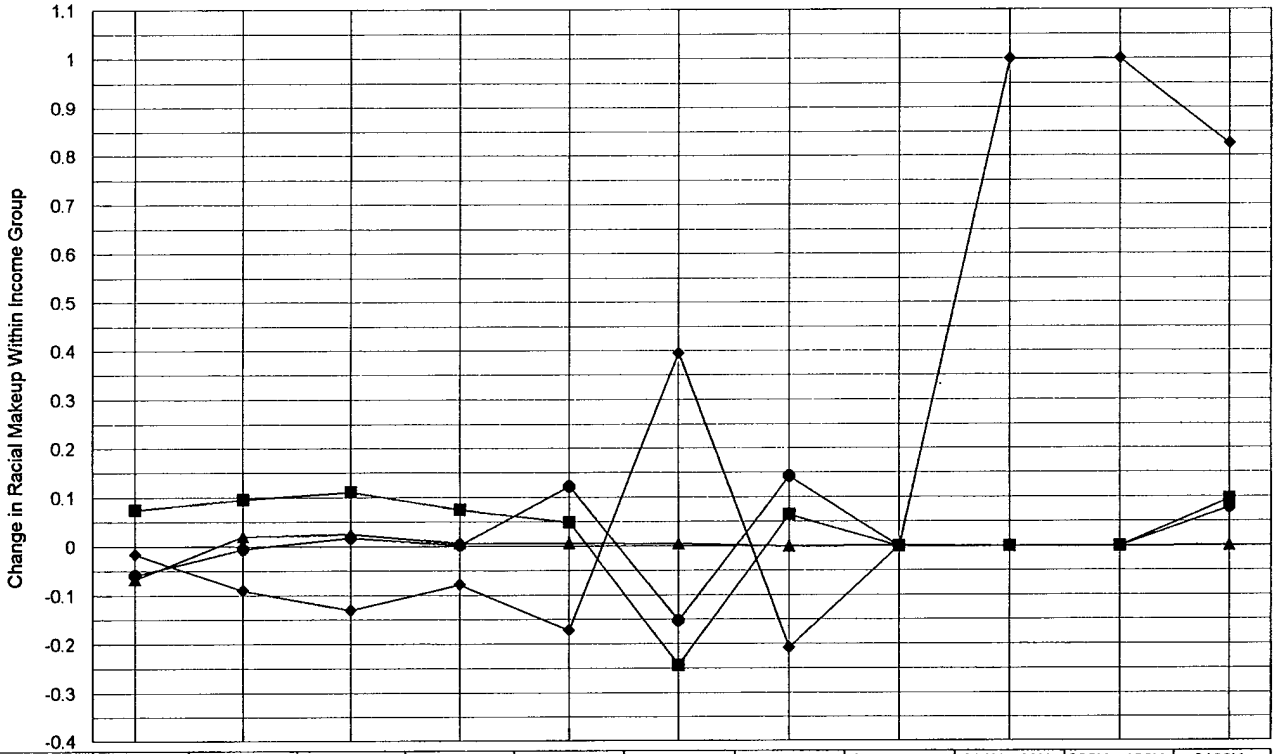
One Parent Families 1974-1975-1993-1994



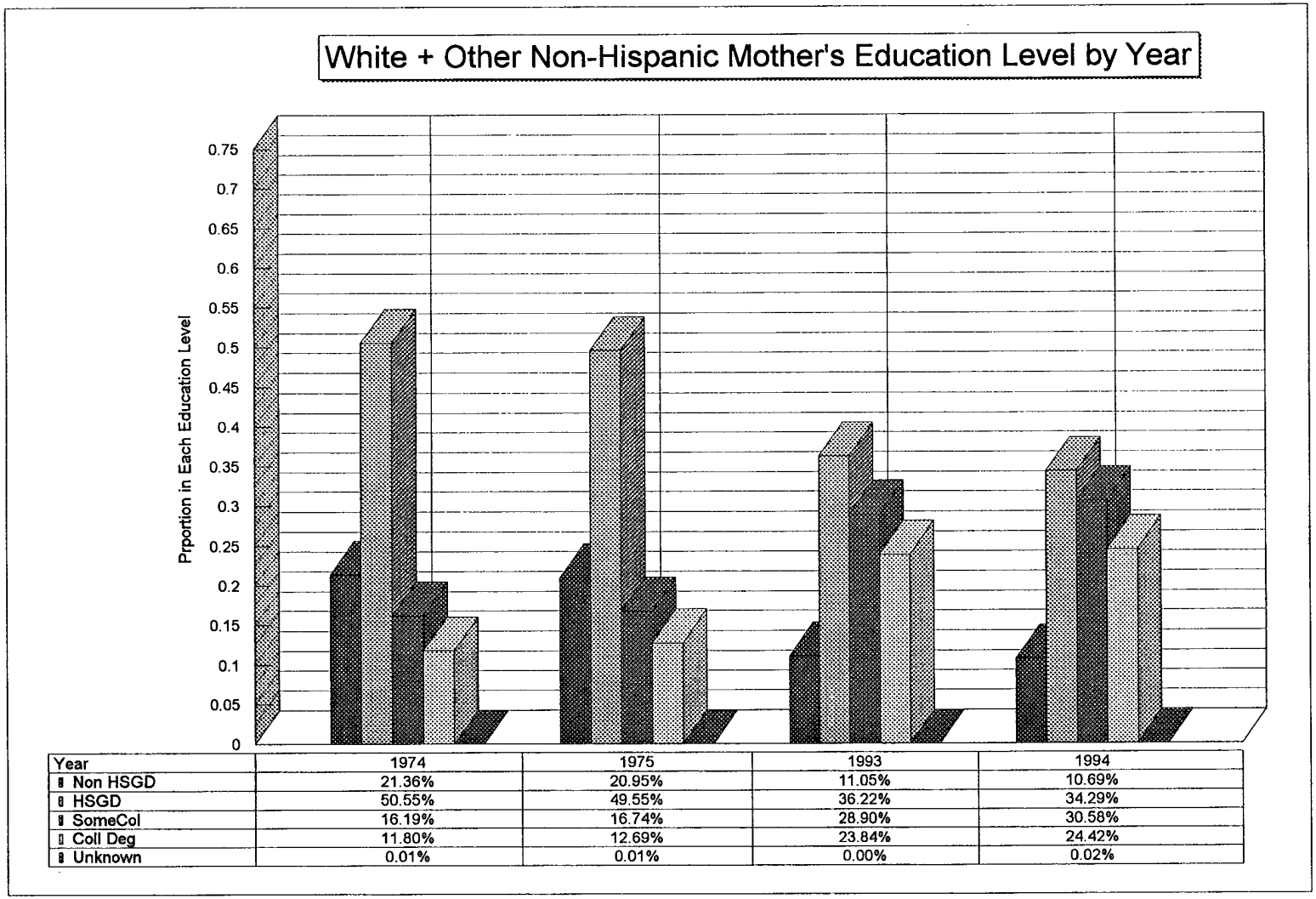
Income Group	$1-<10K	$10K-<20K	$20K-<30K	$30K-<40K	$40K-<50K	$50K-<60K	$60K-<70K	$70K-<80K	$80K-<90K	$90K-<100K	$100K +
■ 1974	75.95%	14.41%	5.98%	2.60%	0.70%	0.11%	0.22%	0.03%	0.00%	0.00%	0.00%
◆ 1975	72.29%	17.40%	6.69%	2.31%	1.00%	0.23%	0.02%	0.06%	0.00%	0.00%	0.00%
▲ 1993	67.94%	16.58%	8.88%	3.55%	2.11%	0.33%	0.17%	0.10%	0.18%	0.03%	0.12%
● 1994	69.31%	16.51%	8.56%	3.19%	1.34%	0.55%	0.19%	0.13%	0.06%	0.03%	0.13%

