An Assessment of the Labor Market, Income, Social, Health, Civic, Incarceration, and Fiscal Consequences of Dropping Out of High School: Findings for Michigan Adults in the 21st Century

Prepared by:
Andrew Sum
Ishwar Khatiwada
Joseph McLaughlin
With
Sheila Palma
Paulo Tobar
Jacqui Motroni
Center for Labor Market Studies
Northeastern University
Boston, Massachusetts

Prepared for:
C.S. Mott Foundation
Flint, Michigan

January 2008

Table of Contents

"This boy is ignorance. This girl is want. Beware them both, and all of their degree, but most of all beware this boy, for on his brow I see that written which is doom, unless the writing be erased".

Charles Dickens,
A Christmas Carol

Introduction

Over the past seven years, a growing number of educational researchers, labor market analysts, national foundations, national and state business organizations, city mayors, governors, and state legislators have highlighted the educational, economic, and social problems of America's high school dropouts.[1] Dropout problems among America's high school students remain excessively high, especially among students in large urban, public school districts, males, Black and Hispanic youth and low income youth of all races. These high dropout rates have persisted despite the fact that the personal and societal economic costs associated with dropping out of high school appear to be both quite large and growing substantially. Male dropouts in particular have faced an increasing number of severe labor market difficulties in recent decades, with steep declines in their employment rates, their real weekly wages, and annual earnings.[2] The labor market problems of dropouts are particularly intense in states such as Michigan, which has faced severe labor market difficulties in recent years. The deteriorating labor market fortunes of male dropouts have reduced their ability to form independent households, to marry, to support their children, and to contribute positively to the fiscal position of state and national

[1]For a review of recent national, state, and local research studies on high school graduation and dropout rates, See: (i) Gary Orfield (Editor), Dropouts in America: Confronting the Graduation Crisis, Harvard Education Press, Cambridge, 2004; (ii) Elaine Allensworth, Graduation and Dropout Trends in Chicago: A Look at Cohorts of Students from 1991 Through 2004. Chicago: Consortium on Chicago School Research at the University of Chicago. http://www.consortium-chicago.org/publications/p75.html; (iii) Jay P. Greene, High School Graduation Rates in the United States, New York, Manhattan Institute and Black Alliance for Education Options. http://www.manhattan-institute.org; (iv) Christopher Swanson, Who Graduates? Who Doesn't? A Statistical Portrait of Public High School Graduation, Class of 2001. Washington D.C.: The Urban Institute. www.urban.org; (v) Nancy Martin and Samuel Halperin, Whatever It Takes: How Twelve Communities Are Reconnecting Out-of-School Youth, American Youth Policy Forum, Washington, D.C., 2006; (vi) Daria Hall, Getting Honest About Grad Rates: How States Play the Numbers and Students Lose, The Education Trust, June 2005; (vii) Andrew Sum, Paul Harrington, et. al., The Hidden Crisis in the High School Dropout Problems of Young Adults in the U.S.: Recent Trends in Overall School Dropout Rates and Gender Differences in Dropout Behavior, Center for Labor Market Studies, Northeastern University, Boston, Report Prepared for The Business Roundtable, Washington, D.C., 2002; (viii) Ishwar Khatiwada and Andrew Sum, The Recent Labor Market Experiences and Problems of the Nation's Young High School Dropouts: Their Implications for the JAG Dropout Recovery Program, Prepared for Jobs for America's Graduates, Alexandria, Virginia, June 2005.

[2] See: (i) Andrew Sum, Tim Barnicle, and Ishwar Khatiwada, The Labor Market Experiences of the Nation's Young Adults Since the Publication of America's Choice, Report Prepared for the National Center on Education and the Economy, National Skills Commission, Washington, D.C., 2006; (ii) Peter Edelman, Harry J. Holzer, and Paul Offner, Reconnecting Disadvantaged Young Men, Urban Institute Press, Washington, D.C., 2006.

governments. To paraphrase the above quotation from Charles Dickens' classic story A Christmas Carol, economic doom is indeed written on the brows of many Michigan high school dropouts and a growing number of male high school graduates unless public policies are developed and successfully implemented to improve their schooling, academic and occupational skills, and employment prospects in the immediate future.

Both the U.S. Congress and the Bush Administration have voiced joint concerns over the low rate of on-time graduation rates from public high schools in recent years, culminating with their passage of the No Child Left Behind legislation in 2002.[3] The Act provided a definition of high school graduation rates that it has asked states to adopt in calculating their high school graduation and dropout rates.[4] Michigan unfortunately has not yet compiled with this request, yielding conflicting evidence on the state's high school graduation rate in recent years. During the past year, the Mott Foundation called upon the Center for Labor Market Studies to help provide analyses of the economic, labor market, social, civic, health and fiscal consequences of dropping out of high school before graduation. In this report, we provide a comprehensive set of analyses of the labor market, income, health, social, civic, criminal justice, and fiscal consequences of dropping out of school in Michigan. It is designed to provide the Mott Foundation as well as local and state public policymakers in Michigan, educators, and the public at large with comprehensive information on the consequences and completing additional years of schooling in the state. A wide array of measures of the labor market, income, civic, health, crime and other outcomes of high school dropouts and other educational groups are used to present our case.

Knowledge of both the types and magnitudes of the personal and societal consequences of adults dropping out of high school is important for a variety of reasons. First, the information on the personal economic benefits of staying in high school through graduation and completing some post-secondary schooling should be widely disseminated to administrators, teachers, students, and the parents of students in junior high schools and high schools in those Michigan cities that experience above average dropout rates. The key findings on the labor market, lifetime earnings, health and housing consequences of dropping out of high school can be packaged in

[3] See: 107th U.S. Congress, No Child Left Behind Act of 2002, Washington, D.C., 2002.
[4] This definition of a four year, on time graduation rate and alternative measures of high school dropout rates can be found in Gary Orfield, Dropouts in America: Confronting the Graduation Crisis, op. cit.

highly readable formats for use in educating and counseling youth on educational and career options.[5] Second, local and state political leaders, labor and business leaders, educators, and educational policy makers should be made more fully aware of the size of the potential private and social benefits from improving high school graduation rates. This information should assist them in making decisions about the future funding of dropout prevention and recovery efforts in the state of Michigan. Findings in this report clearly indicate that the economic and social benefits from successfully reducing dropout rates and increasing post-secondary schooling can be quite substantial. Third, the general public and the media need to be better informed about the various types of economic and social benefits, including taxpayer benefits, health benefits, housing benefits, and children benefits, that can be generated by an increase in the number of high school students that will graduate with a regular diploma. More informed decision-making with respect to support for programs to bolster high school graduation rates should result from a better understanding of the potential benefits and costs of dropout prevention and recovery programs. Future impact evaluations of dropout prevention programs in the state of Michigan should carefully document such benefits to participants and society at large.

Our report's findings are based on a diverse and comprehensive array of data sources on Michigan teens and adults for varying time periods (1979 to 2006). Most of our estimates pertain to the state as a whole while others are provided for substate areas. Comparisons with findings for the nation as a whole also are presented. We will present an overview of the sources of the data underlying all of the estimates appearing in this paper. This discussion of data sources will be followed by an examination of the employment experiences of out-of-school teens, including high school dropouts and graduates (16-19 years old), in Michigan and the U.S. in recent years, with some substate breakouts of the data for selected counties and cities in Michigan. The employment outcomes for teens will be supplemented with a more comprehensive examination of the employment rates of Michigan adults (18-64 years old) by educational attainment during 2005-2006 together with comparisons for the U.S. Findings will be presented for all adults combined and for men and women separately.

[5] For an example of the use of such data in counseling at-risk youth,
See: Edward DeJesus, Makin' It: The Hip-Hop Guide to True Survival, Youth Development and Research Fund, 2002.

The employment analysis will be complemented by an examination of the mean annual earnings of Michigan adults (18-64 years old) by educational attainment in 2005-2006 with separate breakouts of the findings for men and women, and comparisons of the findings for Michigan adults with those for adults in the entire U.S. will be provided. The annual earnings data will be supplemented with estimates of the lifetime earnings of Michigan adults from ages 18-64 by their level of schooling in 2006. Findings on lifetime earnings will be presented for all adults in the 18-64 age group and for men and women separately. Trends in the lifetime earnings of Michigan men and women over the 1979-2005 time period will be described and assessed. The very steep declines in the lifetime earnings of male high school dropouts and graduates with no post-secondary schooling over this 26 year period will be highlighted.

The findings on the annual and lifetime earnings of Michigan adults will be followed by a review of the income inadequacy problems of the state's adults by educational attainment level. These income inadequacy problems include the incidence of poverty, near poverty, and low income problems among Michigan adults in selected years and over their work lives. The estimates of the incidence of income inadequacy problems among Michigan adults in different educational subgroups will be provided for men and women separately.

Given the higher rates of joblessness and the lower annual earnings of the state's high school dropouts when they are employed, one would anticipate that they would be more dependent than their better educated peers on cash public assistance income and in-kind transfers (food stamps, rental subsidies, energy assistance, Medicaid) to support themselves and their families. To identify the degree to which high school dropouts and their better educated peers received selected types of cash and in-kind transfers, we examined the findings of the 2006 ACS survey for Michigan and the U.S. for adults in each of our five educational attainment subgroups.

Findings on the income consequences of dropping out of high school and failing to complete some post-secondary schooling will be followed by an overview of the comparative health status of Michigan adults in five educational subgroups, their health insurance coverage rates, their ability to obtain health insurance coverage from their employers when working, their disability status, the labor market and income difficulties experienced by adults when they are disabled, and their more frequent dependence on some form of cash public assistance income to support themselves when they become disabled. The incarceration status of Michigan high

school dropouts, especially males, will be reviewed and compared to that of their better educated peers, and estimates of the higher annual and lifetime costs of institutionalization among Michigan dropouts will be generated.

The final section of the paper will present a comprehensive set of findings on the net fiscal impacts of various educational subgroups of 18-64 year olds in Michigan in recent years. These fiscal contribution estimates reflect differences in their payments of payroll, income, sales, and property taxes and their receipt of a comprehensive array of cash and in-kind benefits from the state and national government and their institutionalization costs. The U.S. Census Bureau has provided estimates of annual payroll and income tax payments and the value of a wide array of cash and in-kind benefits received by individuals and households based on findings from the March CPS surveys. We have expanded upon these estimates in several ways. For each individual 18-64 years old, we have generated estimates of their net fiscal benefits to the state and federal government by adding all payments of Social Security payroll taxes, federal retirement contributions, state and federal income taxes, state sales taxes, and local property taxes, and subtracting the value of cash income transfers, key in-kind benefits (food stamps, rental subsidies, Medicaid and Medicare benefits, energy assistance), and institutionalization costs. The mean values of these net fiscal benefits were calculated for 18-64 year old Michigan adults in each of five educational attainment categories during both 2004 and 2005. Results of our analyses will reveal that high school dropouts are the only educational group in Michigan with negative net fiscal benefits; i.e., they receive more in cash and in-kind benefits and impose more institutionalization costs than they pay in combined taxes at the federal, state, and local level. The lifetime fiscal costs to taxpayers of supporting high school dropouts in Michigan are quite substantial. The final section of this report will provide a brief summary of key findings and discuss their implications for future labor market and educational policy in the state.

Data Sources for the Economic, Labor Market, Civic, Fiscal, Health, Housing, and Social Analyses Appearing in the Research Report

The analyses of the economic, labor market, income, social, health, housing, civic, criminal justice, and fiscal consequences of dropping out of high school appearing in this report are based on a wide array of national and state data sources. (Table 1). First, many of the employment and earnings measures for Michigan youth and adults as well as a number of the housing, income inadequacy, and disability measures are based on the findings of the American Community Surveys for 2005 and 2006. The American Community Survey (ACS) is a national household survey conducted by the U.S. Census Bureau since 2000. During 2006, more than 88,400 households in Michigan completed an ACS questionnaire that collected detailed information on the demographic (age, gender, race-ethnic origin, marital status) and socioeconomic characteristics of all household members, including their educational attainment and school enrollment status,[6] the employment status of all working-age adults (16 and older) at the time of the survey, their labor market experiences in the twelve month period prior to the survey, and their earnings and other sources of money income in the previous twelve months. The ACS survey data on the annual money incomes of families and the number/age distribution of family members can be used to identify the number of families and persons that were poor/near poor or low income.[7] The ACS public use files for 2005 and 2006 were used to generate many of the estimates appearing in this report.

A second key source of data for the analysis was the March 2005 and March 2006 CPS (Current Population) surveys, including the work experience and income supplements to the standard labor force questionnaire. The March CPS surveys for each of these two years involved interviews with approximately 3,450 adults 16-64 years old in Michigan and 133,138 persons across the entire country.[8] The monthly CPS household survey is conducted by the U.S. Census

[6] Respondents to the ACS survey were asked to identify whether they were enrolled in school at any time in the two month period immediately prior to the survey. Persons who were not enrolled in school and who lacked a high school diploma/GED are classified as high school dropouts in this report. GED holders will be assigned to the high school graduate category if they did not complete any years of post-secondary schooling.

[7] The definition of a "low income family" in this report is that used by many poverty and welfare reform researchers across the country. It is a family with an annual pre-tax, money income below two times the poverty line for a family of its given size and age composition. For a review of the poverty, low income, and selected other income thresholds used by poverty researchers to define income inadequacy,
See: Garth Mangum, Stephen Mangum, and Andrew Sum, The Persistence of Poverty in the United States, Johns Hopkins University Press, Baltimore, 2004.

[8] For a review of the labor force concepts and measures underlying the monthly CPS household surveys,

Bureau for the U.S. Bureau of Labor Statistics and is the source of the monthly data on the nation's labor force, its employed, and unemployed populations. The March CPS survey contains a supplementary set of questions that collect information on the self-reported health status of respondents, their health insurance coverage, their sources of income during the previous calendar year, and their receipt of various forms of cash and in-kind assistance (energy assistance, food stamps, housing subsidies) from local, state, and national government agencies. With the available income and employment information and marital status of respondents, the U.S. Census Bureau imputes estimates of the amount of Social Security payroll taxes, federal retirement contributions, and state and federal income taxes paid by individuals during a given calendar year. These imputed tax and cash/in-kind transfer data for calendar years 2004 and 2005 are used to estimate the net fiscal contributions of Michigan adults 18-64 years old by their educational attainment level.

A third source of data for a number of the employment, earnings, poverty, and low income estimates appearing in this report is the public use micro records data (PUMS data) from the 1980, 1990, and 2000 decennial Censuses. The PUMS data for Michigan and the U.S. were used to estimate time trends in employment rates, annual incomes, and lifetime earnings of Michigan and U.S. adults by educational attainment. Time trends in poverty, near poverty, and low income problems also were documented with the PUMS data for these years.

Fourth, the PUMS data from the 1980, 1990, and 2000 Censuses together with ACS data for 2005-2006 were used to estimate changes over time in the lifetime earnings of 18-64 year old adults by educational attainment in Michigan. Findings on changes in mean lifetime earnings will be presented for all Michigan adults and for men and women separately. Selected comparisons of the findings for Michigan with those for the entire U.S. will be provided to place findings for the state in comparative perspective. The steep deterioration in the lifetime earnings of Michigan adults without a high school diploma, especially men, will be highlighted. Males with a high school diploma/GED but no post-secondary schooling also have experienced very large declines in their expected lifetime earnings over the past few decades in Michigan and the U.S. The personal and social costs of dropping out of high school for males are rising over time.

See: U.S. Bureau of Labor Statistics, Employment and Earnings, January 2007, "Appendix A," U.S. Government Printing Office, Washington, D.C., 2007.

A fifth set of data sources, including the 2000 National Educational Longitudinal Survey (NELS) and the November 2004 and November 2006 CPS surveys, were used to identify the voting rates of young adults and older adults in the U.S. and the state of Michigan by educational attainment. The NELS 2000 data captured information on the voting rates of young adults (24-26 years old) in the 2000 presidential election while the November 2004 and November 2006 CPS data were used to estimate voting rates by voter eligible Michigan and U.S. adults by educational attainment in those two years. A few other measures of volunteering activity were obtained from the September 2006 survey conducted by the U.S. Census Bureau. The September 2006 CPS survey on volunteering activities collected information from Michigan and U.S. adults on their volunteering activities in a variety of areas over the previous 12 month period.

A sixth source of data involved administrative data from the Urban Institute and Kaiser Foundation Commission on Medicaid and the Uninsured. This data source provided estimates of the annual cost to the Medicaid system in Michigan of providing health services to the Medicaid population by disability status. We have used these data to generate the fiscal costs of providing health insurance to Medicaid recipients by educational attainment in the state of Michigan.

A seventh source of data that was used in conducting this study was an administrative data base provided by the Michigan Department of Corrections. This data base provided information on the numbers of individuals who were inmates of jails and prisons across the state in recent years and the annual costs of housing an inmate in a Michigan prison. These cost data were used to estimate the higher lifetime institutionalization costs associated with adult dropouts in the state of Michigan in comparison to those of their better educated counterparts, especially among males who dominate the ranks of the jail/prison population in the state and the nation.

Table 1:
Sources and Uses of the Databases Used in This Research Report

Data Source	Use of Data
American Community Surveys for 2005 and 2006	Provided estimates for a variety of employment, earnings, income, housing, and educational attainment measures for Michigan and U.S. adults.
March 2005 and March 2006 Current Population Surveys (CPS)	Primarily used to estimate the net fiscal contributions of Michigan adults by their level of educational attainment.
(PUMS data) from the 1980, 1990, and 2000 decennial Censuses	Used to estimate time trends in employment rates, incomes, poverty rates, and lifetime earnings of Michigan and U.S. adults.
U.S. Department of Treasury, Internal Revenue Service, "State and Local General Sales Taxes", Publication 600, 2005.	Used to estimate personal sales tax
2000 National Educational Longitudinal Survey (NELS)	Provides information on the voting rates of young adults.
November 2004 and November 2006 CPS surveys	Used to estimate voting rates in Michigan and the U.S. by educational attainment.
September 2006 CPS survey	Provided information on the volunteering activities of Michigan and U.S. adults.
Urban Institute and Kaiser Foundation Commission on Medicaid and the Uninsured	Provided estimates on the cost of Medicaid services and health insurance.
Michigan Department of Corrections	Used the annual report for information on the number of inmates in jails and prisons and the annual cost to house inmates.

The Educational Attainment of Michigan Adults (18-64) in 2006

Given the emphasis of this report on identifying the labor market, income, social, health and civic experiences and behaviors of Michigan adults in various educational groups, including high school dropouts and high school graduates with no post-secondary schooling, we need to have access to databases that will allow a refined breakout of educational groups. One of our primary data sources is the American Community Surveys for 2005 and 2006.

The American Community Surveys allow researchers to break adults into a diverse array of educational subgroups. We have combined adults into one of five educational groups. The five mutually exclusive subgroups used in this study are the following:

- High school dropouts: these are adults without a high school diploma or its equivalency, including those with only a primary school education.
- High school graduates/GED: adults with either a regular high school diploma or its equivalency, but no completed years of college.
- Some college, including Associate's degree, but less than a bachelor's degree: adults with 1 or more years of college but less than a bachelor's degree.
- Bachelor's degree: adults with a bachelor's degree but not a Master's or higher degree.
- Master's or higher degree: adults with a Master's or higher degree, including PhD. and professional degrees (law, medicine).

According to the 2006 ACS, there were approximately 692,100 adults in Michigan between the ages of 18 and 64 years old who did not earn a high school diploma or its equivalency. This group of high school dropouts represented about 10.9% of the total 18-64 year old population of Michigan. Unfortunately, the ACS survey does not distinguish between a high school diploma and a GED. In order to estimate the number of adults in Michigan that have a GED and not a regular high diploma, we used the monthly CPS surveys of 2005 and 2006 to identify those adults who reported having a GED but no post-secondary schooling. The CPS survey findings indicate that another 194,718 adults between the ages of 18-64 years old have only a GED. If we add adults with a GED to the count of dropouts provided by the ACS, we estimate that approximately 886,819 adults in Michigan are high school dropouts, representing 13.9% of the 18-64 year old population of the state. Michigan's share of dropouts in its 18-64 year old population was ranked 32nd highest among the 50 states in 2006. Our estimate of adult high school dropouts is also likely conservative since as many as 5% of respondents to the ACS and CPS survey are likely to overstate their educational attainment or report a GED as a regular

high school diploma.[9] In addition, any individual with a GED who completed one year of college would not be counted as GED holder, but instead as someone who had 1-3 years of post-secondary education. Therefore, the true number of high school dropouts is most likely 6-8 percentage points higher than the estimate provided in Table 2.