Change in Total Labor Income Distribution for Each Racial Group

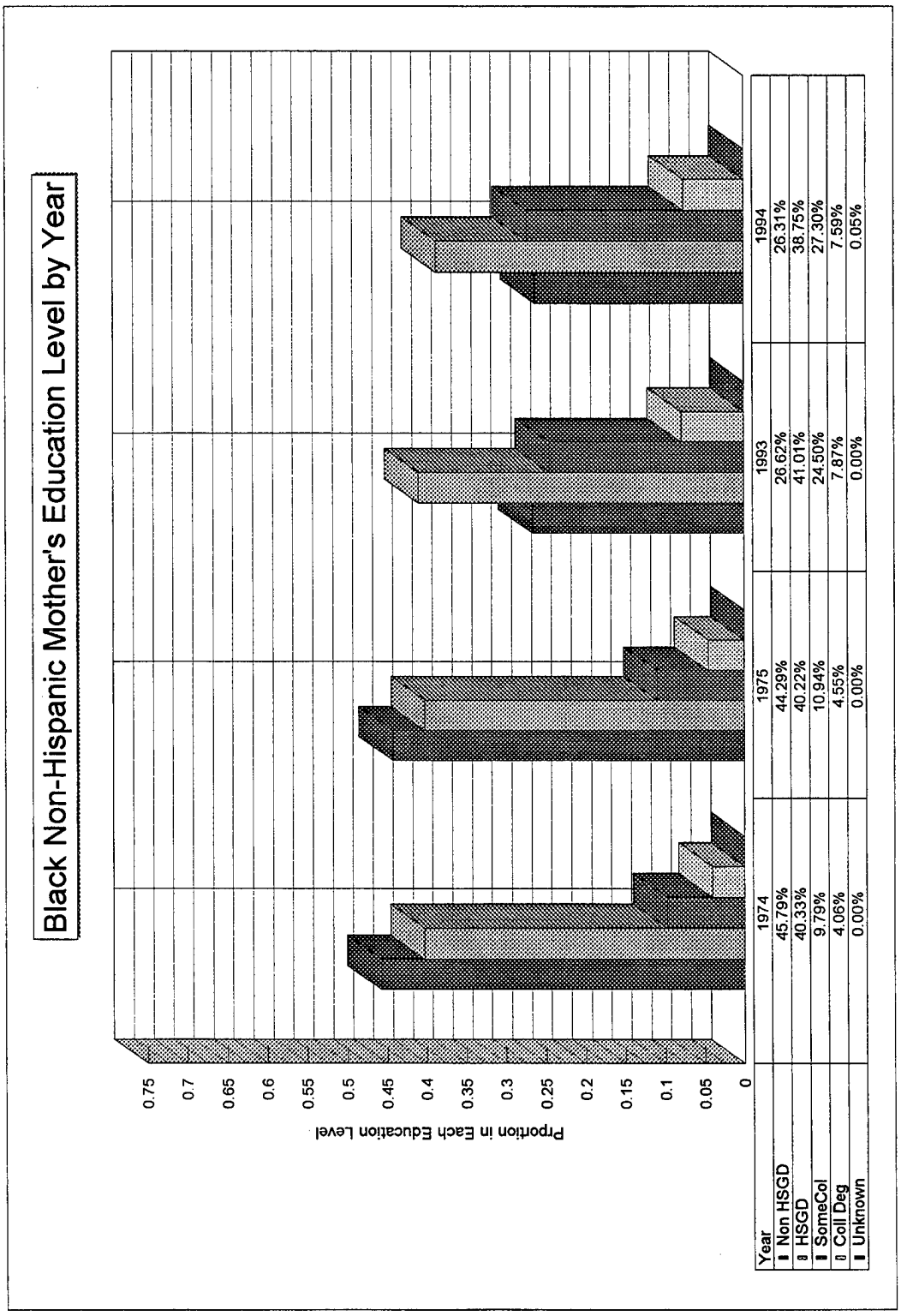
One Parent Families 1974-1994

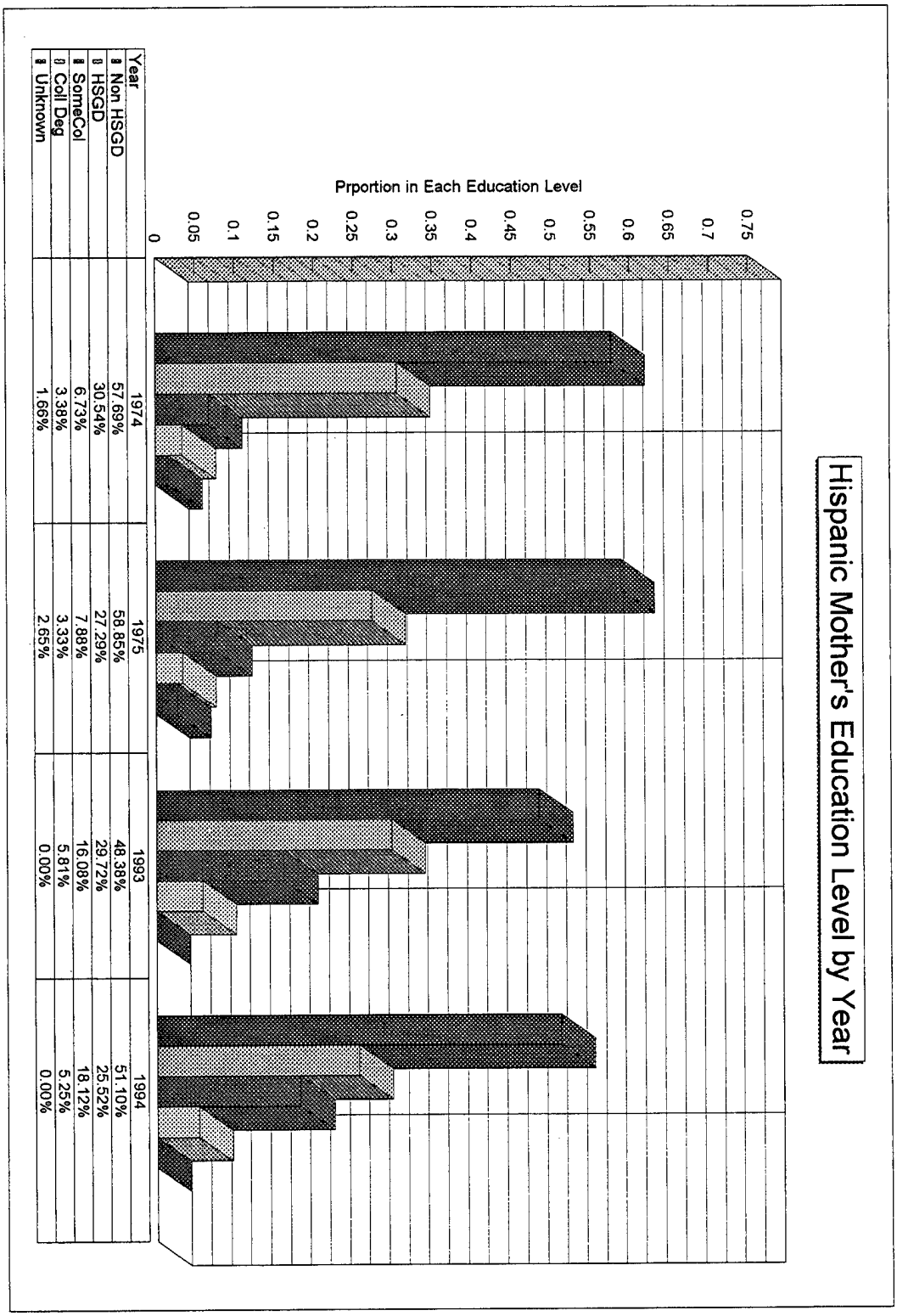


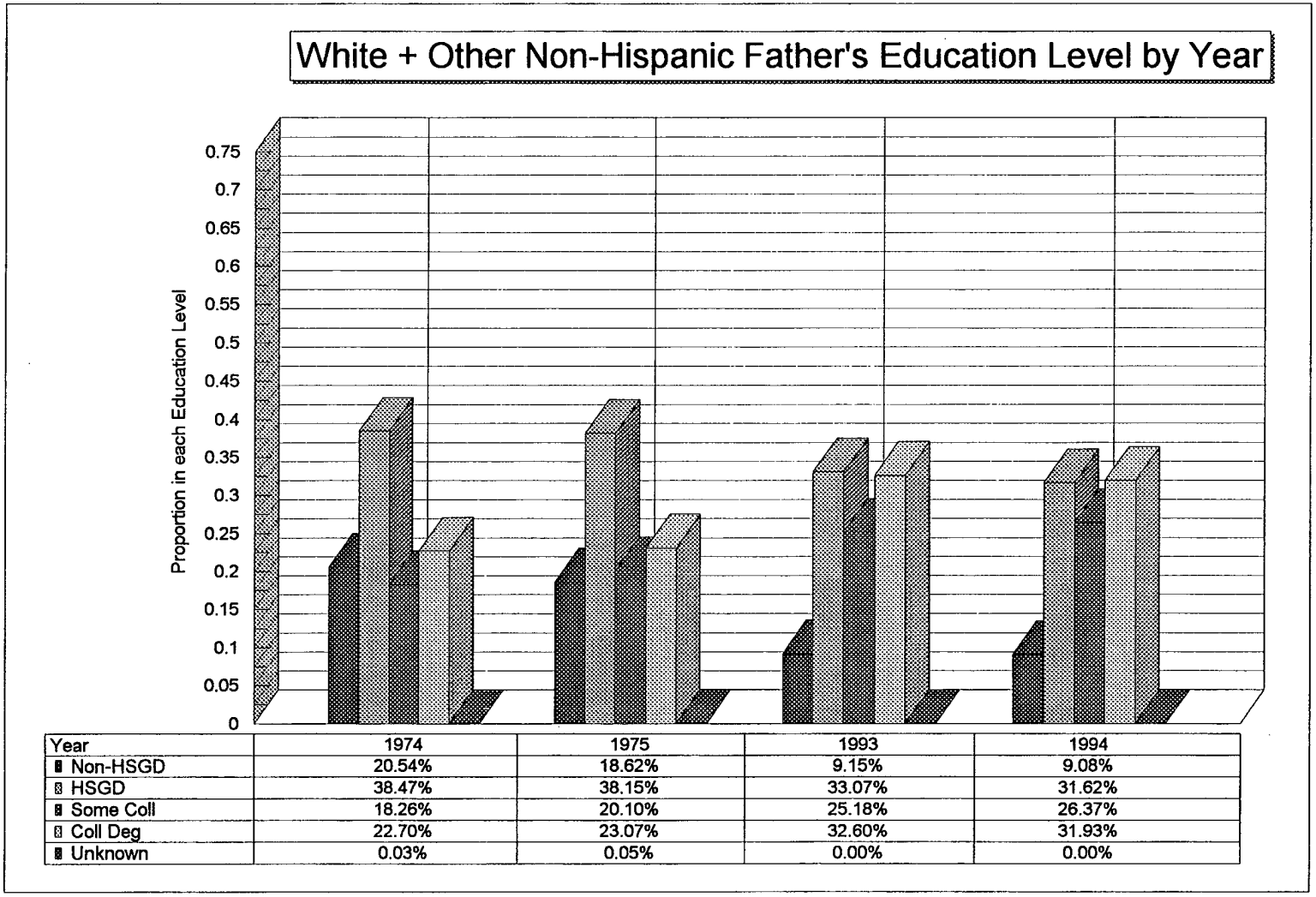
Income Group	$1-<10K	$10K-<20K	$20K-<30K	$30K-<40K	$40K-<50K	$50K-<60K	$60K-<70K	$70K-<80K	$80K-<90K	$90K-<100K	$100K +
◆ WHITE+OTH NHSP	-1.62%	-8.98%	-13.06%	-7.75%	-17.11%	39.51%	-20.79%	0.00%	100.00%	100.00%	82.45%
● BLACK NHSP	-5.89%	-0.56%	1.85%	0.27%	12.24%	-15.18%	14.26%	0.00%	0.00%	0.00%	7.89%
■ HISPANIC	7.51%	9.53%	11.21%	7.48%	4.88%	-24.33%	6.53%	0.00%	0.00%	0.00%	9.66%
▲ TOTAL	-6.64%	2.10%	2.58%	0.59%	0.64%	0.44%	-0.03%	0.10%	0.06%	0.03%	0.13%

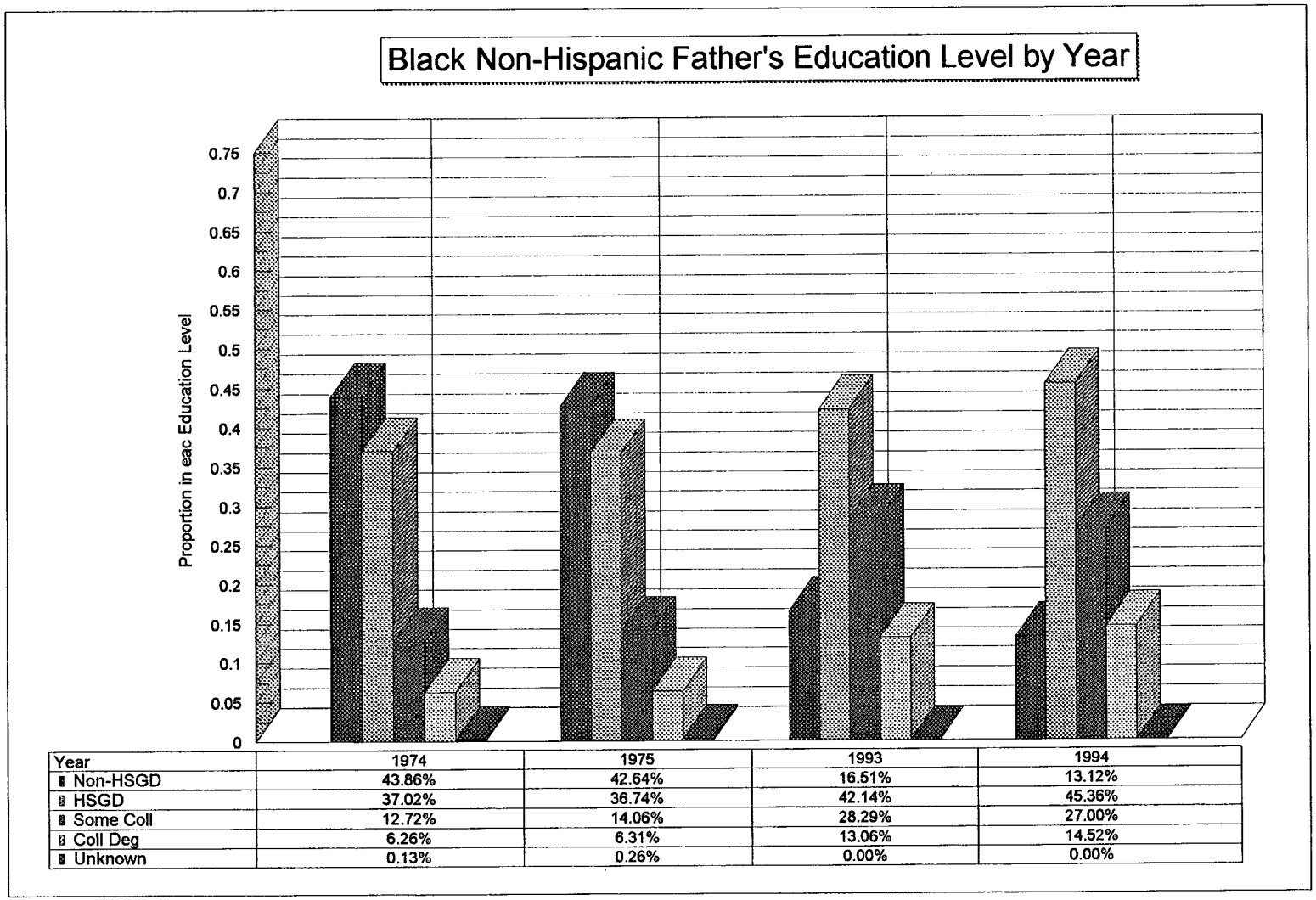


Year	1974	1975	1993	1994
Non HSGD	21.36%	20.95%	11.05%	10.69%
HSGD	50.55%	49.55%	36.22%	34.29%
SomeCol	16.19%	16.74%	28.90%	30.58%
Coll Deg	11.80%	12.69%	23.84%	24.42%
Unknown	0.01%	0.01%	0.00%	0.02%