Table 2:
Estimating the Number of 18-64 Year Olds in Michigan Without a Regular High School Diploma, 2006

Category	Number of Adults
Number of 18-64 Year Olds With Less than a High School Diploma or Its Equivalency (2006 ACS)	692,101
18-64 Year Olds With a GED (2005-2006 CPS)	194,718
Total Number of H.S. Dropouts 18-64 Years Old	886,819
Total Population 18-64 Years of Age	6,358,480
Percent of Dropouts in the Total Population	13.9

Table 3:
Distribution of 18-64 Year Old Population in Michigan and the U.S. by Their Level of Educational Attainment, 2006

	Number		Percent Distribution	
Educational Attainment	Michigan	U.S.	Michigan	U.S.
<12 or 12, No H.S. Diploma	692,101	26,414,323	10.9	14.0
H.S. Diploma/GED	1,964,738	56,336,651	30.9	29.9
Some College, No Diploma	1,665,115	42,612,228	26.2	22.6
Associate Degree	522,417	14,565,981	8.2	7.7
Bachelor Degree	992,393	31,918,102	15.6	16.9
Master's or Higher Degree	521,716	16,572,195	8.2	8.8
Associate Degree or Higher	2,036,526	63,056,278	32.0	33.5
Bachelor's or Higher	1,514,109	48,490,297	23.8	25.7
Master's Degree or Higher	521,716	16,572,195	8.2	8.8
Total	6,358,480	188,419,480	100.0	100.0

Source: 2006 American Community Survey, public use files, tabulations by authors.

[9] CLMS staff summed the GED certificates awarded to adults over a 30 year period (1970-2004) and found that the number awarded was far greater than indicated in the CPS findings even after excluding those who would have aged out.

Alternative Estimates of High School Graduation Rates Among Michigan's Young Adults In Recent Years

Michigan's Department of Education provides published estimates of the state's high school graduation rate. These graduation rates have been quite high, well above those produced by other methodologies. Over the 2002-2005 time period, the state's reported graduation rate has ranged between 84.8% and 88.7%. In the past two years, seven states have released graduation rates based on the methodology established by the High School Graduation Compact sponsored by the National Governors Association (NGA).[10] Among the first seven states to release a graduation rate using the NGA's methodology, Massachusetts and Vermont had the two highest four-year graduation rates at 79.9 and 79.0 percent. Michigan's Department of Education's reported graduation rate would surpass both that of Massachusetts and Vermont. However, there are a number of serious shortcomings of the state's official methodology. As with other states, it yields much higher estimates of graduation rates than those produced by methodologies that capture better information on the experiences of high school students.

There are several other methods that have been used by educational researchers to estimate high school graduation and dropout rates for the nation, for states, and for individual school districts.[11] One of the methods used by the U.S. Department of Education and other researchers involves a comparison of the annual number of official high school graduates in a state (as measured by the number of high school diplomas awarded to public and private high school graduates) with the number of 17 year olds in the state.[12] We have adopted a slightly modified version of this graduation rate formula based on actual counts of diploma awards by

[10] The National Governors Association's Compact on High School Graduation Data was signed by the 50 state governors in July of 2005. The following graduation rate formula was agreed to be the standard for estimating the 4-graduation rate. The Compact stated: States agree to calculate the graduation rate by dividing the number of on-time graduates in a given year by the number of first-time entering ninth graders four years earlier. Graduates are those receiving a high school diploma. The denominator can be adjusted for transfers in and out of the system and data systems will ideally track individual students with a longitudinal student unit record data system. Special education students and recent immigrants with limited English proficiency can be assigned to different cohorts to allow them more time to graduate.

[11] For a more detailed review of these alternative methods for estimating high school graduation and dropout rates, See: Gary Orfield (Editor), Dropouts in America: Confronting the Graduation Rate Crisis, Harvard Education Press, Cambridge, 2004.

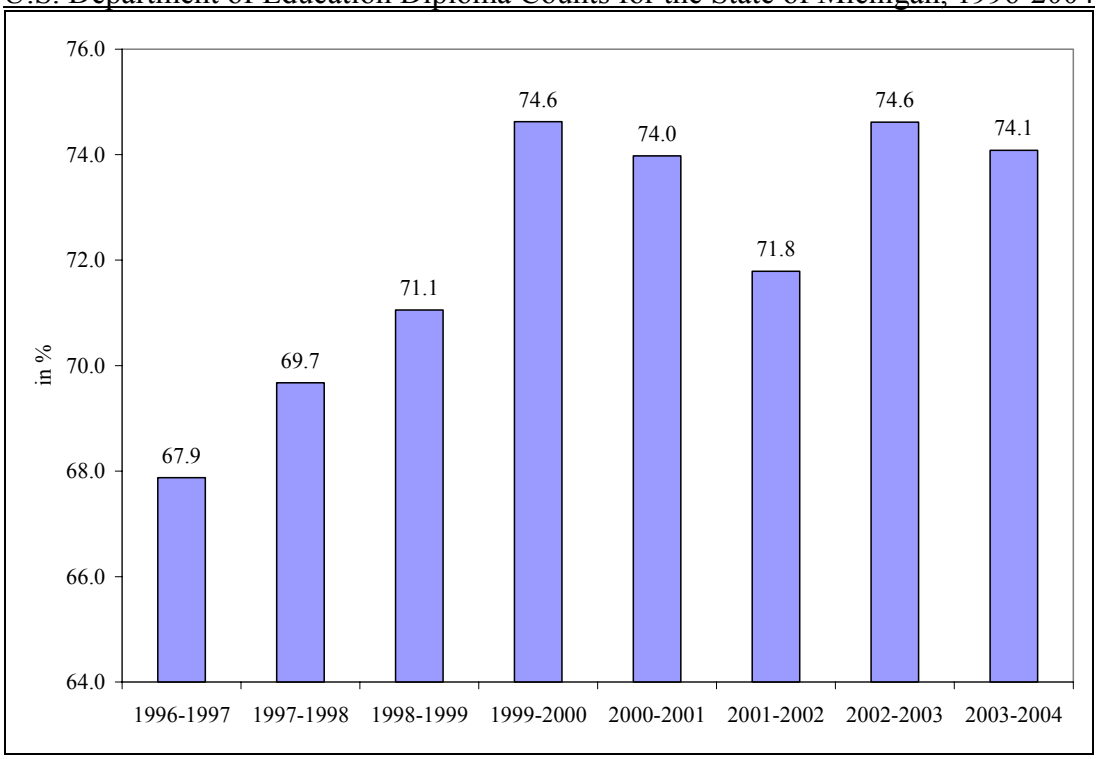
[12] The U.S. Department of Education collects diploma awards from public high schools on an annual basis and surveys private high schools on a bi-annual basis. We have imputed private high school diploma awards for the in-between years by assuming that they were equal to the same fraction of all diploma awards in the previous year.

amending the denominator to represent the estimated average number of 17 and 18 year olds in the state. The high school graduation rate formula is thus the following:[13]

$$\text{Graduation Rate}_t = \frac{\text{Number of high school diplomas awarded by public and private high schools}_t}{\text{Average number of 17 and 18 year old residents of the state in year t}}$$

Our estimates of high school graduation rates in the state of Michigan for individual school years from 1996-97 to 2003-2004 based on the above formula are displayed in Chart 1. The high school graduation rates in Michigan over this eight year period ranged from a low of 68% in the 1996-97 school year to a high of 75% in the 1999-2000 and 2002-2003 school years. The simple average graduation rate for this eight year period was 72.2%, yielding a dropout rate of just under 28 percent. This graduation rate excludes those youth who will earn a GED certificate. It only counts regular high school diplomas from private and public high schools.

Chart 1:
High School Graduation Rates for Michigan Based on the
U.S. Department of Education Diploma Counts for the State of Michigan, 1996-2004



[13] The estimates of the number of state residents ages 17-18 are based on the U.S. Census Bureau state population estimates of residents by single age group. These population estimates include residents of group quarters.

A second alternative methodology for estimating high school graduation rates uses data on the enrollments of students in each grade from 9 to 12 and through graduation at the end of grade 12 for a two year period in a given school district. This methodology known as the Cumulative Promotion Index (CPI) was developed by researchers at The Urban Institute in Washington, D.C. and it is the formula recommended by the U.S. Congress in the No Child Left Behind legislation.[14] The value of the CPI can be thought of as measuring the per cent of 9th grade students in the state who would be expected to receive a high school diploma three years later; i.e., on time high school graduates.

We have analyzed data on the high school graduation rates of Michigan public school students based on the CPI methodology for the 2003-2004 school year. The 2003-2004 CPI estimate of the high school graduation rate for the state of Michigan was 69.1 percent, a rate that was slightly below the national average of 69.9 percent. A CPI graduation rate of 69.1%, implies that only 69 percent of the state's public high school students will graduate on-time. Some students held back in the freshman or sophomore years will take longer to graduate and will not show up in the four-year graduation rates.[15] The CPI methodology needs to be supplemented with data on five and six year graduation rates.

These two alternative measures yield very different graduation rates when compared to the reported graduation rate in Michigan. For instance, the 2-year average graduation rate for the 2003-2004 and 2004-2005 school years was reported by the Michigan Department of Education to be 88.2%, which was approximately 17 percentage points higher than a 2-year average of the CPI graduation rate for the Classes of 2001 and 2004 and 14 percentage points higher than that yielded by the diploma count methodology for the Classes of 2003 and 2004.[16] (Chart 2).

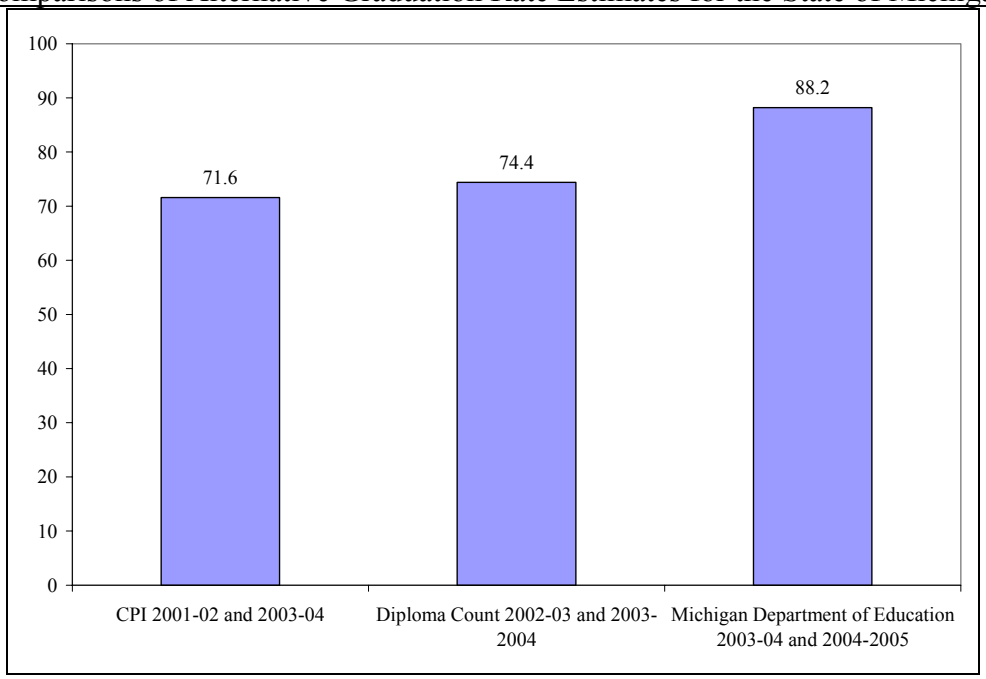
---

[14] According to the provisions of the No Child Left Behind legislation, high school graduation rates are to be "defined as the percentage of students who graduate from secondary school with a regular diploma in the standard number of years".
See: U.S. Congress, 6311(b)(2)(c)(vi).

[15] The CPI methodology is based only on those public school districts that submit complete enrollment and graduation data to the U.S. Department of Education. The CPI methodology does not incorporate data for private high schools in the state.

[16] The CPI for the Class of 2004 was obtained from EdWeek.org. For the results for the Class of 2001, See: Gary Orfield (Editor), Dropouts in America: Confronting the Graduation Rate Crisis, Harvard Education Press, Cambridge, 2004.

Chart 2:
Comparisons of Alternative Graduation Rate Estimates for the State of Michigan



An Alternative Methodology for Estimating the Number of 16-24 Year Old Adults in Michigan in 2005 Who Had Left High School Without Obtaining a Regular High School Diploma

Public policies to address high school dropout problems are dependent on timely and statistically reliable information on the numbers and demographic/socioeconomic characteristics of high school dropouts in the state and in local school districts. CLMS research staff have estimated the number of 16-24 year old youth in the state of Michigan in calendar year 2005 who were not enrolled in school and lacked a regular high school diploma. We will refer to members of this group as high school dropouts. As will be revealed below, about one-fourth of the 16-24 year old dropouts had obtained a GED certificate by the time of the American Community Surveys (ACS) in 2005, but we include them in the count of dropouts since they left school without obtaining a regular diploma. National research has consistently revealed that GED holders, on average, do not fare as well in the labor market as regular high school graduates, and they are considerably less likely to obtain any type of post-secondary degree.

To obtain our estimates of the number of 16-24 year old dropouts living in Michigan in 2005, a stock estimate,[17] we had to utilize a variety of data sources and employ a number of estimating methodologies. The data sources used to derive the estimates of the number of young adult dropouts were the following:

- The 2005 American Community Surveys, a national household survey which involved interviews with approximately 85,771 households across the state of Michigan.
- Estimates of non-coverage rates for gender, age, and race-ethnic groups of 16-24 year olds from the ACS and Current Population Surveys (CPS) in 2005. These estimated non-coverage rates were used to generate estimates of the number of 16-24 year old dropouts in Michigan who were missed by the ACS survey.
- Estimates of the number of 16-24 year olds residing in institutions (juvenile offender homes, jails, prisons, nursing homes, mental hospitals) who lacked high school diplomas. The 2006 ACS public use files were used to make these estimates since the 2005 ACS surveys did not interview persons living in group quarters.
- Estimates of the number of 16-24 year olds who had obtained a GED certificate by the time of the 2005 ACS survey. The ACS survey includes GED holders in the count of high school graduates and those with some college. The survey does not specifically identify GED holders. Data from the American Council on Education on annual awards of GED certificates to Michigan youth by age group from 1996-2004 were used to generate estimates of the number of 16-24 year olds who held GED certificates in Michigan in 2004.[18] We used the 2004 GED count as a proxy for the pool of 16-24 year olds with a GED in Michigan in 2005, a reasonable assumption given only a one year lag between these two estimates. The total estimated count of 16-24 year old dropouts consists of the following four groups:
- The number of 16-24 year old residents of private households (homes, apartment buildings, public housing) who reported on the 2005 ACS survey that they were not

[17] A stock estimate represents the number of high school dropouts at a particular point in time. Since a number of the 16-24 year olds were still in high school, some of them will become dropouts over time adding to the ultimate pool of dropouts from this age group.
[18] American Council of Education, GED Annual Statistical Reports, 1996-2004.

enrolled in school and did not hold a high school diploma, a GED certificate, or its equivalent.

- Our estimate of the number of 16-24 year old dropouts who were not counted by the 2005 ACS survey (the "undercount").
- The number of 16-24 year olds in Michigan who left high school without obtaining a diploma but who received a GED certificate by the end of 2004. The American Council of Education's annual counts of GED recipients in Michigan by age group over the 1996-2004 period were used to generate this estimate.
- The number of 16-24 year olds who were inmates of institutions and did not hold a school diploma or a GED. The 2006 ACS public use microdata files were relied upon to generate this pool of dropouts living in institutions. The bulk of these institutionalized youth were living in juvenile homes, jails, or prisons at the time of the 2006 ACS.

The estimated numbers of 16-24 year old youth in each of these four dropout groups are presented below:

• High school dropouts, no GED, living in private households	108,873
• The estimated ACS "undercount" of high school dropouts[19]	20,793
• 16-24 year olds with a GED in 2004	47,321
• 16-24 year old dropouts residing in institutions (juvenile homes, jails, prisons)	9,685
• **Total, above four groups**	**186,672**

The estimated number of 16-24 year old dropouts residing in Michigan during 2005 was 186,672. Of this group, 47,321 or 26% held a GED certificate. The actual dropout population may be somewhat larger than this due to mis-reporting of the "true graduation status" of young adults in the ACS survey; i.e., persons filling out the ACS questionnaire may mis-report the true educational attainment of some household members. During 2005, the estimated number of 16-

[19] The undercount includes dropouts not listed by households on the ACS survey, households that were missed by the ACS survey, and the homeless, including those living in shelters.

24 year olds living in private households or in institutions in Michigan was 1.218 million.[20] Thus, 15% of all 16-24 year olds living in the state in 2005 were high school dropouts. The estimated dropout rate was only 9.4% for teenagers, many of whom were still enrolled in high school at the time of the ACS surveys, but the dropout rate was just under 20% for 20-24 year olds. Thus, we estimate that approximately one in five young adults in Michigan in recent years would have left high school without obtaining a regular high school diploma. For the U.S., using the same methodology, we estimated that 22.5% of young adults leave school without receiving a regular high school diploma.[21]

The Labor Force Participation Behavior and Employment Status of Michigan Adults by Educational Attainment, 2006

Educational attainment and labor market success are often closely intertwined. Better educated adults in Michigan and the U.S. tend to be more strongly attached to the labor market than their less educated peers, to find employment when they do seek work, and to obtain higher weekly wages and annual earnings when employed. We will begin our analysis of the labor market experiences of Michigan adults in different educational groups with an overview of their labor force status at the time of the 2006 American Community Surveys.[22] Each working-age adult[23] (16 and older) was classified into one of the following three, mutually exclusive labor force categories:

Employed. Working for pay or profit in the reference week of the survey or currently with a job but not at work due to vacation, temporary illness, bad weather, etc. The employed also include individuals actively serving in a branch of the nation's armed forces and stationed in Michigan.

[20] The denominator excludes those 16-24 year olds living in non-institutional group quarters, such as college dormitories or fraternities / sororities.
[21] Andrew Sum, Paulo Tobar, Sheila Palma, et.al., Historical Trends in U.S. High School Graduation Rates; 1980-2005: Findings from Two Methodologies, Center for Labor Market Studies, Northeastern University, July 2007.
[22] The 2006 ACS surveys were conducted throughout the entire calendar year from January to December. A household's ACS questionnaire could have been completed during any of these months. We cannot identify the specific month of the questionnaire's completion.
[23] Persons residing in institutions (jails, prisons, nursing homes, mental hospitals) were excluded from the labor force analysis.

Unemployed. A person not employed during the reference week but who had looked for work in the previous four weeks and was available for work.[24]

Out of the labor force. A person who is neither employed nor unemployed. This individual is neither working nor looking for work. Some subset of this group (the labor force reserve) desires to be employed but is not actively looking. The ACS survey unfortunately did not include questions to identify the members of the labor force reserve.

With the information on the labor force status of each Michigan adult 16-64 years old (excluding persons still enrolled in school), we calculated values of the following three labor force activity measures for adults in each of the five educational subgroups.

Labor force participation rate. The value of this rate is obtained by dividing the number of persons in the labor force (employed + unemployed) by the number of working-age persons in the noninstitutional population.

Unemployment rate. The value of this labor force activity measure is obtained by dividing the number of unemployed (U) by the number of persons in the labor force (L). The unemployment rate is, thus, the ratio of U/L.

The employment/population ratio. This measure is calculated by dividing the number of employed (E) by the number of persons in the noninstitutional population (E/P). The value of the E/P ratio is jointly determined by the labor force participation rate and the unemployment rate of a group. The higher the labor force participation rate and the lower the unemployment rate, the higher will be the employment/population ratio.[25] As will be shown below, adult high school dropouts in Michigan have comparatively low employment rates due to a combination of a low labor force participation rate and a high unemployment rate. Adult males in Michigan lacking high school diplomas/GED certificates have fared very poorly in obtaining employment in recent years both in comparison to their better educated peers across the state and male high school dropouts across the entire country.

[24] The definition of unemployment in the ACS survey is somewhat more liberal than it is in the CPS household survey since it does not require the jobless individuals to have actively looked for work in the prior four weeks. In the CPS survey an individual who only passively looks for work (reads want ads, surfs the Internet) is not counted as unemployed. Without any active job search, he/she will be categorized as out of the labor force.

[25] Algebraically, the E/P ratio is the product of the following two variables. E/P = L/P * E/L where L/P = labor force participation rate and E/L = 1 – U/L where U/L = unemployment rate.

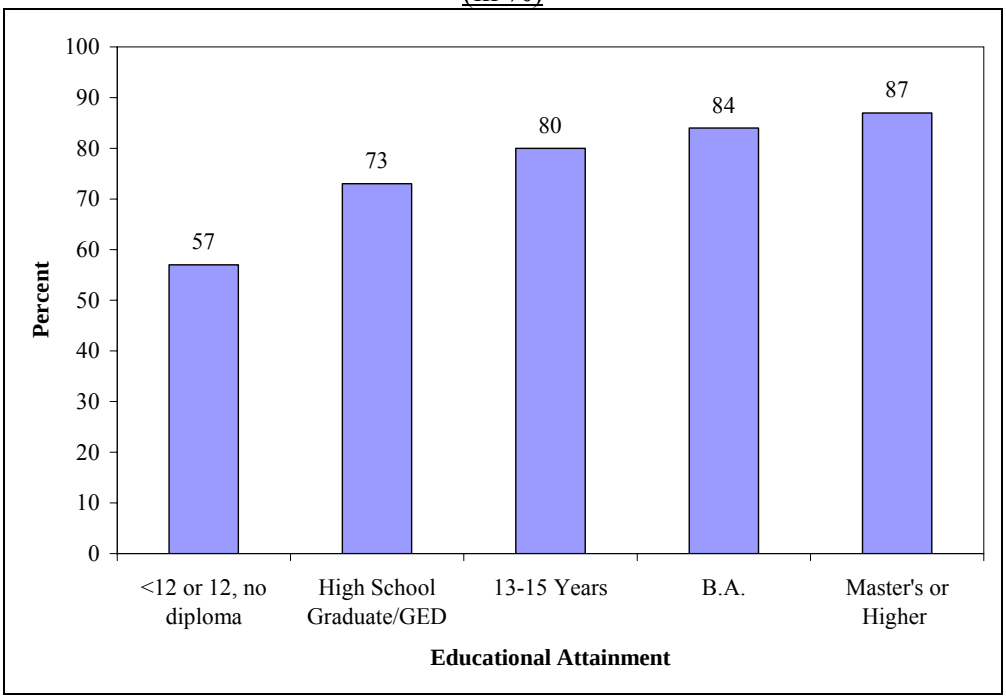
The 2006 labor force participation rates of 16-64 year old Michigan and U.S. adults by educational attainment both overall and by gender are displayed in Table 3. In 2006, slightly over three-fourths of Michigan adults (16-64 years old) were actively participating in the state's labor force. The participation rate of Michigan adults was slightly below that of their comparable-aged peers in the nation (76.1% vs. 77.7%). Among Michigan adults, labor force participation rates varied quite widely by educational attainment. Only 57 percent of Michigan adults lacking a high school diploma/GED were either working or actively looking for work versus 73 percent of high school graduates, 84 percent of bachelor degree holders, and 87 of every 100 non-elderly adults with a Master's or higher degree (Chart 3). Similar participation rate patterns by educational attainment prevailed for adult men and women in Michigan in 2006. Adult males in Michigan without high school diplomas were considerably less likely than their U.S. counterparts to be active participants in the labor force in 2006 (63% vs. 71%). (Table 4).

Table 4:
Labor Force Participation Rates of 16-64 Year Old Persons in Michigan and the U.S. During 2006 (in %)

Gender	Educational Attainment Level	Michigan	U.S.	Michigan – U.S. (in percentage points)
Male	<12 or 12, No H.S. Diploma	62.7	71.0	-8.3
	H.S. Diploma/GED	79.4	82.3	-2.9
	Some College	84.4	86.8	-2.4
	Bachelor Degree	90.9	91.9	-1.1
	Master's or Higher Degree	91.0	91.6	-0.6
	Total	81.5	84.1	-2.6
Female	<12 or 12, No H.S. Diploma	48.9	49.5	-0.6
	H.S. Diploma/GED	65.6	68.6	-3.0
	Some College	75.6	76.0	-0.4
	Bachelor Degree	77.9	78.8	-0.9
	Master's or Higher Degree	81.5	81.9	-0.4
	Total	70.6	71.3	-0.7
Total	<12 or 12, No H.S. Diploma	56.7	61.4	-4.7
	H.S. Diploma/GED	72.7	75.8	-3.0
	Some College	79.8	81.1	-1.3
	Bachelor Degree	84.1	85.1	-1.0
	Master's or Higher Degree	86.5	86.8	-0.3
	Total	76.1	77.7	-1.6

Source: 2006 American Community Survey, public use files, tabulations done by CLMS.
Note: (1) Military personnel are included as labor force participants and among the employed.
(2) Persons enrolled in school at the time of the ACS survey were excluded from the analysis.

Chart 3:
Labor Force Participation Rates of 16-64 Year Old Michigan Adults by Educational Attainment in 2006
(in %)



In 2006, the unemployment rate of non-elderly Michigan adults was 8.5% versus only 5.7% for the same age group in the U.S. (Table 5). Michigan adults faced the highest unemployment rate in the entire nation during that year.[26] The unemployment rates of Michigan adults varied quite considerably across the five educational groups. These estimated unemployment rates ranged from a high of 22% among high school dropouts, to 11% among high school graduates to lows of 4% among bachelor degree holders and only 2% among those with a Master's or high degree (Chart 4). The unemployment rate of Michigan adult dropouts in 2006 was equivalent to Depression era levels. It was twice as high as that of high school graduates, five times as high as that of Bachelor degree holders, and nearly thirteen times as high as that of Michigan adults with a Master's or higher degree. Both male (20%) and female (24%) high school dropouts in Michigan faced very high rates of open unemployment in 2006, far exceeding those of their better educated peers in the state.

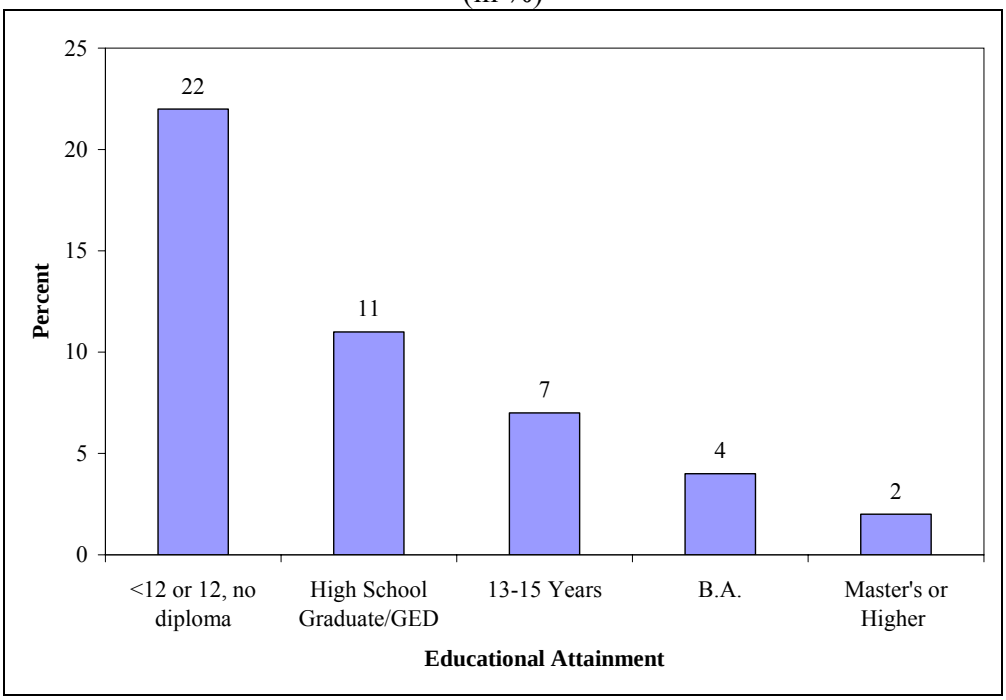
[26] See: U.S. Bureau of Labor Statistics, web site, "LAUS Unemployment Statistics," analysis by CLMS.

Table 5:
Unemployment Rates of Labor Force Participants 16-64 Years Old in Michigan and the U.S., by Gender and Educational Attainment, 2006 (in %)

Gender	Educational Attainment Level	Michigan	U.S.	Michigan – U.S. (in percentage points)
Male	<12 or 12, No H.S. Diploma	20.0	10.3	9.7
	H.S. Diploma/GED	12.1	7.0	5.1
	Some College	6.7	4.5	2.2
	Bachelor Degree	3.7	2.8	0.9
	Master's or Higher Degree	1.2	1.9	-0.7
	Total	8.7	5.5	3.2
Female	<12 or 12, No H.S. Diploma	24.3	14.2	10.1
	H.S. Diploma/GED	10.1	7.4	2.7
	Some College	6.7	5.0	1.8
	Bachelor Degree	5.1	3.0	2.1
	Master's or Higher Degree	2.3	2.2	0.1
	Total	8.2	5.9	2.4
Total	<12 or 12, No H.S. Diploma	21.6	11.7	9.9
	H.S. Diploma/GED	11.3	7.2	4.1
	Some College	6.7	4.7	2.0
	Bachelor Degree	4.4	2.9	1.5
	Master's or Higher Degree	1.7	2.1	-0.4
	Total	8.5	5.7	2.8

Source: 2006 American Community Survey, public use files, tabulations done by CLMS.
Note: (1) Military personnel are included as labor force participants and among the employed.
(2) Persons enrolled in school at the time of the ACS survey were excluded from the analysis.

Chart 4:
Unemployment Rates of 16-64 Year Old Michigan Adults by Educational Attainment in 2006
(in %)



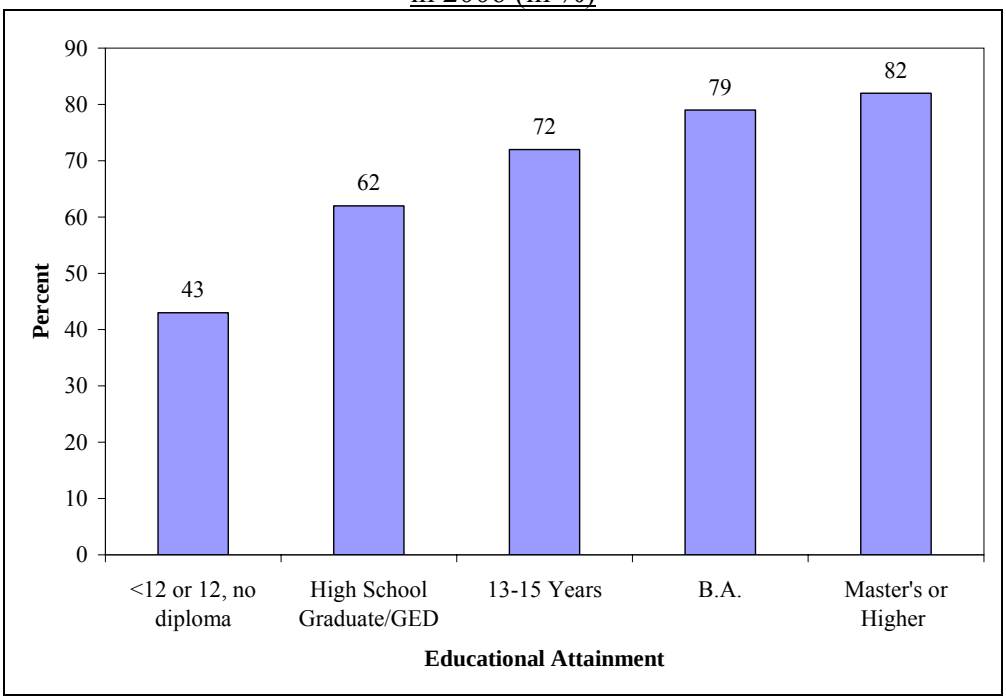
Slightly over two-thirds (67.5%) of Michigan adults between the ages of 16 and 64 were employed in 2006 (Table 6). The employment rates of Michigan adults rose steadily and strongly with their level of schooling (Table 6 and Chart 5). Only 43 of every 100 adult high school dropouts were employed at the time of the 2006 ACS survey versus 62 of every 100 high school graduates, 79 of every 100 Bachelor degree holders, and 82 of every 100 adults with a Master's or higher degree. The best educated adults in the state of Michigan in 2006 were nearly twice as likely to be working as high school dropouts.

Table 6:
Employment/Population Ratios of 16-64 Year Olds in Michigan and the U.S. by Gender and Educational Attainment 2006 (in %)

Gender	Educational Attainment Level	Michigan	U.S.	Michigan – U.S. (in percentage points)
Male	<12 or 12, No H.S. Diploma	48.5	61.8	-13.3
	H.S. Diploma/GED	67.6	74.6	-7.0
	Some College	76.8	81.0	-4.2
	Bachelor Degree	86.0	87.8	-1.8
	Master's or Higher Degree	88.4	88.1	0.4
	Total	72.5	77.6	-5.1
Female	<12 or 12, No H.S. Diploma	35.2	40.7	-5.5
	H.S. Diploma/GED	57.0	61.4	-4.4
	Some College	67.9	69.9	-2.0
	Bachelor Degree	71.6	73.7	-2.1
	Master's or Higher Degree	75.8	76.4	-0.6
	Total	62.4	64.7	-2.3
Total	<12 or 12, No H.S. Diploma	42.8	52.4	-9.6
	H.S. Diploma/GED	62.5	68.3	-5.8
	Some College	72.2	75.2	-3.0
	Bachelor Degree	78.5	80.5	-2.0
	Master's or Higher Degree	82.5	82.3	0.2
	Total	67.5	71.2	-3.7

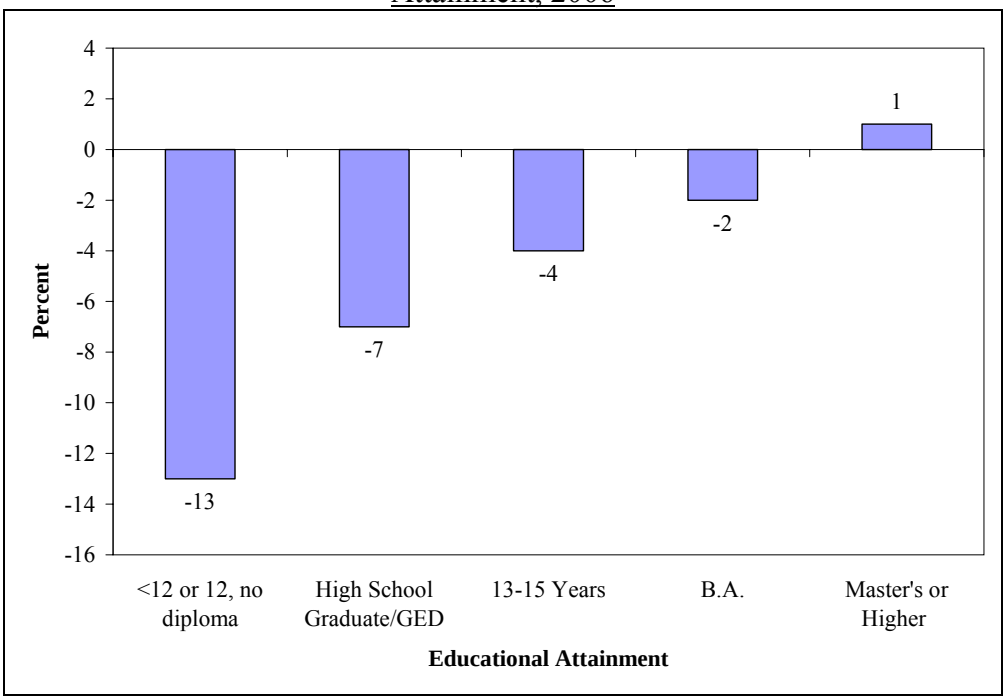
Source: 2006 American Community Survey, public use files, tabulations by authors.
Note: (1) Military personnel are included as labor force participants and among the employed.
(2) Persons enrolled in school at the time of the ACS survey were excluded from the analysis.

Chart 5:
Employment/Population Ratios of 16-64 Year Old Michigan Adults by Educational Attainment in 2006 (in %)



The employment rates of both male and female adults in Michigan were strongly associated with their educational attainment. High school dropouts in both gender groups were employed at rates well below those of their better educated peers across the state. Fewer than one-half of male dropouts and only slightly more than one-third of female dropouts held any type of job at the time of the 2006 ACS survey. Male adult dropouts in the state also fared poorly in obtaining employment relative to the experiences of their counterparts across the country. The employment rate of male dropouts in Michigan was more than 13 percentage points below that of their U.S. counterparts (Table 6 and Chart 6). No other group of Michigan adult males fared as poorly although male high school graduates were employed at a rate seven percentage points below that of their U.S. peers. The only group of Michigan males to be employed at a rate equivalent to that of their U.S. peers were those with a Master's or higher academic degree. The deterioration in overall labor market conditions in Michigan in recent years has clearly taken a very severe toll on employment opportunities for the state's adult dropouts. Among males, the labor market fortunes of dropouts have been on the wane since the late 1970s along many dimensions.

Chart 6:
Percentage Point Gaps Between the E/P Ratios of Michigan and U.S. Males by Educational Attainment, 2006



Time Trends in The Employment Experiences of Michigan Adults in Selected Educational Groups, 1979-2006

The above findings on the labor market experiences of Michigan adults were focused on their situation during one calendar year, i.e., 2006. How well have Michigan adults fared over time in obtaining some type of paid employment? To identify time trends in key labor market outcomes of Michigan adults across educational subgroups, we analyzed the findings of the 1980, 1990, and 2000 decennial censuses and the 2006 American Community Surveys with respect to the employment and earnings experiences of 18-64 year old adults over the previous year.[27] Estimates of the employment rates of 18-64 year old Michigan adults in five educational attainment subgroups in 1979, 1989, 1999, and 2006 are displayed in Table 7 and Charts 7 and 8. In this analysis, an adult respondent was classified as employed if he or she was employed for pay or profit (self-employed) at any time in the calendar year.

[27] The decennial Censuses of 1980, 1990, and 2000 collected information on the weeks of paid employment and annual earnings in the prior calendar year; i.e., 1979, 1989, and 1999. The 2006 ACS survey collected such information for the 52 week period prior to the completion of the questionnaire. This time period will cover some weeks in 2005 and in 2006.