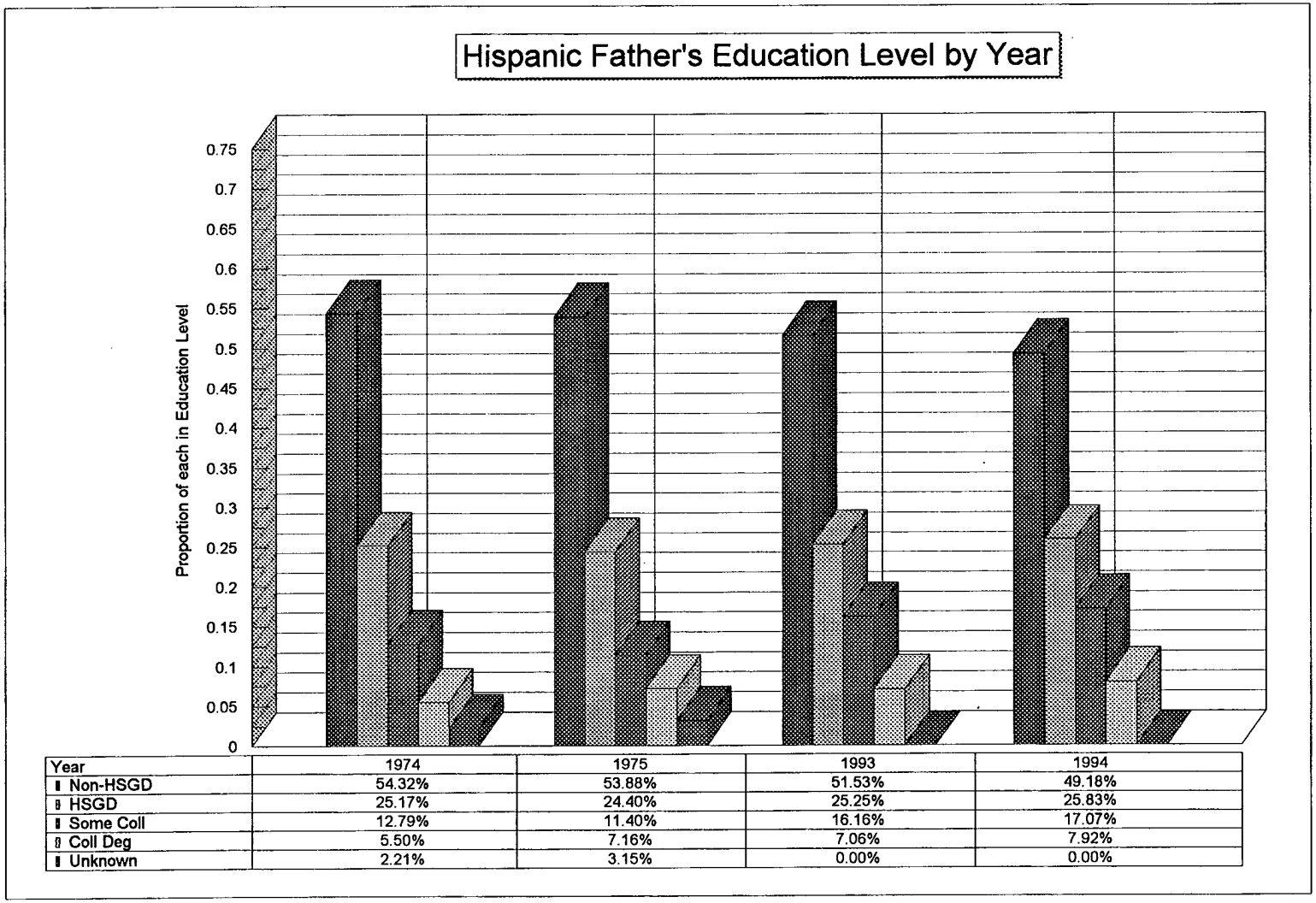

Black Non-Hispanic Mother's Education Level by Year
Proportion in Each Education Level
0.75
0.7
0.65
0.6
0.55
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
Year
1974
1975
1993
1994
Non HSGD
45.79%
44.29%
26.62%
26.31%
HSGD
40.33%
40.22%
41.01%
38.75%
SomeCol
9.79%
10.94%
24.50%
27.30%
Coll Deg
4.06%
4.55%
7.87%
7.59%
Unknown
0.00%
0.00%
0.00%
0.05%


Hispanic Mother's Education Level by Year
Prportion in Each Education Level
0
0.05
0.1
0.15
0.2
0.25
0.3
0.35
0.4
0.45
0.5
0.55
0.6
0.65
0.7
0.75
Year
Non HSGD
HSGD
SomeCol
Coll Deg
Unknown
1974
57.69%
30.54%
6.73%
3.38%
1.66%
1975
58.85%
27.29%
7.88%
3.33%
2.65%
1993
48.38%
29.72%
16.08%
5.81%
0.00%
1994
51.10%
25.52%
18.12%
5.25%
0.00%