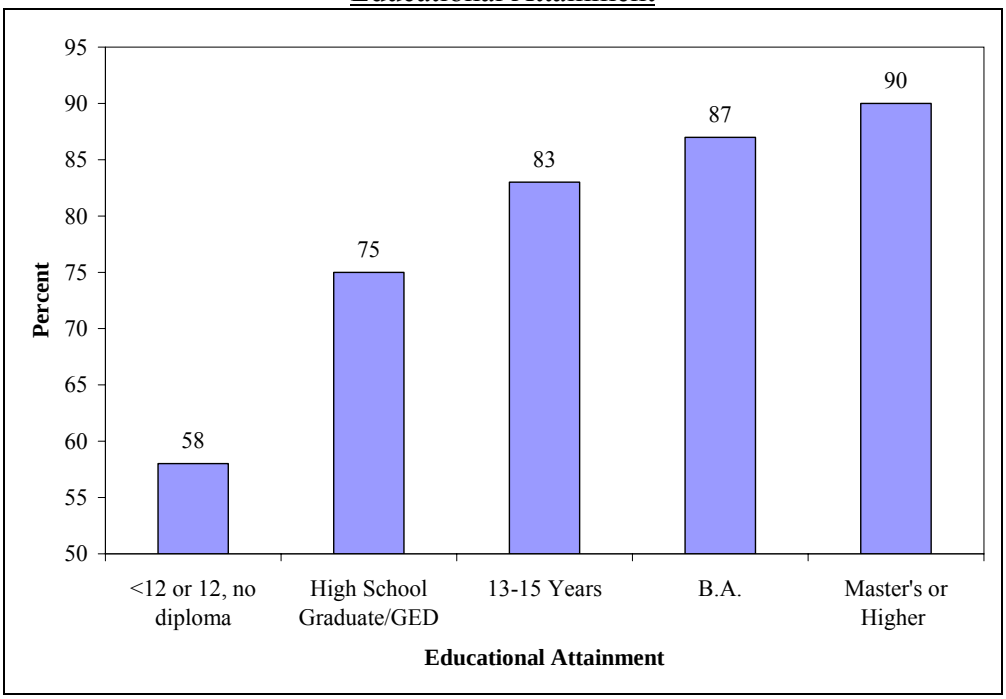
In 2006, nearly 8 of every 10 Michigan adults 18-64 years old were able to obtain some paid employment during the prior 52 week period (Table 7). Michigan adults lacking regular high school diplomas or GED certificates were the least likely to have worked at any time during the year. Only 58 percent of these state dropouts worked at some time during the year versus three of every four high school graduates, 87 percent of four year college graduates, and just under 90 percent of adults with a Master's or higher degree (Chart 5).

Table 7:
Percent of 18-64 Year Old Michigan Adults with Some Paid Employment Experience During the Year by Educational Attainment, 1979, 1989, 1999, and 2006

Gender	Educational Attainment	1979	1989	1999	2006	Percentage Point Change, 1979-2006
Male	<12 or 12, No HS Diploma	78.9	70.7	70.2	65.2	-13.7
	HS Diploma/GED	92.1	88.7	85.5	81.9	-10.2
	1-3 Years of College	94.2	92.3	91.7	87.1	-7.1
	Bachelor's Degree	95.6	95.6	95.1	92.5	-3.1
	Masters or Higher Degree	97.6	96.1	94.8	93.0	-4.6
	Total	89.9	87.9	87.4	84.1	-5.8
Female	<12 or 12, No HS Diploma	43.5	47.3	55.5	49.1	+5.6
	HS Diploma/GED	63.2	68.8	72.4	68.5	+5.3
	1-3 Years of College	72.2	80.5	82.6	79.6	+7.4
	Bachelor's Degree	76.6	84.7	84.2	82.0	+5.4
	Masters or Higher Degree	85.5	89.7	88.1	85.8	+.3
	Total	62.2	71.8	76.8	74.4	+12.2
Total	<12 or 12, No HS Diploma	61.5	59.5	63.5	58.2	-3.3
	HS Diploma/GED	75.8	77.8	78.9	75.4	-.4
	1-3 Years of College	83.0	86.2	86.9	83.1	+.1
	Bachelor's Degree	87.1	90.4	89.6	87.0	-.1
	Masters or Higher Degree	93.2	93.4	91.6	89.5	-3.7
	Total	75.6	79.7	82.1	79.3	+3.7

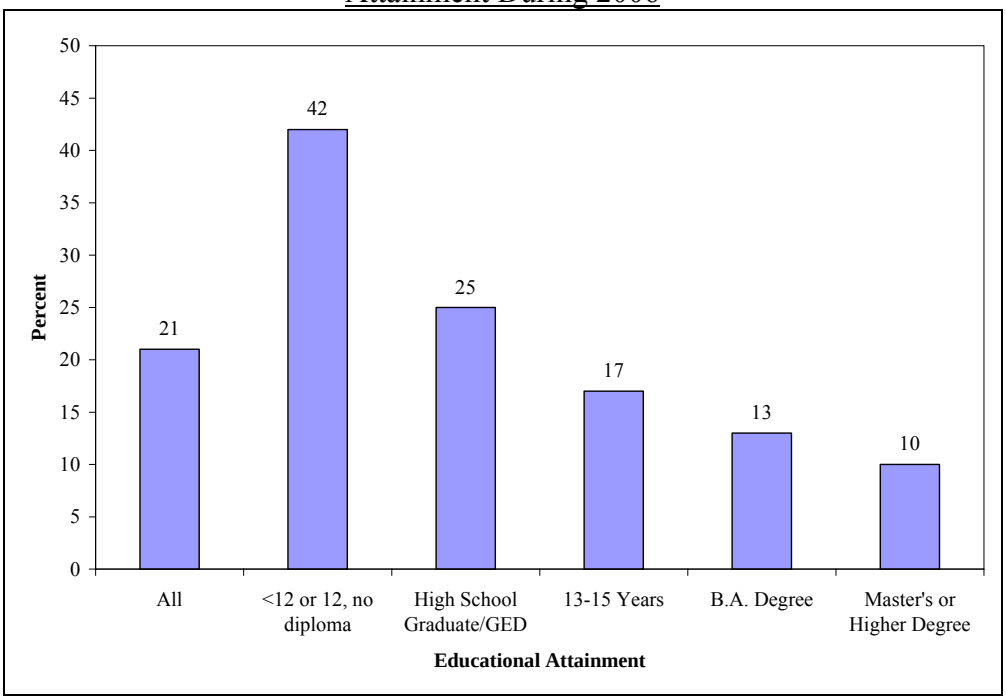
Note: Persons 18-22 years old enrolled in school was excluded from analysis.

Chart 7:
Percent of 18-64 Year Old Michigan Adults With Some Paid Work Experience During 2006 by Educational Attainment



The 2006 ACS work experience data also can be analyzed from a different perspective by focusing on those adults who were jobless for the entire year. Overall, 21 percent of the state's 18-64 year olds reported no paid employment in the prior 52 week period (Chart 8). The share of Michigan adults who were jobless for the entire year varied quite widely across the five educational subgroups, ranging from a high of 42 percent among those adults lacking a high school diploma/GED to 25 percent among high school graduates and to a low of 10 to 13 percent for those persons with a bachelor's or higher degree. Adult high school dropouts were 1.7 times as likely as high school graduates with no post-secondary schooling to be jobless all year and somewhat more than four times as likely to do so as their peers with a Master's or higher degree.

Chart 8:
Percent of 18-64 Year Old Michigan Adults with No Paid Work Experience by Educational Attainment During 2006



Over the 1979-2006 period, there was an increase in the fraction of Michigan adults (18-64 years old) with some paid work experience during the year. In 1979, slightly over 75 percent of Michigan adults worked at some point during the year. By 1989, this ratio had risen to just under 80 percent and increase further to 82 percent before falling back to 79 per cent in 2006.[28] All of the increase in the overall work rate of Michigan adults between 1979 and 2006 was attributable to women rather than to men. The overall work rate of Michigan men in 2006 was nearly six percentage points below that of 1979 while women's work rate in 2006 was more than 12 percentage points higher than it was in 1979 (Table 7).

Among Michigan males, work rates in 2006 were below those of 1979 in every educational subgroup; however, the absolute and relative sizes of the declines in the work rates of Michigan males were considerably greater among those men with no post-secondary schooling (Chart 9). Between 1979 and 2006, the work rate of male high school dropouts fell by

[28] The near three percentage point decline in the work rate among non-elderly Michigan adults between 1999 and 2006 was far greater than the modest .2 percentage point decline in the work rate of U.S. adults over the same seven year period, reflecting the greater deterioration in state labor market conditions since 2000.

nearly 14 percentage points. among high school graduates, by 11 percentage points and only 3 percentage points among males with a bachelor's degree. Michigan males with no regular high school diploma/GED certificate were 10 percentage points less likely to work than their U.S. counterparts in 2006 while the gap in work rates between Michigan and U.S. adults with a high school diploma was only 3 percentage points and under one percentage points for those adults with a bachelor's or more advanced degree. (Table 8).

Chart 9:
Percentage Point Changes in Work Rates During the Year Among Michigan Males Between 1979 and 2006 by Educational Attainment

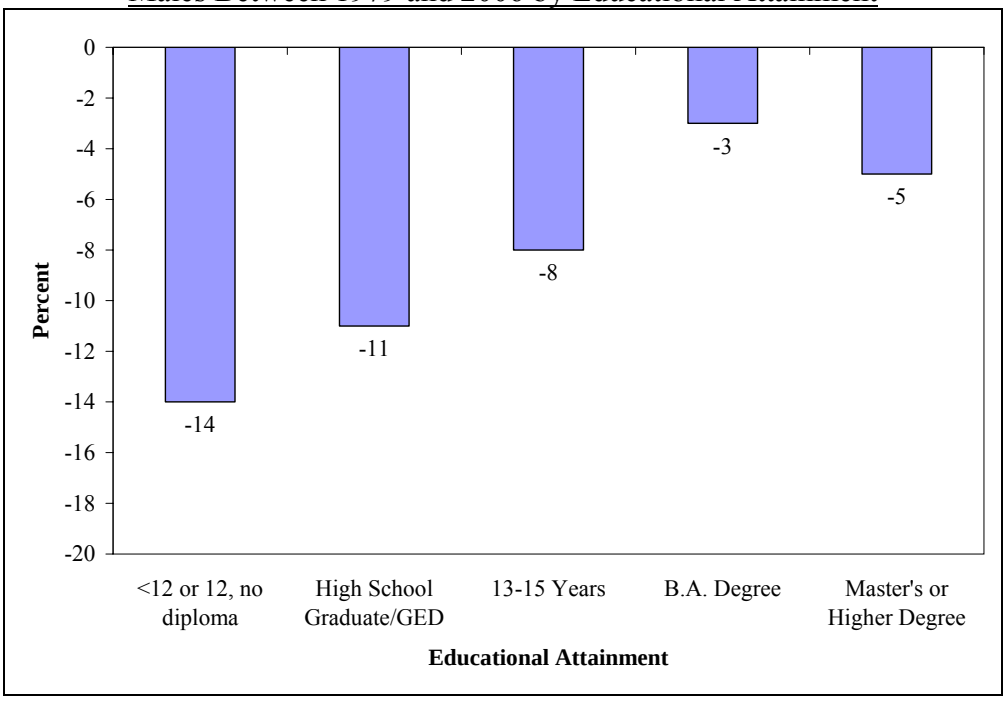


Table 8:
Comparisons of the Work Rates of 18-64 Year Old Michigan and U.S. Male Adults[(1)] by Years of Completed Schooling, 2006(in %)

Educational Attainment	(A) Michigan	(B) U.S.	(C) Michigan – U.S. (in percentage points)
Less than 12 or 12, no diploma/GED	65.2	75.0	-9.8
H.S. diploma/GED	81.9	85.2	-3.3
13-15 years, including Associate degrees	87.1	89.3	-2.2
Bachelor's degree	92.5	93.3	-.8
Master's or higher degree	93.0	93.6	-.6

Source: 2006 American Community Surveys, public use files, tabulations by authors.
Note: Persons 18-22 years old who were enrolled in high school or college at the time of the 2006 ACS survey were excluded from the analysis.

The Labor Market Situation for Out-of-School Teens in Michigan in 2006

The difficulties traditionally faced by the nation's out of school teens in securing employment, especially in major central cities and high poverty urban areas, have intensified since the end of the national labor market boom in early 2001, and they should be viewed as a troublesome matter by state and local educational and workforce development policymakers.[29] However, it is important to distinguish between the fates of two educational subgroups of out-of-school teenagers: those out-of-school youth that possess a high school diploma/GED certificate and those who left high school without obtaining a diploma or acquiring a GED. The labor market environment faced by each of these two subgroups of out of school teenagers is typically quite different in most states, with dropouts facing a more hostile labor market environment and increased competition from older adults and young foreign immigrants, especially illegals, in recent years.

We have analyzed recent data from the American Community Surveys (ACS) for calendar years 2005 and 2006 to assess the labor market conditions of out-of-school 16 to 19 year olds in the state of Michigan and in selected counties of the state.[30] Comparisons with employment outcomes for their teenaged counterparts across the nation also will be provided. In this section of the report, we both identify and analyze the employment/population ratios of all out of school teens, high school graduates, and high school dropouts in 2005-06.[31] The E/P ratio represents the ratio of the number of teens who were employed at the time of the ACS survey to the number of teens in the civilian non-institutional population.[32] The advantage of using the E/P ratio rather than the unemployment rate as a core measure of the labor market situation among teens is that in an unfavorable labor market, jobs for teens become more difficult to obtain. As a

[29] For a review of the deteriorating labor market fortunes of teens and young adults in the U.S. with limited schooling,
See: (i) Peter Edelman, Harry J. Holzer, and Paul Offner, Reconnecting Disadvantaged Young Men, Urban Institute Press, Washington, DC, 2006; (ii) Andrew Sum, Ishwar Khatiwada, and Abbe Will, The Decline in Work Experience Opportunities among Massachusetts and U.S. Teens (16-19) between 2000 and 2003-2004: Implications for Youth Workforce Development Policy, Report Prepared for the Commonwealth Corporation, April 2006. (iii) Andrew Sum, Ishwar Khatiwada, Joseph McLaughlin, et. al., The Demise of the Summer Teen Employment Market and the Case for a Revitalized National Summer Jobs and Education Program for the Nation's Teens, Center for Labor Market Studies, Northeastern University, October 2007.

[30] In order to provide more reliable estimates of the employment to population ratios of youth at the local level in the state of Massachusetts, we have taken a two year average of the data from the 2005 and 2006 ACS surveys.

[31] A high school dropout in this report is defined as a youth who was not enrolled in school and who did not hold either a regular high school diploma or a GED certificate.

[32] The 2005 ACS survey did not interview teens living in institutions, college dormitories, and other group quarters. The 2006 ACS survey did interview these groups.

result of these depressed labor market conditions, some of these teens will stop actively looking for work and will no longer be counted among the ranks of the official unemployed even though they remain jobless. Youths' labor force attachment is quite sensitive to the local labor market. Their absence from the ranks of the employed will be captured by a decline in their employment/population ratio.

Some youth development, educational, and labor market analysts argue that one of the reasons why 16-19 year olds drop out of school is to secure a source of income and work.[33] However, when looking at our estimates of employment to population ratios for out of school 16 to 19 year olds, we find that those teens without diplomas are least likely to be employed. There are considerable differences between the employment rates of out of school youth with a high school diploma and those without a high school diploma or a GED (Table 8 and Chart 10). Only 30 percent of teenaged dropouts were successful in finding any type of work in Michigan during 2005 and 2006 while nearly 61% of high school graduates not enrolled in college were employed. The employment rate of all out-of-school teens (16-19 years old) in Michigan during 2005-2006 was 48 percent, a rate that was approximately 5 percentage points less than the national average (Table 9) During 2005-2006, the E/P ratios of the nation's out of school teens also varied quite substantially across educational attainment groups. Teenaged high school graduates in the U.S. also were substantially more likely to be employed than their dropout counterparts, 62 percent versus 39 percent. In Michigan, high school dropouts had a much lower employment rate than their national peers (30.4% versus 38.8%).

Table 9:
Employment to Population Ratios of Out of School 16 to 19 Year Olds by Educational Attainment in the U.S., and the State of Michigan, 2005-2006 Average
(in %)

Geographic Area	(A) Total Out of School	(B) H.S. Graduates	(C) Dropouts
U.S.	52.8	62.4	38.8
Michigan	48.1	60.8	30.4

Source: 2005 and 2006 American Community Surveys, public use files, tabulations by authors.

[33] For a recent review of reasons for dropping out and causes of school dropout problems, see: Rumberger, Russell W., "Why Students Drop Out of School", in Dropouts in America: Confronting the Crisis, edited by Gary Orfield, Harvard Education Press, Cambridge, 2004.

The 2005 and 2006 ACS surveys also provided estimates of employment rates for out-of-school teens for six counties in Michigan in both the 2005 and 2006 survey years. For these six counties, we calculated the simple 2-year average of their teen employment rates. The employment rates of those 16 to 19 year olds who were not enrolled in school ranged from a low of 34% in Wayne County to highs of 57 and 58 percent in Kent and Oakland County, respectively. Among high school graduates who were not enrolled in college, employment rates ranged from lows of 42 and 46 percent in Washtenaw and Wayne Counties, to highs of 69 percent in Kent and Oakland Counties.(Chart 11). The employment rates of teen high school dropouts were low in all six counties, especially in Wayne and Genesee County where only 22 to 25 percent of high school dropouts were employed during 2005 and 2006. For most counties, there were substantial gaps between the employment rates of 16-19 year old high school graduates and high school dropouts. In 5 of the 6 counties, the employment rates of high school graduates exceeded those of high school dropouts by at least 22 percentage points.

Chart 10:
Employment to Population Ratios of Out of School 16 to 19 Year Olds by Educational Attainment in Selected Michigan Counties, 2005-2006 Average (in %)

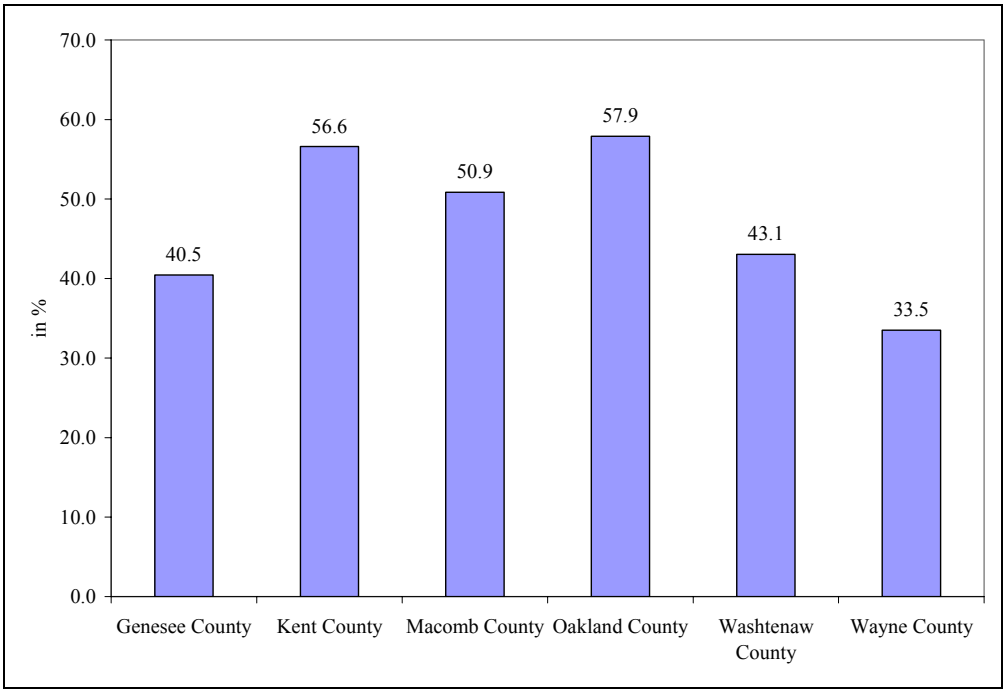
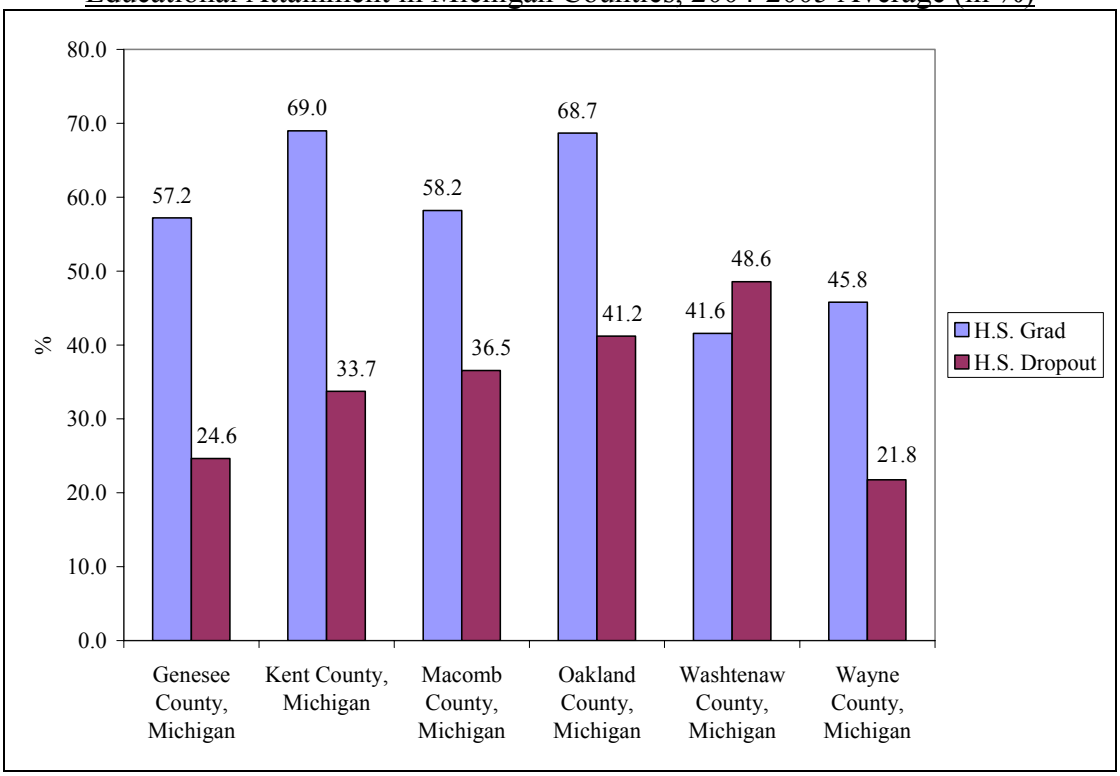
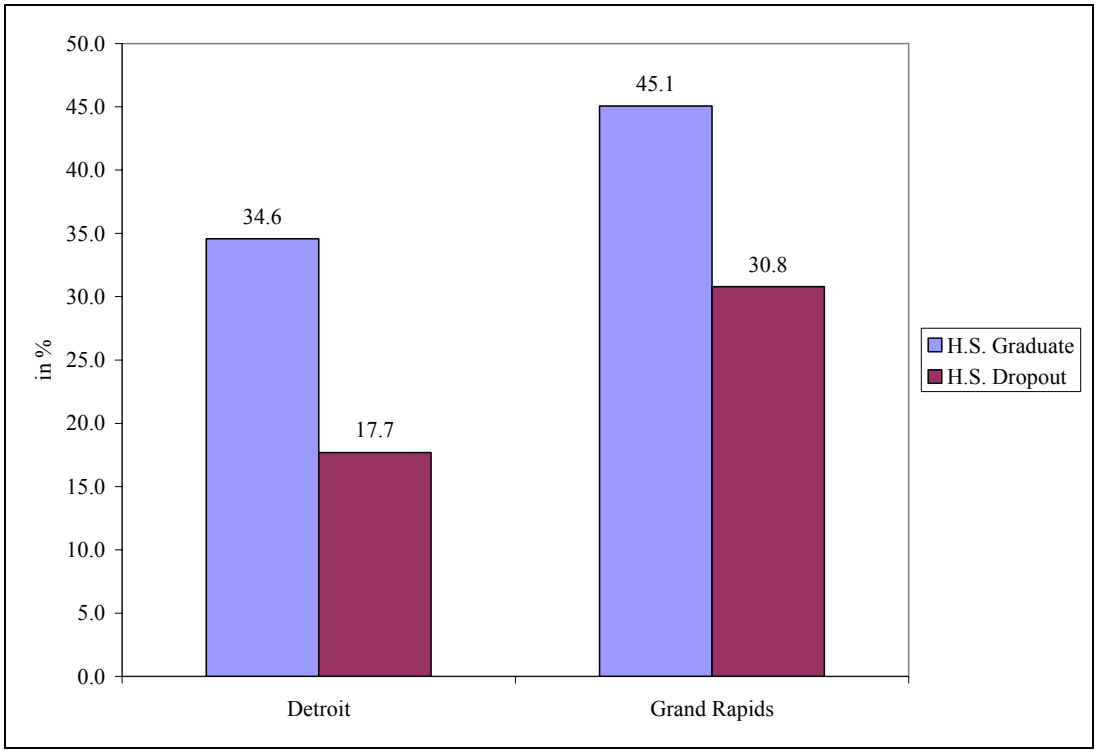


Chart 11:
Employment to Population Ratios of Out of School 16 to 19 Year Olds by Educational Attainment in Michigan Counties, 2004-2005 Average (in %)



As noted earlier, out-of-school teenagers living in the nation's large central cities and high poverty neighborhoods typically have faced considerably more hostile labor market conditions. For example, in the city of Detroit between 2005 and 2006, only 18 percent of teen dropouts were estimated to be employed, an E/P ratio that was less than half as high as that prevailing among their national counterparts during the same time period. (Chart 12). This finding implies that 82 of every 100 teenaged dropouts in the city of Detroit were jobless. Teen dropouts fared somewhat better in the city of Grand Rapids, the only other city in Michigan for which similar ACS data were available. In Grand Rapids, 31 percent of teen dropouts were employed during the same time period. High school graduate teens living in the cities of Detroit and Grand Rapids had higher E/P ratios than their dropout counterparts (35% % and 45% respectively), though their rates of employment were well below the statewide average for teen high school graduates.

Chart 12:
Employment Rates of Out-of-School 16 to 19 Year Olds By Educational Attainment, Detroit and Grand Rapids, 2005-2006 (2-Year Annual Averages, in %)



The 2005-2006 Mean Annual Earnings of Michigan and U.S. Adults by Educational Attainment

One of the most important measures of the labor market success of Michigan and U.S. adults is their annual earnings from paid employment, including self-employment as well as wage and salary jobs. The annual earnings of Michigan adults are influenced by their weeks of employment during the year and their average weekly earnings.[34] The 2006 American Community Survey (ACS) data were used to estimate the mean annual earnings of 18-64 year old Michigan and U.S. adults in each of five educational attainment categories, including those adults with no paid employment in the prior year. The ACS annual earnings data refer to their pre-tax money earnings of individuals in the 52 week period prior to the completion of the ACS questionnaire. Since the questionnaire were completed throughout calendar year 2006, this 52

[34] The ACS annual earnings data appear to exclude compensation in the form of stock grants, stock options, and other forms of executive pay. They also exclude employer benefits.

week period will have covered some weeks in both 2005 and 2006 for the vast majority of respondents. For this reason, we refer to these earnings as 2005-2006 mean annual earnings.

During the 2005-2006 time period, the mean annual earnings of 16-64 year old Michigan adults not enrolled in school at the time of the ACS survey were $32,108, a mean earnings level that was nearly $2,000 less than the national average. (Table 10). The mean annual earnings of adults in both Michigan and the U.S. rose steadily and strongly with their level of formal schooling.[35] Mean annual earnings of Michigan adults lacking a regular high school diploma or a GED were slightly under $13,400 versus nearly $21,800 among high school graduates, $30,658 among those with 1-3 years of college, more than $48,200 for Bachelor degree holders, and to a high of $72,841 among those with a Master's or higher degree. Mean annual earnings of high school graduates in Michigan exceeded those of high school dropouts by $8,853, or 68 percent while the mean earnings of Bachelor degree recipients exceeded those of high school dropouts by more than $26,000 or 12 percent. The mean annual earnings of Master or higher degree holders exceeded those of adults dropouts by $60,000 or 5.6 times. These two groups of Michigan adults occupy radically different economic world. The very low mean annual earnings of Michigan adults lacking a regular high school diplomas or GED was attributable to a combination of a relatively low share of adults with some paid employment, to less stable employment during the year, and to low weekly earnings among those who were employed at some point during the year.

[35] Literacy and numeracy skills also have important independent effects on the weekly wages and annual earnings of adults over and above those of education. See: Andrew Sum, Literacy in the Labor Force, National Center for Education Statistics, Washington, D.C., 1999; (ii) Irwin Kirsch, Henry Braun, Andrew Sum, and Kentaro Yamomota, America's Perfect Storm: Three Forces Influencing America's Future, Educational Testing Service, Princeton, NJ, 2007.

Table 10:
Mean Annual Earnings of Adults (16-64) in Michigan and the U.S. During 2005-2006

Area	Educational Attainment	(A) All	(B) Men	(C) Women
Michigan	<12 or 12, No H.S. Diploma	$12,926	$17,058	$7,473
	H.S. Diploma/GED	$21,779	$28,514	$14,598
	Some College	$30,658	$40,320	$21,704
	Bachelor Degree	$48,233	$64,763	$32,868
	Master's or Higher Degree	$72,841	$91,603	$52,018
	Total	$32,108	$41,624	$22,338
United States	<12 or 12, No H.S. Diploma	$14,196	$18,977	$8,237
	H.S. Diploma/GED	$23,255	$29,656	$16,261
	Some College	$32,044	$40,985	$23,980
	Bachelor Degree	$51,460	$67,923	$35,990
	Master's or Higher Degree	$75,952	$99,572	$51,778
	Total	$34,036	$43,585	$24,255

Note: Persons enrolled in school at the time of the ACS survey were excluded from the analysis. Persons with no paid employment during the year were assigned annual earnings of zero.
Source: 2006 American Community Surveys, public use files, tabulations by authors.

The mean annual earnings of both Michigan and U.S. adults rose steadily and strongly with additional years of schooling among men and women (Table 10, Columns B and C). In Michigan, among males, high school graduates with no years of completed post-secondary schooling received mean annual earnings that were $11,456 or 67% above those of high school dropouts, and male Bachelor degree holders had mean annual earnings that were $47,700 or 127% higher than those of dropouts. The mean annual earnings of these male bachelor degree holders were nearly four times as high as those of their dropout peers. Among women, the absolute and relative differences in mean earnings between high school dropouts and high school/four year college graduates were also very high. Female high school graduates in Michigan had mean annual earnings that were twice as high as those of high school dropouts, and female Bachelor degree holders obtained mean annual earnings that were more than four times as high as those of high school dropouts ($32,868 vs. $7,473). These large differences in mean annual earnings between well educated and less educated adults in both Michigan and the U.S. can be expected to be accompanied by large differences in their annual tax payments in payroll taxes, government pension contributions, state and federal income taxes, and state sales taxes. As will be shown in a following section, the limited earnings of adult dropouts in Michigan have several adverse fiscal consequences for national, state, and local government.

Trends in the Lifetime Earnings of Michigan Adults by Educational Attainment and by Gender, 1979-2006

The previous section of this report identified the annual earnings experiences of Michigan adults in the most recent year (2005-2006) for which earnings data were available. To track changes in the expected lifetime earnings of Michigan adults by educational attainment over the past few decades, we analyzed findings of the 1980, 1990, and 2000 Censuses as well as the 2006 American Community Survey for Michigan adults between the ages of 18 and 64. The survey data for each of these years were used to construct a cross-sectional snapshot of the expected lifetime earnings of Michigan adults from ages 18 to 64, including those with no paid employment during a given year. To illustrate the procedures used to calculate the expected lifetime earnings for each gender/educational attainment group, we have generated an actual subset of the lifetime earnings data for male high school graduates in Michigan during 2006 (Table 11). First, the mean annual earnings of each single age group of male high school graduates from ages 18 to 64 are estimated, including those with zero earnings during the year. Annual earnings of each educational group tend to rise fairly continuously though eventually at a diminishing rate from their early teens to their mid 40s to early 50s depending on their level of schooling.[36] Second, the mean annual earnings of each age group from 18 to 64 are then summed to estimate their expected mean lifetime earnings. The underlying assumption for this set of calculations is that over time the mean annual earnings of each age group in each educational group will remain at their 2005-2006 levels.[37] Under this set of assumptions, the mean expected lifetime earnings of Michigan, male high school graduates as of 2006 was $1.261 million.

[36] Earnings of adults in each educational group tends to rise most rapidly from their early 20s through their mid 30s. The age/earnings profiles of better educated adults tend to be more steeply sloped than that of their less educated peers and peak at a later age. The earnings gaps between adults in those different educational subgroups tend to widen over time as they gain more work experience.

[37] For a review of alternative methods for adjusting lifetime earnings correct for expected changes in these earnings over time,
See: Richard Freeman, The Overeducated American, St. Martin's Press, New York, 1976.

Table 11:
Actual Calculation of the Mean Lifetime Earnings of Michigan Male High School Graduates from Ages 18 to 64 (in 2006)

Age	Mean Annual Earnings
18	4,520
19	8,889
20	11,179
21	13,642
▪	
▪	
▪	
62	15,470
63	13,308
64	15,749
Sum, 18-64	1,261,036

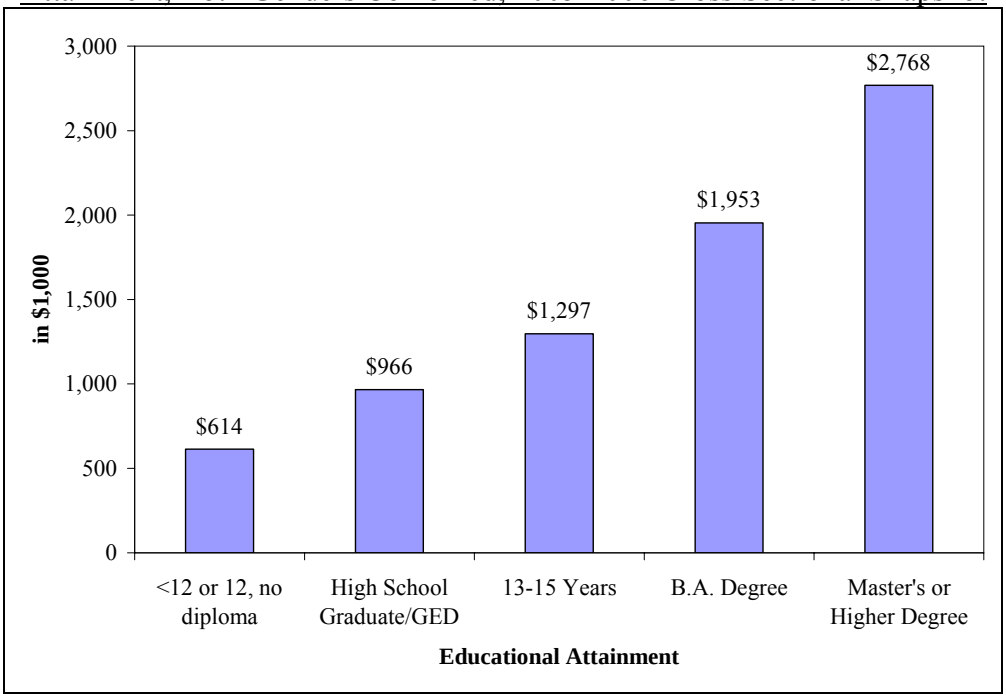
Estimates of the mean lifetime earnings of Michigan adults in five educational groups from ages 18-64, both for all adults and for men and women separately, are displayed in Table 12. The cross-sectional estimates of these lifetime earnings are displayed for 1979, 1989, 1999, and 2006, and the estimated percent changes in these lifetime earnings between 1979 and 2006 are displayed in the last column of this table. For all Michigan adults combined, mean lifetime earnings in 2006 were estimated at $1.383 million. These mean lifetime earnings varied widely across the five educational groups, ranging from a low of $614,000 among those adults lacking a high school diploma/GED to $966,000 for high school graduates, $1.953 million for bachelor degree recipients, and to a high of $2.768 million for those holding a Master's or higher degree (Chart 13 and Table 12).

Table 12:
Trends in the Real Mean Lifetime Earnings of Michigan Adults by Gender and Educational Attainment, Selected Years 1979 to 2006
(in Constant 2006 Dollars)

Gender	Educational Attainment	1979	1989	1999	2006	% Change, 1979-2006
Male	<12 or 12, No HS Diploma	1,554,718	1,193,947	1,117,910	817,896	-47.4
	HS Diploma/GED	2,121,008	1,723,143	1,628,373	1,261,036	-40.5
	1-3 Years of College	2,429,131	2,151,185	2,136,280	1,709,891	-29.6
	Bachelor's Degree	2,935,877	2,943,226	3,021,057	2,592,231	-11.7
	Masters or Higher Degree	3,276,969	3,580,145	3,731,548	3,413,276	4.2
	Total	2,190,813	2,052,806	2,145,672	1,794,448	-18.1
Female	<12 or 12, No HS Diploma	382,827	387,334	501,950	358,370	-6.4
	HS Diploma/GED	615,984	650,686	763,801	655,209	6.4
	1-3 Years of College	778,167	911,960	1,052,713	925,579	18.9
	Bachelor's Degree	937,139	1,213,121	1,424,310	1,352,850	44.4
	Masters or Higher Degree	1,541,472	1,808,496	1,979,409	2,040,455	32.4
	Total	655,434	816,978	1,029,763	976,392	49.0
Total	<12 or 12, No HS Diploma	975,111	803,610	833,536	614,440	-37.0
	HS Diploma/GED	1,251,337	1,117,811	1,181,954	965,947	-22.8
	1-3 Years of College	1,585,435	1,518,007	1,565,341	1,297,327	-18.2
	Bachelor's Degree	2,108,102	2,161,051	2,248,288	1,953,138	-7.4
	Masters or Higher Degree	2,727,691	2,915,364	2,944,361	2,767,933	1.5
	Total	1,399,728	1,419,136	1,580,601	1,382,963	-1.2

Note: Persons 18-22 years old enrolled in school were excluded from the analysis.

Chart 13:
Mean Lifetime Earnings of Michigan Adults from Ages 18-64 by Educational Attainment, Both Genders Combined, 2005-2006 Cross Sectional Snapshot



The estimated gap between the mean lifetime earnings of high school graduates and dropouts was a fairly substantial $351,000 or 57 percent in 2006 (Table 13). Bachelor degree holders were characterized by mean lifetime earnings nearly $1 million or 102% higher than those of high school graduates. The gap between the mean lifetime earnings of high school dropouts and bachelor degree holders was an extremely substantial $1.34 million. The mean lifetime earnings of Michigan adults with a bachelor's degree were 3.2 times as high as those of their peers with no high school diploma.