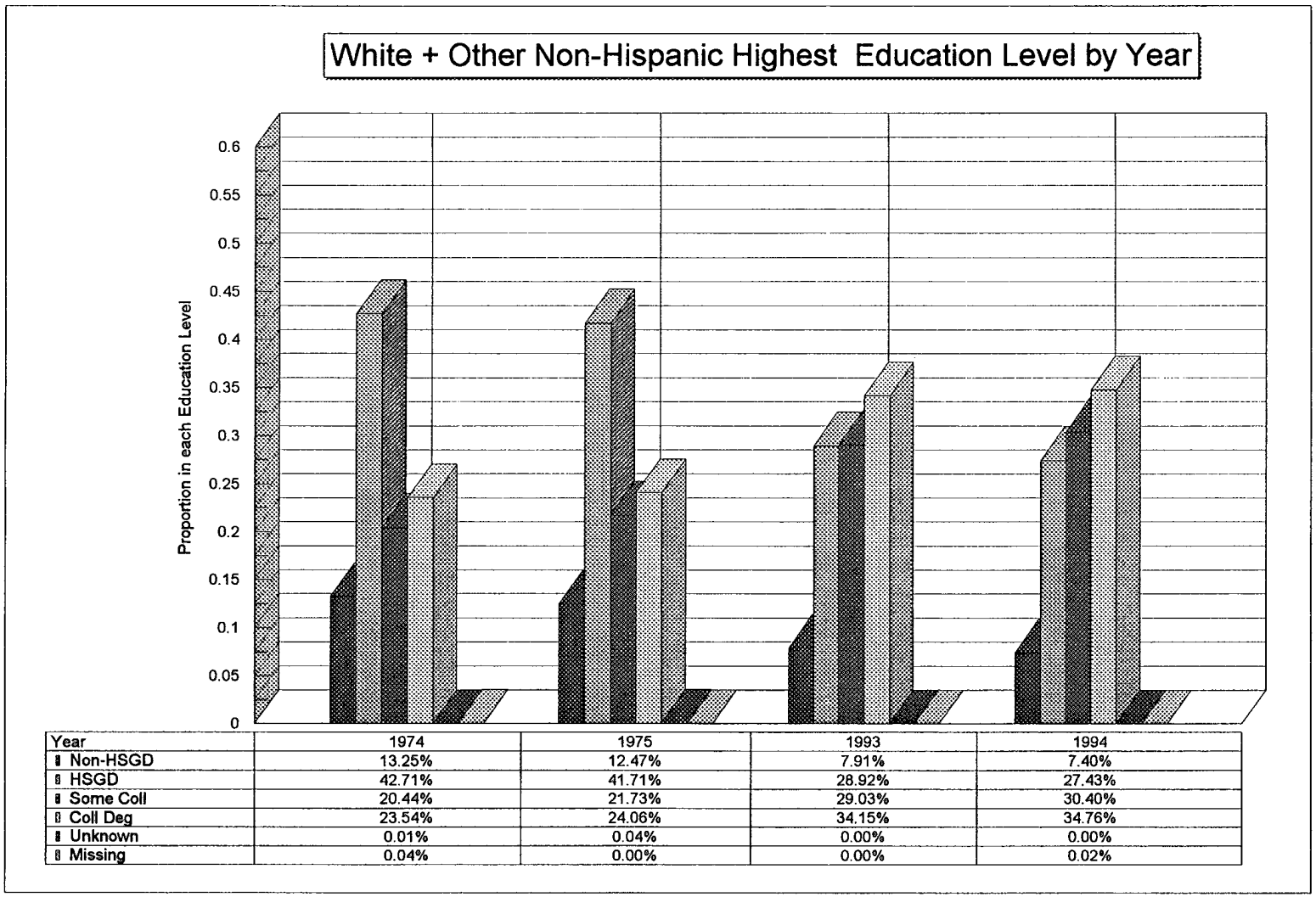

White + Other Non-Hispanic Father's Education Level by Year
Proportion in each Education Level
0.75
0.7
0.65
0.6
0.55
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
Year
1974
1975
1993
1994
Non-HSGD
20.54%
18.62%
9.15%
9.08%
HSGD
38.47%
38.15%
33.07%
31.62%
Some Coll
18.26%
20.10%
25.18%
26.37%
Coll Deg
22.70%
23.07%
32.60%
31.93%
Unknown
0.03%
0.05%
0.00%
0.00%



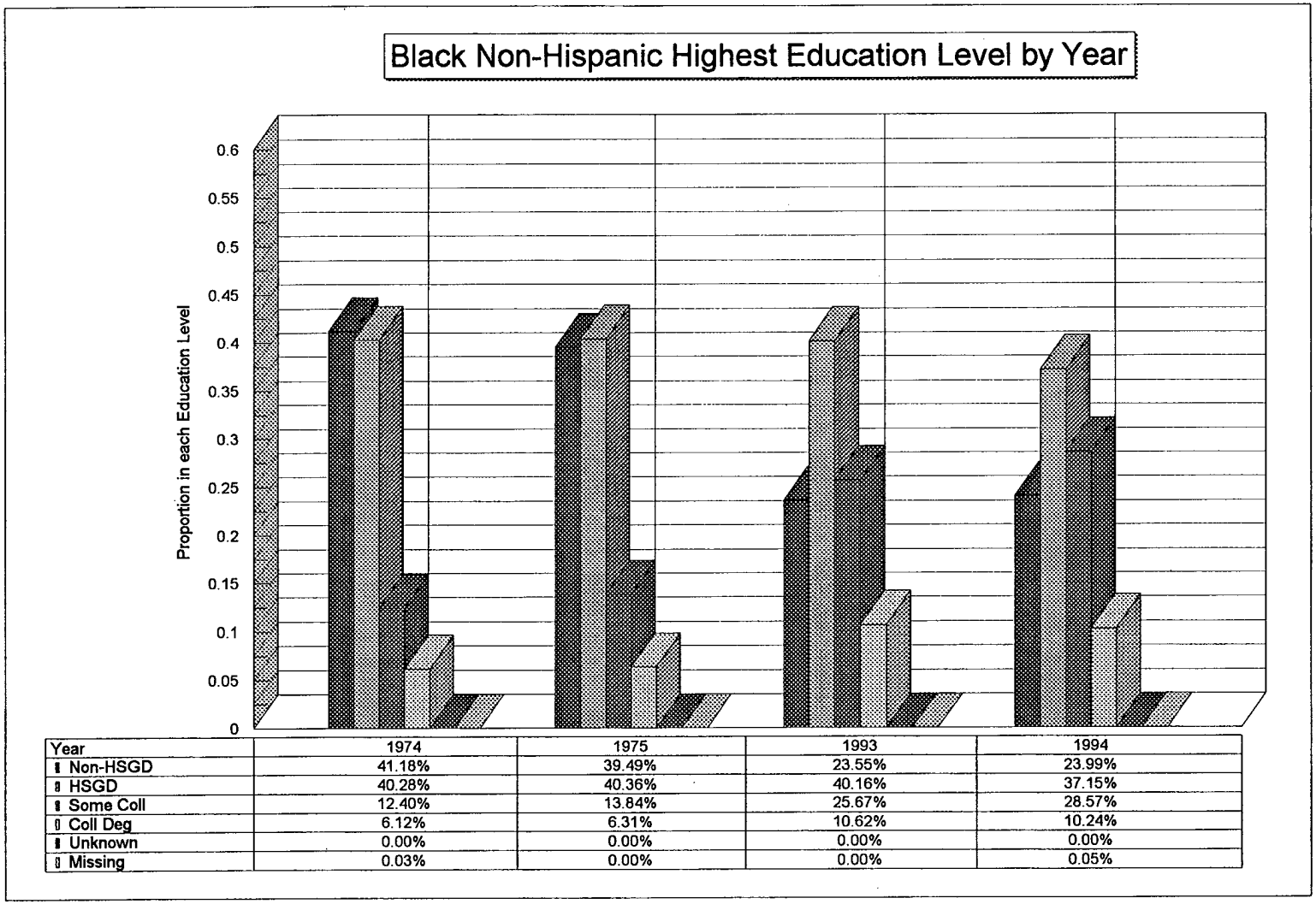
Year	1974	1975	1993	1994
Non-HSGD	43.86%	42.64%	16.51%	13.12%
HSGD	37.02%	36.74%	42.14%	45.36%
Some Coll	12.72%	14.06%	28.29%	27.00%
Coll Deg	6.26%	6.31%	13.06%	14.52%
Unknown	0.13%	0.26%	0.00%	0.00%