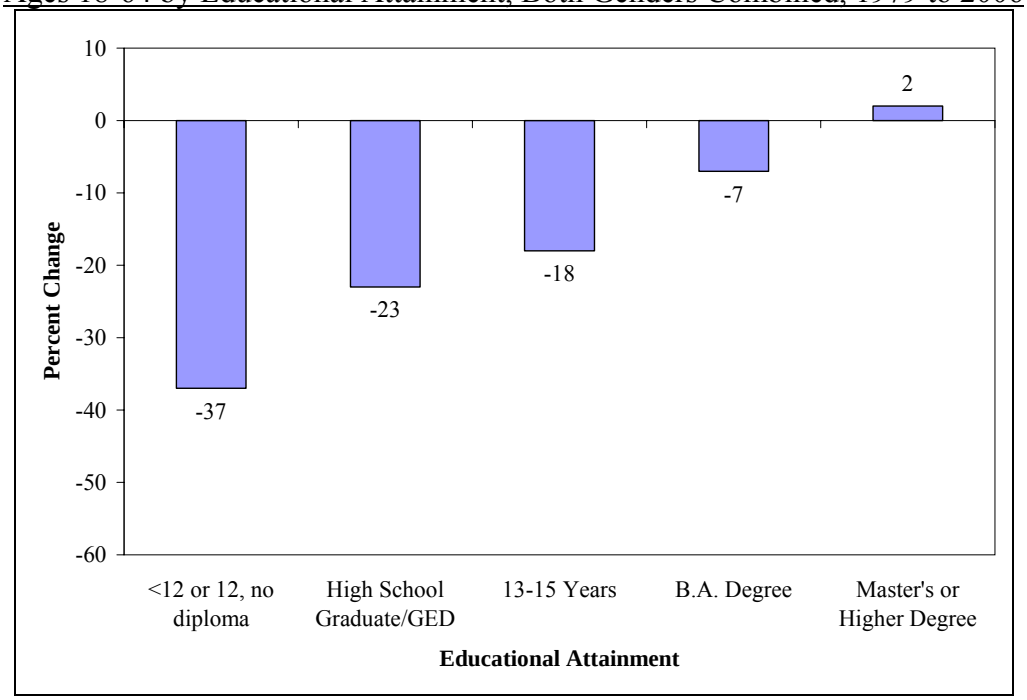
Table 13:
Absolute and Relative Differences Between the Mean Lifetime Earnings of Michigan Adults in Selected Educational Attainment Groups
(2006 Cross Sections)

Groups Being Compared	(A) Absolute Difference (in $1000)	(B) Relative Difference (in %)
High school dropout/no GED vs. high school graduate	$351	57%
High school graduate versus bachelor degree holder	$987	102%
High school dropout versus bachelor degree holder	$1,339	218%

How well have Michigan adults in different educational subgroups fared over time in improving their lifetime earnings? To answer this important research question, we compared the mean lifetime earnings of Michigan adults over the 1979-2006 period. The mean lifetime earnings of Michigan adults rose from nearly $1.4 million in 1979 to $1.42 million in 1989 and to $1.580 million in 1999 before declining sharply to $1.383 million in 2006. Between 1979 and 2006, the estimated changes in the mean lifetime earnings of Michigan adults varied quite substantially across members of the five educational subgroups. The less educated the group of adults, the more poorly they fared with respect to changes in their mean lifetime earnings, especially among males.[38] For all adults, mean real, lifetime earnings among high school dropouts declined by 37% between 1979 and 2006 versus declines of 23 percent for high school graduates and only 7 percent for bachelor degree holders (Chart 14). The only educational group of Michigan adults with a higher mean, lifetime earnings stream in 2006 was those with a Master's or higher degree. Their mean lifetime earnings in 2006 were 2 percent higher than they were in 1979. Over the past few decades, the lifetime earnings gaps between the state's best educated and less well educated adults have been widening fairly considerably, thereby increasing inequality in the earnings and income distributions within the state.

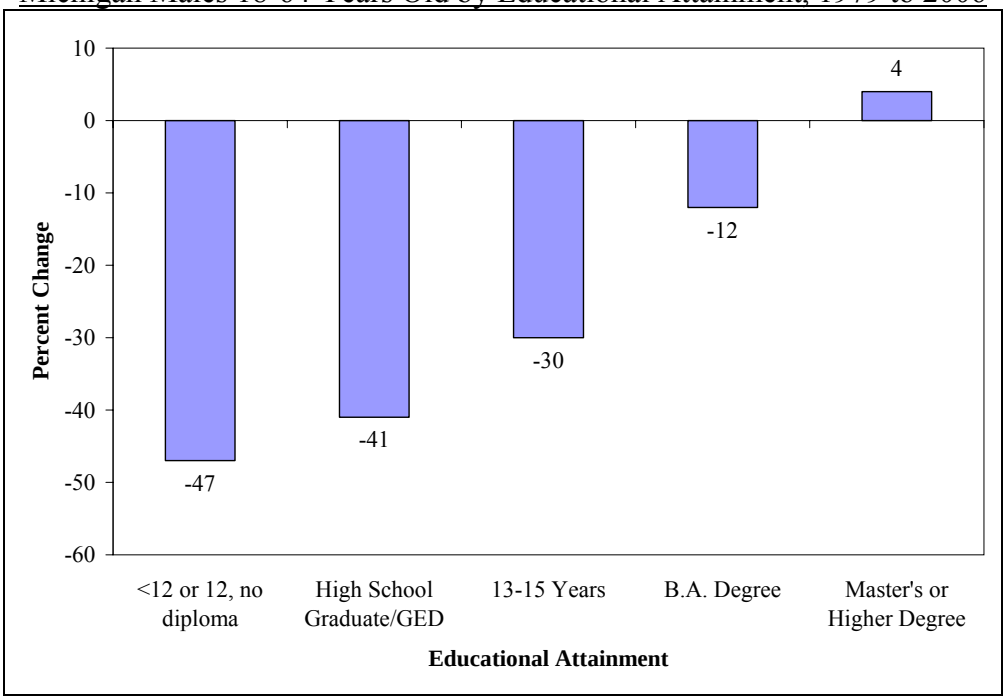
[38] The much more modest drop in the mean lifetime earnings of the average Michigan adult was attributable to rising educational attainment of Michigan adults over the past two decades, including a rising share of adults with bachelor or higher degrees. The movement of more adults into higher educational groups with higher mean earnings offset declining mean earnings within educational subgroups especially among males.

Chart 14:
Percentage Point Changes in the Mean Lifetime Earnings of Michigan Adults Ages 18-64 by Educational Attainment, Both Genders Combined, 1979 to 2006



On average, Michigan women fared considerably better than males in improving their lifetime earnings over the 1979-2006 period. Due primarily to a combination of more hours of work over the lifetime and higher hourly earnings for the college educated, the mean lifetime earnings of Michigan women in 2006 were 49 percent higher than they were in 1979 while the mean lifetime earnings of males declined by 18 percent over the same time period. Every group of Michigan women, with the exception of high school dropouts, improved their lifetime earnings with percentage gains of 33 to 44 percent among those women with a Bachelor's or advanced academic degree (Table 12).

Chart 15:
Percent Changes in the Mean Lifetime Earnings of
Michigan Males 18-64 Years Old by Educational Attainment, 1979 to 2006



Among Michigan males, mean lifetime earnings in 2006 were $1.794 million, which was 18 percent below their 1979 mean lifetime earnings level. Every educational group of Michigan males except advanced degree holders had lower lifetime earnings in 2006 than they did in 1979. The absolute and relative sizes of these lifetime earnings declines for Michigan men were quite substantial for those males without four year college degrees (Chart 15). Male adults lacking a regular high school diploma or a GED saw their lifetime earnings fall by nearly 50 percent while high school graduates also experienced a very large 41 percent decline in their mean lifetime earnings over this same 26 year period. The very steep declines in mean lifetime earnings of males with no post-secondary schooling were generated by a combination of a substantial decline in mean lifetime hours of work (a 24 percent drop among male dropouts) and declining real hourly earnings (20 percent among male dropouts and 24 percent among male high school graduates). The de-industrialization of the Michigan economy has sharply reduced the number of well-paying blue collar, employment opportunities for males with no post-secondary schooling, thereby lowering their real annual and lifetime earnings. As will be revealed below, these declining lifetime earnings of Michigan males with limited schooling have sharply lowered their marriage prospects, thereby increasing the number of single parent families in the state with an

attendant variety of adverse economic, education, health, and housing consequences for families and children. Nationally, there also has been a trend toward increasing marriage rate differences across educational subgroups with non-college educated adults becoming increasingly unlikely to marry.[39] The economic and social gaps between the educational haves and have-nots have been rising since the late 1970s.

Income Inadequacy Problems of Michigan Adults in Selected Educational Attainment Categories, 1979-2006

Since the late President Lyndon Baines Johnson declared an unconditional War on Poverty in 1964, the United States government, state governments, and some local governments have engaged in a variety of efforts of varying magnitude, intensity and composition to reduce the number of poor persons and families.[40] Given the lower employment rates, annual earnings, and marriage rates of less educated adults in Michigan, one would expect that they would be more likely to experience an array of income inadequacy problems than their better educated peers. These differences in income inadequacy rates also would be expected to rise over time, given substantial disparities in earnings trends and marriage rates for adults in different educational subgroups. To identify the incidence of poverty, near poverty, and other income inadequacy problems among Michigan adults in different educational attainment subgroups in 2006 and in earlier years (1979, 1989, 1999), we analyzed the findings of the 2006 American Community Survey and the 1980, 1990, and 2000 Censuses. Estimates of the percent of 18-64 year old Michigan adults in each educational attainment group who were poor, poor or near poor, or low income in each of those years are presented in a series of tables and charts below.

The definitions of the poor, poor and near poor, and low income members of the adult, non-elderly population in Michigan in each of the above years are displayed below. Our definitions of the poor and near poor populations are based on the official definitions of the U.S. Census Bureau in generating its estimates of the nation's poor and near poor population.

- The poor are those individuals living in families with annual, pre-tax money incomes below the federal government's poverty income threshold for a family of their given size

[39] For a review of these trends in marriage rates and their economic consequences,
See: Kay S. Hymowitz, Marriage and Caste in America, Ivan R. Dee Publishers, Chicago, 2006.
[40] See: Sar A. Levitan, The Great Society's Poor Law: A New Approach to Poverty, Johns Hopkins University Press, Baltimore, 1969.

and age composition.[41] These poverty lines do not vary across states or among local areas within states despite large differences in the local cost of living, especially in rental housing costs.

- The near poor are those persons who live in families with incomes above the poverty line but less than 125% of the poverty line.

- The low income are those persons who live in families with annual incomes below 200 percent of the poverty line for a family of their given size and age composition. This specific definition of "low income" has been used by a number of poverty and welfare reform researchers in analyzing income inadequacy problems of persons and the working poor in recent years.[42]

The weighted average poverty income thresholds for families of varying sizes in the U.S. in 2006 are displayed in Table 14.[43] The federal government's official poverty lines are applied to residents of all states. There is no cost of living adjustment to these poverty thresholds for either states or local areas within states. The values of these weighted average poverty thresholds for 2006 varied from a low of $10,294 for a one person household to $13,167 for a two person family, to $20,614 for a four person family, and to $27,560 for a family containing six persons (Table 14).[44] The U.S. Census Bureau also provides poverty income thresholds for families containing 7, 8, or 9 or more persons. In March 2007, there were only slightly over 1.1 million families in the U.S. containing seven or more persons, representing under 2 percent of all family households in the U.S., and only 1 percent of all households.[45]

---

[41] Persons living by themselves or with others to whom they are not related are treated by the U.S. Census Bureau as a household of one in determining their poverty status. There is a separate, lower poverty income threshold for households headed by persons 65 and older.

[42] For examples of such studies, see: (i) Gregory Acs, Katherine Ross Phillips, and Daniel McKenzie, Playing by the Rules But Losing the Game: America's Working Poor, Urban Institute, Washington, D.C., May 2000; (ii) Garth Mangum, Stephen Mangum, and Andrew Sum, The Persistence of Poverty in the U.S., Johns Hopkins University Press, Baltimore, 2003.

[43] The poverty income thresholds for one person and two person households vary by the age of the householder, with one person, elderly householders (those 65 and older) receiving about an 8% lower poverty line than nonelderly individuals. The weighted poverty lines take into account the distribution of families by the age of the householder and the number of related children under 18 years of age living in the family.

[44] The official poverty lines are not based on a uniform set of equivalence scales that adjust identically for the age composition of family members and use a common economy of scale adjustment factor. For suggested alternative equivalence scales, see: Robert Michael and Constance F. Citro (Editors) Measuring Poverty: A New Approach, National Academy Press, Washington, D.C., 1995.

[45] Using the standard U.S. Census Bureau definition, a family is a household unit containing two or more persons who are related to each other by blood, marriage, or adoption.

The values of the near poverty income thresholds were obtained by multiplying each of the poverty income thresholds by 1.25, and the values of the "low income" thresholds were generated by multiplying each of the poverty income thresholds by a factor of two. A family is categorized as "poor/ near poor" if their combined pre-tax money income is below 125% of the poverty income threshold for a family of their given size and age composition. A family will be categorized as "low income" if their combined money income for the year was below 200% of the poverty line for their given size and age composition. Our estimates of the percent of Michigan adults (18-64) in each educational attainment category with annual incomes below each of the three income inadequacy thresholds in 2006 and previous years are displayed in a series of tables and charts below.

Table 14:
Weighted Average Income Thresholds for Determining the Poverty, Near Poverty, and Low Income Status of Families by Family Size in Michigan, 2006

	(A)	(B)	(C)
Number of Persons	Poverty Threshold	Poverty/ Near Poverty	Low Income
1	10,294	12,868	20,588
2	13,167	16,458	26,334
3	16,079	20,099	32,158
4	20,614	25,768	41,228
5	24,382	30,477	48,764
6	27,560	34,450	55,120

Source: U.S. Census Bureau, Income, Poverty, and Health Insurance Coverage in the U.S: 2006, p. 43, calculations by Center for Labor Market Studies, Northeastern University.

Poverty, Poverty/Near Poverty, and Low Income Problems Among Michigan's 18-64 Year Old Population By Level of Educational Attainment

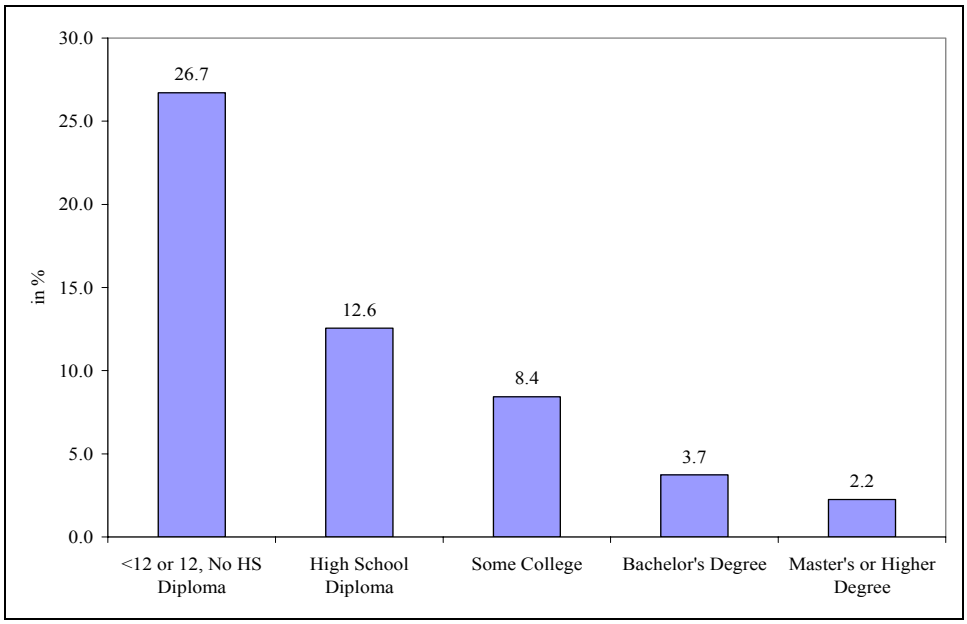
During 2006, the poverty rates of Michigan adults 18-64 years of age varied considerably across educational attainment groups for all adults and for men and women separately. Among all adults in Michigan 18-64 years of age, slightly over 10% were living in poverty in 2006. The poverty rate was higher among females than males (12.1% versus 8.6%). High school dropouts had the highest poverty rate among the five educational subgroups. Nearly 27% of all high school dropouts between the ages of 18 and 64 were living in poverty in 2006, a poverty rate that

was two times higher than that for high school graduates (Table 15, Chart 16). Poverty rates of adults declined sharply with higher levels of educational attainment. Only 4% of bachelor degree holders and 2% of Master's or higher degree holders were living in poverty in Michigan in 2006. To put these findings in a comparative perspective, high school dropouts in Michigan were seven times more likely than bachelor degree holders to be living in poverty. Poverty rates were especially high for high school dropouts of both genders and women with only a high school diploma or a GED. Nearly one in every three adult female high school dropouts in Michigan experienced poverty in 2006 as did 22 percent of the males in this schooling group while 15 percent of female high school graduates also were poor.

Table 15:
Poverty Rates of Michigan Adults 18-64 Years Old By Gender and Educational Attainment, 2006 (in %)

Educational Attainment	(A) Total	(B) Male	(C) Female
<12 or 12, No HS Diploma	26.7	22.2	32.7
High School Diploma/GED	12.6	9.8	15.4
Some College	8.4	6.5	10.2
Bachelor's Degree	3.7	3.3	4.1
Master's or Higher Degree	2.2	2.4	2.1
Total	10.3	8.6	12.1

Chart 16:
Poverty Rates of Michigan Adults 18-64 Years Old By Educational Attainment, 2006 (in %)



In Table 16 below, trends in poverty rates across educational groups are displayed for the 1979 to 2006 time period. Over this 27 year time period, the poverty rate among high school dropouts has risen substantially from 14.6% to 26.7%, a near doubling in their poverty rate. The poverty rate has also increased sharply among high school graduates and those adults with only 1-3 years of college education. Among bachelor degree and Master's degree holders, the poverty rate has fallen slightly since 1980.

Table 16:
Trends in the Poverty Rates of Michigan Adults 18-64 Years Old By Educational Attainment, 1979-2006

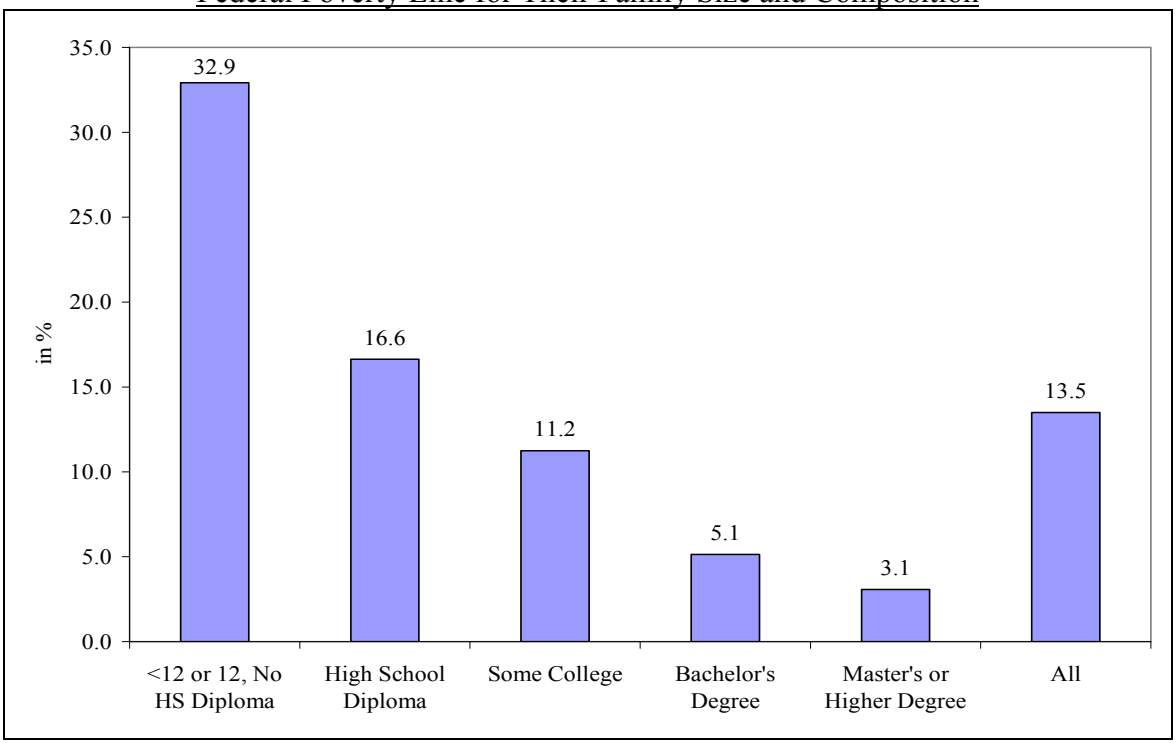
Educational Attainment	(A) 1979	(B) 1989	(C) 1999	(D) 2006
<12 or 12, No HS Diploma	14.6	23.1	22.6	26.7
High School Diploma	6.4	10.0	9.6	12.6
Some College	5.9	7.3	6.0	8.4
Bachelor's Degree	4.5	3.7	3.5	3.7
Master's or Higher Degree	2.1	2.8	2.6	2.2
Total	7.9	10.2	8.7	10.3

Many researchers use a more liberal income definition to identify the percent of the population facing income inadequacy problems. In Table 17 and Chart 17, we display the percent of Michigan adults with incomes below 125% of the poverty line for their family size and age composition. Adults with incomes above the poverty line but below 125% of the poverty line are categorized as the near poor. Using this measure, an estimated 13.5% of the adult population of Michigan lived in poverty or near poverty. Nearly one in every three adult dropouts in the state of Michigan had an annual income below 125% of the poverty threshold in 2006. The incidence of poverty/near poverty among 18-64 year old high school dropouts rose from 19% in 1979 to 33% in 2006 (Table 17).

Table 17:
Trends in the Poverty/Near Poverty Rates of Michigan Adults 18-64 Years Old By Educational Attainment, 1979-2006

Educational Attainment	(A) 1979	(B) 1989	(C) 1999	(D) 2006
<12 or 12, No HS Diploma	19.2	28.1	28.1	32.9
High School Diploma	8.9	12.9	12.9	16.6
Some College	7.9	9.4	8.3	11.2
Bachelor's Degree	5.9	4.8	4.6	5.1
Master's or Higher Degree	3.1	3.5	3.3	3.1
Total	10.6	12.9	11.4	13.5

Chart 17:
Percent of the Michigan Adult Population (18-64) With Annual Incomes Below 125% of the Federal Poverty Line for Their Family Size and Composition



In Table 18, we further expand the income threshold to include all adults 18-64 years old with annual incomes below 200% of the poverty threshold for their family size and composition. This group is referred to as "low income." Approximately 50% of all adult high school dropouts fell within this low income classification versus 30% of high school graduates, only 10% of bachelor degree holders, and only 6% of those persons with a Master's or higher degree. While the percent of persons with a bachelor's or higher degree in a low income status declined slightly

since 1979, those with a less than a 4-year degree experienced a substantial increase in the incidence of low income problems (Table 18).

Table 18:
Trends in the Percent of Michigan Adults 18-64 Years Old With Annual Income Below 200% of the Federal Poverty Line By Educational Attainment, 1979-2006

Educational Attainment	(A) 1979	(B) 1989	(C) 1999	(D) 2006
<12 or 12, No HS Diploma	33.1	42.8	43.7	49.2
High School Diploma	18.5	24.7	24.3	29.5
Some College	15.4	18.0	16.7	22.2
Bachelor's Degree	11.5	9.4	8.8	10.9
Master's or Higher Degree	6.6	7.2	6.2	6.2
Total	20.2	22.9	20.7	24.1

On each of the three income inadequacy measures (poverty, poor/near poor, and low income), high school dropouts fared much worse in 2006 than they did in 1979 and 1989. Even high school graduates had much higher rates of poverty, near poverty, and low income problems in 2006 than in prior years. It is now more important than ever for Michigan adults to earn at least a high school degree and in most cases complete one or more years of college to support their families at an adequate level of income.

Trends in Mean Expected Years in a Poor/Near Poor or Low Income Status Among Michigan Adults by Educational Attainment, 1979-2006

The immediately preceding analyses have focused on the incidence of various types of income inadequacy problems among Michigan adults during selected years over the 1979-2006 period. The data on the income inadequacy problems of adults in each educational group for each year also can be used to construct an expected number of lifetime years in each income inadequacy problem group. Similar to our methodologies for estimating mean lifetime earnings, we calculated the expected number of years with a specific income inadequacy problem for each educational group by summing the percent of adults in each single age group in each educational group with such a problem over the 18-64 age range. Our estimate of expected mean lifetime years with a poor/near poor or low income problem for each educational subgroup over the

1979-2006 period are displayed in Tables 19 and Chart 18. Findings are presented for adults in both gender groups combined and for men and women separately.[46]

Table 19:
Mean Expected Years in Poverty/Near Poverty Among Michigan Adults
18-64 Years Old by Educational Attainment and Gender, Selected Years, 1979-2006

Gender	Educational Attainment	1979	1989	1999	2006	Change, 1979-2006
Male	<12 or 12, No HS Diploma	7.0	10.7	11.0	13.2	+6.2
	HS Diploma/GED	3.0	4.5	4.9	6.5	+3.4
	1-3 Years of College	2.6	3.1	3.1	4.7	+2.2
	Bachelor's Degree	2.2	2.1	3.6	3.1	+0.9
	Masters or Higher Degree	1.4	2.1	3.1	1.4	0.0
	Total	3.8	4.9	4.8	5.7	+2.0
Female	<12 or 12, No HS Diploma	11.9	16.5	15.7	18.4	+6.5
	HS Diploma/GED	4.6	7.0	7.7	10.1	+5.4
	1-3 Years of College	3.9	5.0	5.3	7.2	+3.2
	Bachelor's Degree	2.8	2.2	2.3	3.4	+0.6
	Masters or Higher Degree	1.9	2.3	1.9	1.3	-0.6
	Total	6.0	7.4	6.8	8.0	+2.0
Total	<12 or 12, No HS Diploma	9.4	13.4	13.1	15.4	+6.0
	HS Diploma/GED	3.9	5.8	6.2	8.1	+4.2
	1-3 Years of College	3.3	4.1	4.2	5.9	+2.7
	Bachelor's Degree	2.5	2.1	2.5	3.3	+0.8
	Masters or Higher Degree	1.6	2.1	2.5	1.4	-0.2
	Total	4.9	6.1	5.8	6.8	+1.9

Data Source: (i) Public use files (5%), Decennial Censuses of Population and Housing, 1980, 1990, and 2000; (ii) Public use files, 2006 American Community Survey (ACS), U.S. Census Bureau. Tabulations by Center for Labor Market Studies, Northeastern University.

Notes:

Poor: A person who is a member of a family with a combined annual money income below the federal government's official poverty income thresholds.

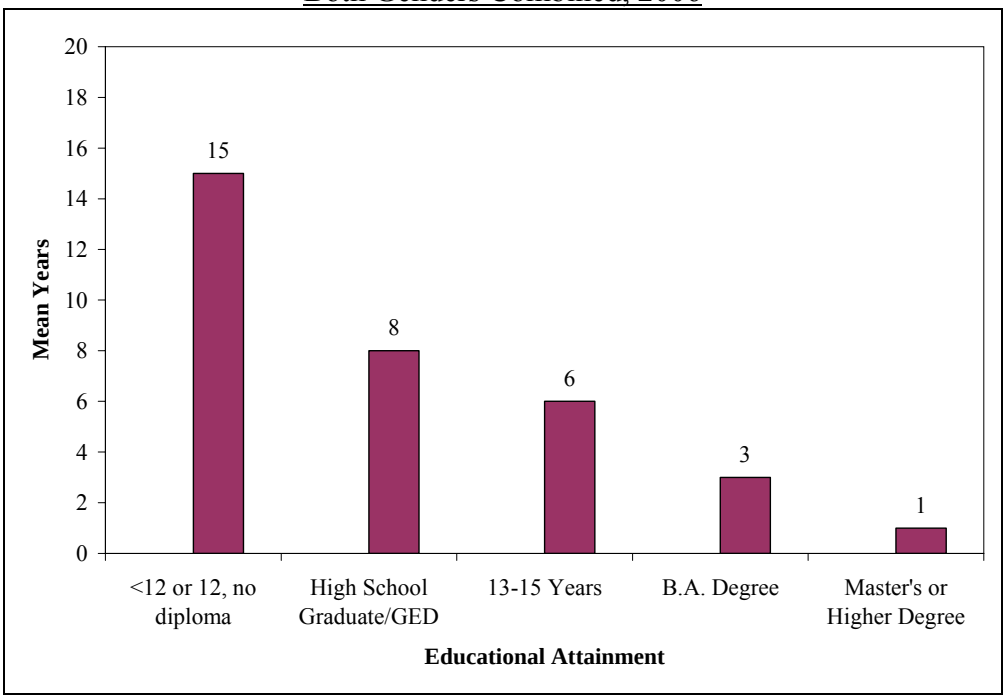
Poor/Near Poor: A person who is a member of a family with a combined money income below 125 percent of the federal government's poverty income thresholds.

Low Income: A person who is a member of a family with a combined money income below 200 percent of the federal government's poverty income thresholds.

[46] The key assumption underlying these point-in-time lifetime estimates of income inadequacy problems is that the incidence of such problems for each single age group will remain constant at their observed values as they move through their work life. For those adults with no post-secondary schooling, especially males, this is a conservative assumption since their incidence of income inadequacy in single age groups has be rising over time

The mean expected years of poverty/near poverty among Michigan adults from ages 18-64 varied considerably by educational attainment in 2006. For all adults combined, mean expected years in a poverty/near poverty status in 2006 were equal to approximately 7 or 15% of the years in the 18-64 age span. These mean expected years in a poverty/near poverty condition varied considerably across the five educational subgroups, ranging from only 1.4 years among those adults with a Master's or higher degree to 8 years among those with a regular high school diploma/GED to a high of 15 years among high school dropouts (Chart 18). Mean expected years in a poor/near poor status among Michigan dropouts was nearly 15 times higher than that of their peers with a Master's or higher degree.

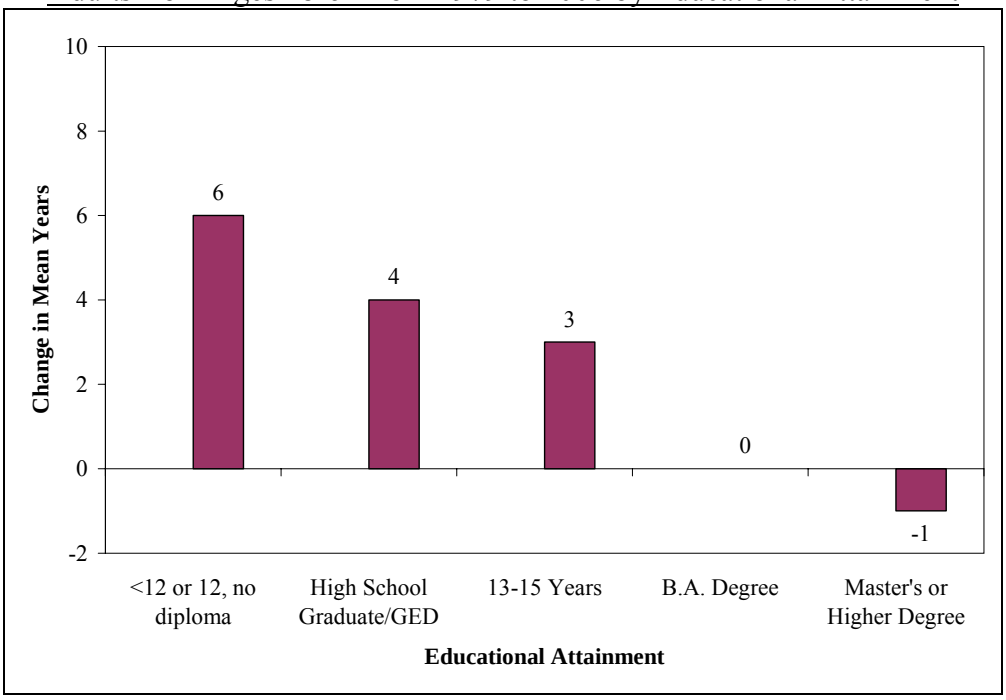
Chart 18:
Mean Expected Lifetime Years in Poverty/Near Poverty
Among Michigan Adults from Ages 18-64 by Educational Attainment,
Both Genders Combined, 2006



Over the past 26 years, Michigan adults whose educational attainment was below the Bachelor degree level experienced increases in their expected mean years of poverty/near poverty while their better educated peers experienced either no increase or modest declines (Chart 19). The increase in mean expected years in a poor/near poor status was six years among high school dropouts versus four among high school graduates and 0 among Bachelor degree

holders. Gaps in the incidence of such severe income inadequacy problems across educational groups of adults in Michigan were widening sharply over time.

Chart19:
Change in Mean Expected Lifetime Years in Poverty/Near Poverty Among Michigan Adults from Ages 18-64 from 1979 to 2006 by Educational Attainment

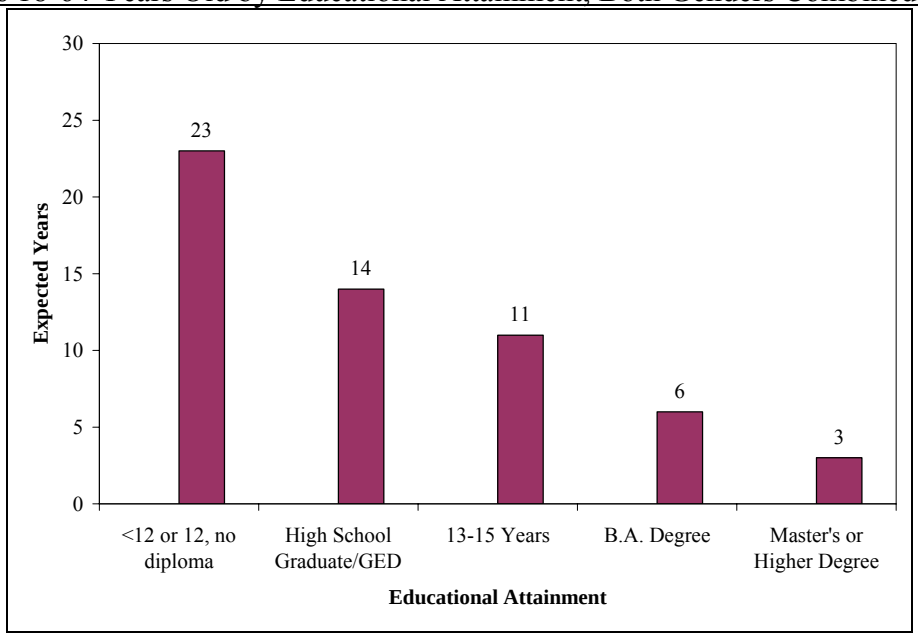


Our second measure of mean lifetime years with an income inadequacy problem is the low income measure; i.e., an annual income below 200 percent of the poverty line. In 2006, the mean expected years of low income for the combined population of Michigan adults were 12, approximately one-fourth of their years over the 18-64 age span (Table 20). The mean expected years of being in a low income family varied widely across the five educational groups, ranging from a low of three years among adults with a Master's or higher degree, to 6 years among Bachelor degree holders, to 14 years among high school graduates, and a high of 23 years among adults lacking a high school diploma or a GED (Chart 20). Adult dropouts in Michigan would be expected to spend approximately one-half of their working-age lifetime in a low income status. This expected duration in a low income condition among Michigan high school dropouts was four times as high as that of adults with a Bachelor's degree and nearly eight times as high as that of Michigan residents with a Master's or higher degree.

Table 20:
Mean Expected Years in a Low Income Status Among Michigan Adults
18-64 Years Old by Educational Attainment and Gender, Selected Years, 1979-2006

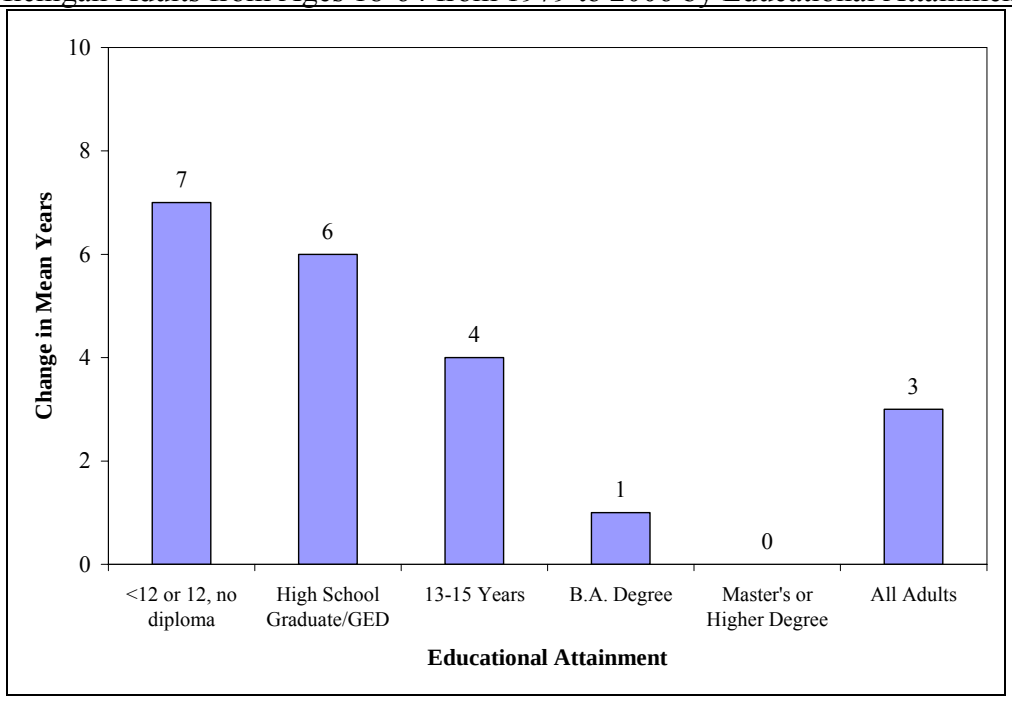
Gender	Educational Attainment	1979	1989	1999	2006	Change, 1979-2006
Male	<12 or 12, No HS Diploma	13.1	17.4	17.9	20.6	+7.5
	HS Diploma/GED	6.8	9.3	9.8	12.2	+5.4
	1-3 Years of College	5.4	6.3	6.3	9.3	+3.9
	Bachelor's Degree	4.0	4.1	5.9	5.1	+1.1
	Masters or Higher Degree	3.0	4.7	5.8	4.4	+1.5
	Total	7.7	9.1	8.8	10.5	+2.8
Female	<12 or 12, No HS Diploma	19.1	23.5	23.4	26.0	+7.0
	HS Diploma/GED	9.4	12.7	13.7	16.8	+7.4
	1-3 Years of College	7.6	9.2	10.0	13.3	+5.7
	Bachelor's Degree	5.3	4.4	4.5	6.0	+0.7
	Masters or Higher Degree	3.9	3.9	3.4	2.6	-1.3
	Total	10.9	12.4	11.8	13.5	+2.7
Total	<12 or 12, No HS Diploma	16.0	20.3	20.4	23.0	+6.9
	HS Diploma/GED	8.3	11.1	11.6	14.3	+6.0
	1-3 Years of College	6.5	7.9	8.2	11.4	+4.9
	Bachelor's Degree	4.7	4.3	4.7	5.6	+0.9
	Masters or Higher Degree	3.5	4.4	4.5	3.3	-0.1
	Total	9.3	10.8	10.3	12.0	+2.6

Chart 20:
Mean Expected Years in a Low Income Status Among Michigan
Adults 18-64 Years Old by Educational Attainment, Both Genders Combined, 2006



Since 1979, the mean expected years of Michigan adults being in a low income status have risen from 9 to 12 in 2006, a gain of 3 years (Table 20). Nearly all of the increase in expected years with a low income took place among Michigan adults with less schooling than a Bachelor's degree. There was a substantial rise in expected mean years of low incomes among high school graduates (6 years) and high school dropouts (7 years) in the state between 1979 and 2006. (Chart 21). Those Michigan adults without any type of post-secondary degree are finding it increasingly more difficult to achieve middle class incomes. The steep drop in the mean lifetime earnings of males with no post-secondary schooling and the accompanying declines in the marriage rates of men and women with no years of college education are the primary factors producing this sharp rise in the rise in the incidence of low income problems facing this group of Michigan adults. These same labor market and demographic forces are producing a sustained rise in family income inequality across the state and the nation over the past few decades.

Chart 21:
Change in Mean Expected Years in a Low Income Status Among
Michigan Adults from Ages 18-64 from 1979 to 2006 by Educational Attainment



Trends in Marriage Rates in Michigan and the U.S., 1980-2006

Marriage rates have been declining substantially and nearly continuously in the U.S. over the past few decades.[47] However, trends in marriage rates have been characterized by a substantial degree of variation among adults with different levels of schooling.[48] Between 1980 and 2006, marriage rates either held steady or declined very slightly for both men and women with a four year or higher college degree. In contrast, marriage rates have deteriorated sharply during this 26 year period for persons without a high school diploma or any substantial post-secondary schooling. (Table 21). The decline rate in marriage rates was even more pronounced among less educated men than among their female counterparts. The sharp deterioration in the economic fortunes of many males without a high school diploma would be expected to reduce their attractiveness as marriage partners and increase the instability of their marriages. To identify changes in the marital status of 20-64 year old native-born men and women in Michigan and the U.S. in various educational attainment categories over time, we analyzed the findings of the decennial Censuses from 1980 through 2000 and the 2005 and 2006 American Community Surveys.