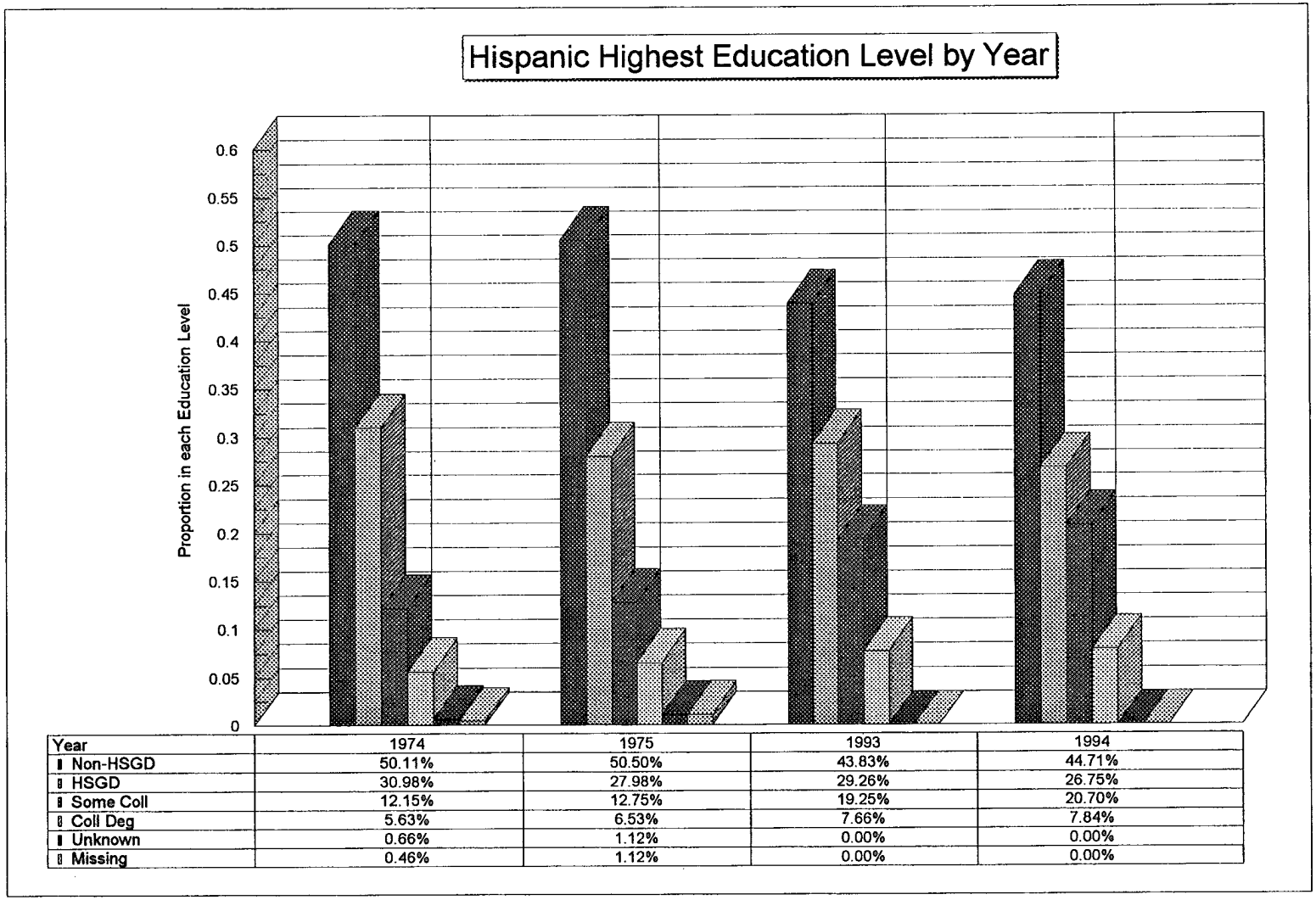
Year	1974	1975	1993	1994
Non-HSGD	54.32%	53.88%	51.53%	49.18%
HSGD	25.17%	24.40%	25.25%	25.83%
Some Coll	12.79%	11.40%	16.16%	17.07%
Coll Deg	5.50%	7.16%	7.06%	7.92%
Unknown	2.21%	3.15%	0.00%	0.00%



Year	1974	1975	1993	1994
Non-HSGD	13.25%	12.47%	7.91%	7.40%
HSGD	42.71%	41.71%	28.92%	27.43%
Some Coll	20.44%	21.73%	29.03%	30.40%
Coll Deg	23.54%	24.06%	34.15%	34.76%
Unknown	0.01%	0.04%	0.00%	0.00%
Missing	0.04%	0.00%	0.00%	0.02%



Year	1974	1975	1993	1994
Non-HSGD	41.18%	39.49%	23.55%	23.99%
HSGD	40.28%	40.36%	40.16%	37.15%
Some Coll	12.40%	13.84%	25.67%	28.57%
Coll Deg	6.12%	6.31%	10.62%	10.24%
Unknown	0.00%	0.00%	0.00%	0.00%
Missing	0.03%	0.00%	0.00%	0.05%



Year	1974	1975	1993	1994
Non-HSGD	50.11%	50.50%	43.83%	44.71%
HSGD	30.98%	27.98%	29.26%	26.75%
Some Coll	12.15%	12.75%	19.25%	20.70%
Coll Deg	5.63%	6.53%	7.66%	7.84%
Unknown	0.66%	1.12%	0.00%	0.00%
Missing	0.46%	1.12%	0.00%	0.00%

Subject	Category	Subcategory	1974	1994	Change
Single Parent Families			16.02%	28.52%	12.50%
Number of Siblings					
	Two Parent Families	Mean	0.9982	0.9157	(-0.0825)
		Maximum	8	5	(-3)
	Single Parent Families	Mean	1.1531	0.8348	(-0.3183)
		Maximum	7	5	(-2)
	Entire Sample	Mean	1.0233	0.8926	(-0.1307)
		Maximum	8	5	(-3)
Work Force Status					
	Males in TPFAM	Nonworker	12.10%	5.10%	(-7.00%)
		FYFT	71.00%	77.90%	6.90%
		PYFT	9.30%	13.10%	3.80%
	Females in TPFAM	Nonworker	72.40%	33.70%	(-38.70%)
		FYFT	8.70%	28.60%	19.90%
	Females in SPFAM	Nonworker	63.90%	44.20%	(-19.70%)
		FYFT	14.30%	24.50%	10.20%
		PYFT	10.60%	15.60%	5.00%
Money Income Distribution					
	Entire Sample	<$10K	10.27%	20.71%	10.44%
		$30-40K	20.81%	11.34%	(-9.47%)
		$100k +	2.03%	5.88%	3.85%
	Two Parent Families	<$10K	2.99%	5.72%	2.73%
		$30-40K	24.10%	14.20%	(-9.90%)
		$100k +	2.40%	8.09%	5.69%
	Single Parent Families	<$10K	48.44%	58.29%	9.85%
Labor Income Distribution					
	Entire Sample	<$10K	21.44%	29.54%	8.10%
		$30-40K	19.87%	10.18%	(-9.69%)
		$100k +	1.09%	4.46%	3.37%
	Two Parent Families	<$10K	11.04%	13.67%	2.63%
		$30-40K	23.16%	12.96%	(-10.20%)
		$100k +	1.30%	6.19%	4.89%
	Single Parent Families	<$10K	75.90%	69.31%	(-6.59%)
Income Means and Medians					
Money Income	Entire Sample	Mean			$1088
		Median			-($4279)
Labor Income	Entire Sample	Mean			$538
		Median			-($6268)
Mothers Education					
	White non-Hispanic	Non HS Grads	21.36%	10.69%	(-10.67%)
		HS Grads	50.55%	34.29%	(-16.26%)
		College Degree	1.18%	24.42%	23.24%
	Black non-Hispanic	Non HS Grads	45.79%	26.31%	(-19.48%)
		HS Grads	40.33%	38.75%	(-1.58%)
		College Degree	4.00%	7.59%	3.59%
	Hispanic	Non HS Grads	57.69%	51.10%	(-6.59%)
		HS Grads	30.54%	25.52%	(-5.02%)
		College Degree	3.38%	5.25%	1.87%
Fathers Education					
	White non-Hispanic	Non HS Grads	20.54%	9.08%	(-11.46%)
		HS Grads	38.47%	31.62%	(-6.85%)
		College Degree	22.70%	31.93%	9.23%
	Black non-Hispanic	Non HS Grads	43.86%	13.12%	(-30.74%)
		HS Grads	37.02%	45.36%	8.34%
		College Degree	6.26%	14.52%	8.26%
	Hispanic	Non HS Grads	54.32%	49.18%	(-5.14%)
		HS Grads	25.17%	25.83%	0.66%
		College Degree	5.50%	7.92%	2.42%

LIST OF REFERENCES

Astone, Nan Marie and Sara S. McLanahan. 1991. Family Structure, Parental Practices and High School Completion. American Sociological Review 56 (June): 309-20.

Department of Political Science, Oregon State University, "Consumer Price Index (CPI) Conversion Factors to Convert to 1995 Dollars" [database online] (Portland, OR: 1995, accessed 1 November 1995).

Grissmer, David W., Sheila Nataraj Kirby, Mark Berends, and Stephanie Williamson. 1994. Student Achievement and the Changing American Family. Santa Monica: RAND.

Grogger, Jeff, and Nick Ronan. 1995 (Rev. 1996). The Intergenerational Effects of Fatherlessness on Educational Attainment and Entry-level Wages.

Haveman, Robert, Barbara Wolfe, and James Spaulding. 1991. Childhood Events and Circumstances Influencing High School Completion. Demography 28, no. 1 (February): 133-57.

Haveman, Robert and Barbara Wolfe. 1995. The Determinants of Children's Attainments: A Review of Methods and Findings. Journal of Economic Literature 31 (December): 1829-78.

Hill, Martha S. 1992. The Panel Study of Income Dynamics: A User's Guide, Guides to Major Social Science Data Bases, ed. Peter V. Marsden. Newbury, CA: SAGE Publications, Inc.

Klerman, Jacob Alex and Lynn A. Karoly. "Trends and Future Directions in Youth Labor Markets: Implications for Army Recruiting," in Marching Toward the 21st Century: Military Manpower and Recruiting, ed. Mark J. Eitelberg and Stephen L. Mehay, (Westport, CT: Greenwood Press) 1994.

Osborne, David L. "Domestic Trends to the Year 2015: Forecasts from the Army 21 Study," in Marching Toward the 21st Century: Military Manpower and Recruiting, ed. Mark J. Eitelberg and Stephen L. Mehay, (Westport, CT: Greenwood Press) 1994.

Ricks, Thomas E. 1997. U.S. Infantry Surprise: It's Now Mostly White; Blacks Hold Office Jobs. Wall Street Journal, 6 January, A1 and A4.

U.S. Bureau of the Census. 1993. Current Population Survey, March 1993. [Washington, D.C.]: U.S. Bureau of Labor Statistics.

U.S. Bureau of the Census. 1993. Current Population Survey, March 1993, Technical Documentation. [Washington, D.C.]: U.S. Bureau of Labor Statistics.

U.S. Department of Commerce. 1995. Statistical Abstract of the United States 1995. [Washington, D.C.]: U.S. Department of Commerce, Economics and Statistics Administration.

INITIAL DISTRIBUTION LIST

		No. Copies
1.	Defense Technical Information Center 8725 John J. Kingman Road, Ste 0944 Ft. Belvoir, Virginia 22060-6218	2
2.	Dudley Knox Library Naval Postgraduate School 411 Dyer Rd. Monterey, California 93943-5101	2
3.	Director, Training and Education MCCDC, Code C46 1019 Elliot Road Quantico, Virginia 22134-5027	1
4.	Professor Mike D. Cook Code SM/Cm Naval Postgraduate School Monterey, California 93943-5002	2
5.	Professor Stephen L. Mehay Code SM/Md Naval Postgraduate School Monterey, California 93943-5002	2
6.	Mr. George T. Fitzgerald, III Defense Manpower Data Center (DMDC) DoD Center Monterey Bay 400 Gigling Road Seaside, California 93955-6771	1
7.	Major Jeffrey S. Weis, USMC c/o Mr. Larry Stump 17 Concord Court Carmel, Indiana 46032	2
8.	Major A. J. Van Steenbergen, USMC DSR Box 20A Pledger, Texas 77468	2