Since a major focus of our paper is on the economic and social consequences of dropping out of high school in Michigan and the U.S., our analysis is confined to native-born adults. In our analysis, a married adult is a native-born 20-64 year old person who was married and living with their spouse at the time of the survey. Table 21 displays findings on trends in the percent of native-born males in Michigan and the U.S. who were married in 1980, 1990, 2000 and 2005/2006. At the time of the 1980 Census, 68 of every 100 native-born males 20-64 years old were married in Michigan. By 1990, this ratio had declined to 62%, and it further declined to 59% in 2000 and to slightly below 56% in 2005/2006. The marriage rate decline of native-born men in Michigan was nearly identical with that of their male counterparts across the nation over the 1980-2005/06 period. In both Michigan and the U.S., marriage rates of 20-64 year old native-born males declined by slightly more than 12 percentage points over the 1980-2005/2006 period.

---

[47] For a review of marriage rates trend in the U.S. and growing marriage divide across educational groups, see:, Kay S. Hymowitz, Marriage Rates and Cast in America: Separate and Unequal Families in a Post-Marital Age, Ivan R. Dee, Chicago, 2006.

[48] See: Andrew Sum, Ishwar Khatiwada, Joseph McLaughlin, et al., The Economic, Labor Market, Income, Health, Social, Civic and Fiscal Consequences of Dropping Out of High School: Findings for Massachusetts Adults in the 21st Century, Prepared by Center for Labor Market Studies, Prepared for Boston Youth Transition Funder Group, January 2007.

The decades of the 1980 and 1990s, and the first half of the current decade were marked by substantial variation in the marriage rates of native-born males by their educational attainment level. At the time of the 1980 Census, marriage rates of native-born males across major educational subgroups were characterized by a substantially lower degree of variability than they have been in the recent years. In 1980, marriage rates of native-born male in Michigan without a high school diploma were nearly identical with that of males holding a Bachelor degree (69% versus 70%); however, in 2005/06, the difference between the marriage rates of these two groups was 28 percentage points. In Michigan, male high school dropouts experienced a major decline of 30 percentage points in their marriage rate between 1980 and 2005/2006 followed by high school graduates (-18 percentage points). Michigan's marriage rate for native-born males without a high school diploma declined at even higher rate than the nation's (-30.3 percentage points versus -26.8 percentage points). Marriage rates of males in the other three educational groups in Michigan declined much more modestly, especially for those with a Bachelor's or higher degree. These males experienced a decline in their marriage rate of 3 percentage points or less over this 26 year period.

Marriage rates of native-born men in both Michigan and the U.S. varied widely in 2005/2006 by their educational attainment level. Marriage rates of male adults rose steadily and strongly with their level of educational attainment during 2005/2006. In Michigan, only 39 percent of native-born men without a high school diploma were married while the marriage rate of males with a high school diploma was 52%, those with some college was 55%, those with a Bachelor degree was 67% and those with a Master's or higher degree was 77%. The best educated groups of men in Michigan was twice as likely to be married as high school dropouts.

Table 21:
Trends in Marriage Rates Among 20-64 Year Old Native-Born Males in Michigan and the U.S. by Educational Attainment, 1980-2005/06 (In %)

	Educational Attainment	1980	1990	2000	2005/06	Percentage Point Change, 1980-2005/06
Michigan	<12 or 12, No H.S. Diploma	69.3	56.1	46.0	39.0	-30.3
	H.S. Diploma/GED	69.8	61.1	56.0	51.6	-18.2
	Some College	60.1	60.0	59.2	54.7	-5.4
	Bachelor Degree	70.3	67.2	68.2	67.6	-2.8
	Master's or Higher Degree	80.6	80.1	78.6	77.4	-3.1
	All	68.3	61.9	59.2	55.9	-12.4
United States	<12 or 12, No H.S. Diploma	70.7	58.1	51.0	43.9	-26.8
	H.S. Diploma/GED	70.3	61.9	57.4	51.7	-18.6
	Some College	60.0	59.4	58.2	54.2	-5.8
	Bachelor Degree	68.4	65.4	65.1	63.7	-4.8
	Master's or Higher Degree	77.6	76.2	75.5	75.2	-2.4
	All	68.4	62.2	59.6	55.9	-12.5

Sources: (i). 1980, 1990 and 2000 Censuses of Population and Housing, public use files, tabulations by authors.
(ii). 2005 and 2006 American Community Surveys (ACS), public use files, authors tabulations.

The decline in marriage rates of adult native-born high school dropouts in Michigan and the U.S. over the past 26 years was not only confined to men, but applied to women equally as well. This finding is expected given high inter-marriage within social groups. However, over this period, the rate of marriage rate decline for women without high school diploma was somewhat smaller than that of men. (Table 22). In Michigan, the marriage rate for adult native-born women without a high school diploma declined from 63% in 1980 to 40% in 2005/2006, a decline of 23 percentage points. The percentage point size of decline in marriage rates for native-born women in Michigan outpaced the U.S. rate by 2-percentage points over this 26-year period. Similar to the findings for adult native-born men, marriage rates of Michigan women also varied widely by their educational attainment in recent years. In 2005/2006, marriage rates of adult women in Michigan ranged from a low of 40% among those without a high school diploma to highs of 63% among those with a Bachelor degree and 68% among those with a Master's or higher degree. The gaps in marriage rates across educational groups of women in Michigan have widened considerably over the past 26 years with the gap being largest between the best and least well educated women.

Table 22:
Trends in Marriage Rates Among 20-64 Year Old Native-Born Females in Michigan and the U.S. by Educational Attainment, 1980-2005/06 (In %)

	Educational Attainment	1980	1990	2000	2005/06	Percentage Point Change, 1980-2005/06
Michigan	<12 or 12, No H.S. Diploma	63.5	53.6	46.1	40.4	-23.0
	H.S. Diploma/GED	72.5	66.5	61.7	57.1	-15.4
	Some College	58.7	56.8	56.9	53.9	-4.8
	Bachelor Degree	65.8	63.5	65.7	63.1	-2.7
	Master's or Higher Degree	67.9	65.4	66.8	68.0	0.1
	All	66.7	60.9	59.2	56.5	-10.2
United States	<12 or 12, No H.S. Diploma	65.1	56.7	49.8	43.6	-21.5
	H.S. Diploma/GED	72.4	66.6	61.5	55.6	-16.8
	Some College	59.9	58.6	57.1	53.1	-6.8
	Bachelor Degree	64.9	62.4	62.7	61.0	-3.9
	Master's or Higher Degree	64.4	64.1	64.7	64.7	0.3
	All	66.8	61.8	59.1	55.5	-11.3

Sources: (i). 1980, 1990 and 2000 Censuses of Population and Housing, public use files
(ii). 2005 and 2006 American Community Surveys (ACS), public use files, authors tabulations.

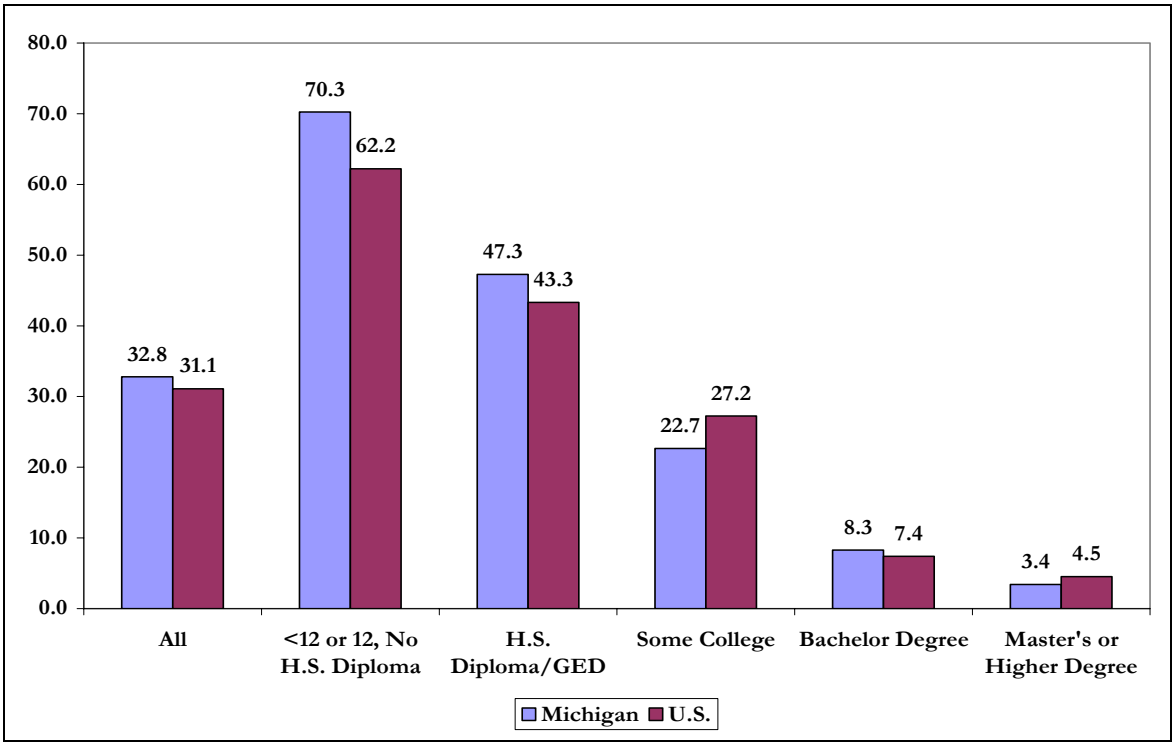
The steep decline in marriage rates among men and women, especially those with limited number of formal schooling, have severe negative social and economic repercussions. National and local research findings have consistently revealed that a child raised in a low income, single parent family is more likely to drop out of high school, be out-of-school and out-of-work, engage in criminal activity, be teen parents, and more likely to become incarcerated.[49] In addition, the steep decline in marriage rates among poorly educated women in recent decades has not been accompanied by an equivalent decline in their childbearing rate. As a consequence, a high and a rising share of births to female dropouts in Michigan and the U.S. have been taking place out of wedlock. Chart 22 reveals the percent of new births that were out-of-wedlock by the educational attainment of mothers in Michigan and the U.S. in 2006.[50] In Michigan, nearly one-third of the births to women in 2006 were characterized as out-of-wedlock compared to 31 percent for the

[49] Sara McLanahan and Gary Sandefur, Growing Up With a Single Parent, Harvard University Press, Cambridge, 1994; (ii) Kay S. Hymowitz, Marriage Rates and Cast in America: Separate and Unequal Families in a Post-Marital Age, Ivan R. Dee, Chicago, 2006; (iii) Andrew Sum, Mykhalo Trubskyy, et al., Basic Skills, Schooling, and the Economic, Civic, and Social Behaviors of America's Teen and Young Adults, Center for Labor Market Studies, forthcoming, 2008.

[50] The ACS questionnaire asked female respondents to identify whether they had given birth to a child in the previous 12 months. There is some under-reporting of out-of-wedlock births in the ACS survey, thus, our findings should be viewed as conservative.

entire nation. The share of births that was out-of-wedlock was highest among those women lacking a high school diploma or a GED. Seven out of 10 births to Michigan women without a high school diploma were out-of-wedlock. In Michigan, out-of-wedlock births were also quite high among female high school graduates (47%), but fell sharply for women with a Bachelor's or higher formal degree. The share of births to unmarried women in Michigan 20 times higher among high school dropouts than among those women with a Master's or higher degree versus a 14 times difference in the U.S. during the same year.

Chart 22:
Percent of New Births to Michigan and U.S. Women (15-50 Years Old) That Were Out-of-Wedlock by Educational Attainment of Mother, 2006 (ACS)



Given the higher share of out-of-wedlock births to less educated women, one would expect an above fraction of families with children headed by a high school dropout to be single parent families (the vast majority of whom are single mother families). In 2006, nearly 32% of all families with one or more children under 18 years of age in Michigan were single parent families (Table 23). Of those families headed by high school dropouts, more than half (53%) were single parent families. The results for Michigan was several percentage points higher than the national average on this particular measure. The share of families with children that were

single parent families declined steadily with the educational attainment of the family head, falling to 39% for high school graduates, 17% for Bachelor degree holders, and to a low of under 12% for those families headed by an adult with a Master's or higher degree.

Table 23:
Percent of Michigan and U.S. Families with Children that Were Headed by A Single Parent by Educational Attainment of Family Head, 2006

	Educational Attainment	Families With Children	Single Parent Families	% Single Parent
Michigan	<12 or 12, No H.S. Diploma	105,395	55,578	52.7
	H.S. Diploma/GED	323,552	125,624	38.8
	Some College	415,719	142,408	34.3
	Bachelor Degree	223,961	39,241	17.5
	Master's or Higher Degree	127,722	14,759	11.6
	Total	1,196,349	377,610	31.6
United States	<12 or 12, No H.S. Diploma	4,460,212	1,898,335	42.6
	H.S. Diploma/GED	9,370,921	3,485,099	37.2
	Some College	10,721,690	3,700,538	34.5
	Bachelor Degree	6,547,818	1,184,786	18.1
	Master's or Higher Degree	3,755,598	536,786	14.3
	Total	34,856,239	10,805,544	31.0

Source: 2006 American Community Survey (ACS), public use files, authors tabulations.

Given the limited annual earnings of every single mothers without a high school diploma and the frequent absence of a second adult earners, a high share of less educated single parent families in Michigan as well as in the U.S. were poor or near poor in 2006.[51] The economic well-being of families with children is strongly linked to the educational attainment of the heads of those families and their marital status. Table 24 displays the incidence of income inadequacy problems among single parent families by the educational attainment of the family head. During 2006, nearly 40% of single parent families in Michigan were poor or near poor. The finding for Michigan was 2 percentage points higher than the national average. The share of Michigan's single parent families that were poor or near poor varied quite widely by the educational attainment of the family head. Families that were headed by an individual without a high school diploma or GED faced the highest rate of severe income inadequacy problems. Nearly two-thirds of single parent families headed by a person lacking a high school diploma/GED were poor or

[51] The near poor are those with an annual money income below 125 percent of the poverty line for a family of their give size and age composition.

near poor. Having a high school diploma also did not shield many single parent families from poverty/near poverty problem. Nearly 47 percent of single parent families headed by an individual with a high school diploma or GED were poor or near poor versus only 15% of such families headed by an individual with a Bachelor's or higher degree. Children raised in such low income families for a sustained period of time will face a series of adverse behavioral, cognitive, health, nutrition, and school performance difficulties.[52] These developmental problems will increase their risks of dropping out of high school, becoming a teen parent, and becoming involved with the criminal justice system in their adolescent and early adult years.[53]

Table 24:
Percent of Michigan and U.S. Families with Children that Were Headed by A Single Parent That Were Poor/Near Poor by Educational Attainment of Family Head, 2006

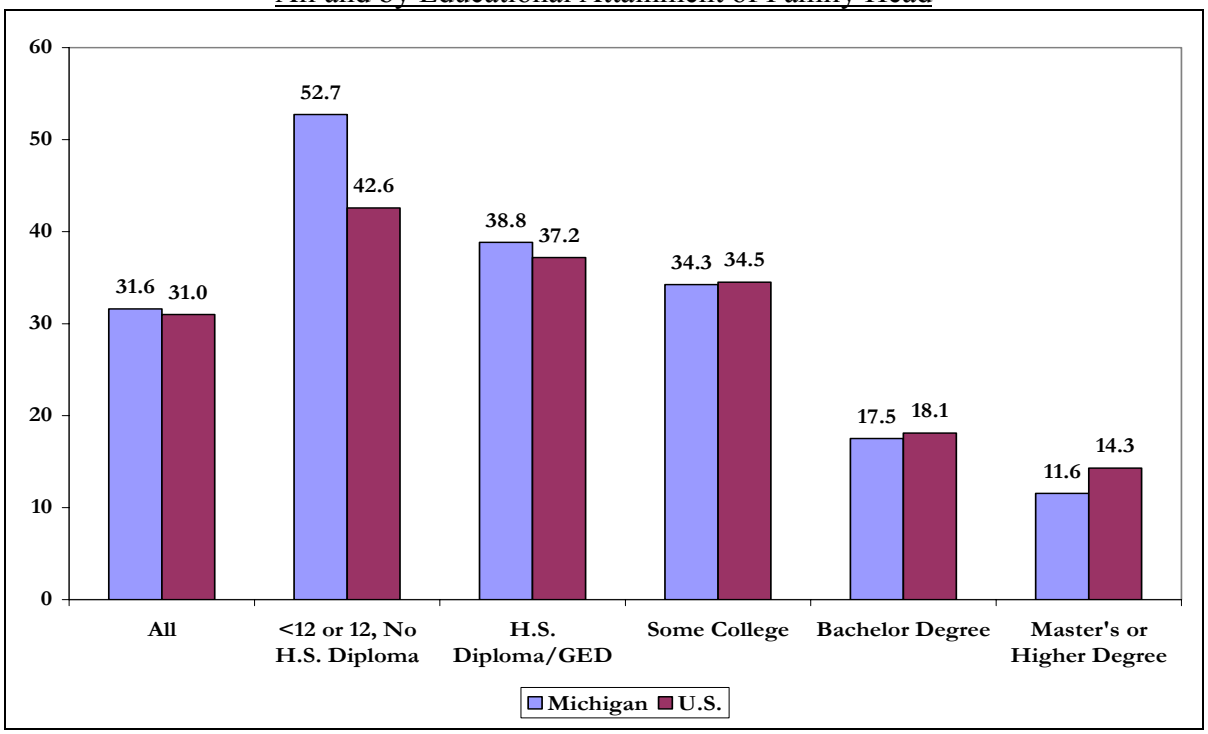
	Educational Attainment	Single-Parent Families	Poor/Near Poor Single Parent Families	% Of Single Parent Families that Were Poor/Near Poor
Michigan	<12 or 12, No H.S. Diploma	55,578	36,197	65.1
	H.S. Diploma/GED	125,624	58,774	46.8
	Some College	142,408	49,385	34.7
	Bachelor Degree	39,241	6,082	15.5
	Master's or Higher Degree	14,759	2,198	14.9
	Total	377,610	152,636	40.4
United States	<12 or 12, No H.S. Diploma	1,898,335	1,171,427	61.7
	H.S. Diploma/GED	3,485,099	1,543,918	44.3
	Some College	3,700,538	1,212,735	32.8
	Bachelor Degree	1,184,786	165,003	13.9
	Master's or Higher Degree	536,786	50,229	9.4
	Total	10,805,544	4,143,312	38.3

Source: 2006 American Community Survey (ACS), public use files, authors tabulations.

[52] See: (i). Sara McLanahan and Gary Sandefur, Growing Up With a Single Parent, Harvard University Press, Cambridge, 1994; (ii). Clifford Johnson, Andrew Sum, and Neal Fogg, "Young Workers, Young Families, and Child Poverty", in Heart and Mind: Social Policy Essays in Honor of Sar A. Levitan, (Editors: Garth Mangum and Stephen Mangum), W.E. Upjohn Institute for Employment Research, Kalamazoo, 1996.

[53] See: (i) Christina Paxon and Jane Waldfogel, "Work, Welfare, and Child Maltreatment", Journal of Labor Economics, July 2002, pp 435-474; (ii) H. Naci Mocan and Erdal Tekin, "Guns and Juvenile Crime", Journal of Law and Economics, Volume 45, October 2006.

Chart 23:
Percent of Michigan and U.S. Families with Children that Were Single Parent Families in 2006, All and by Educational Attainment of Family Head



Home Ownership Rates of Householders, Values of Homes Owned, and Annual Property Taxes Paid by Michigan and U.S. Homeowners in Different Educational Groups

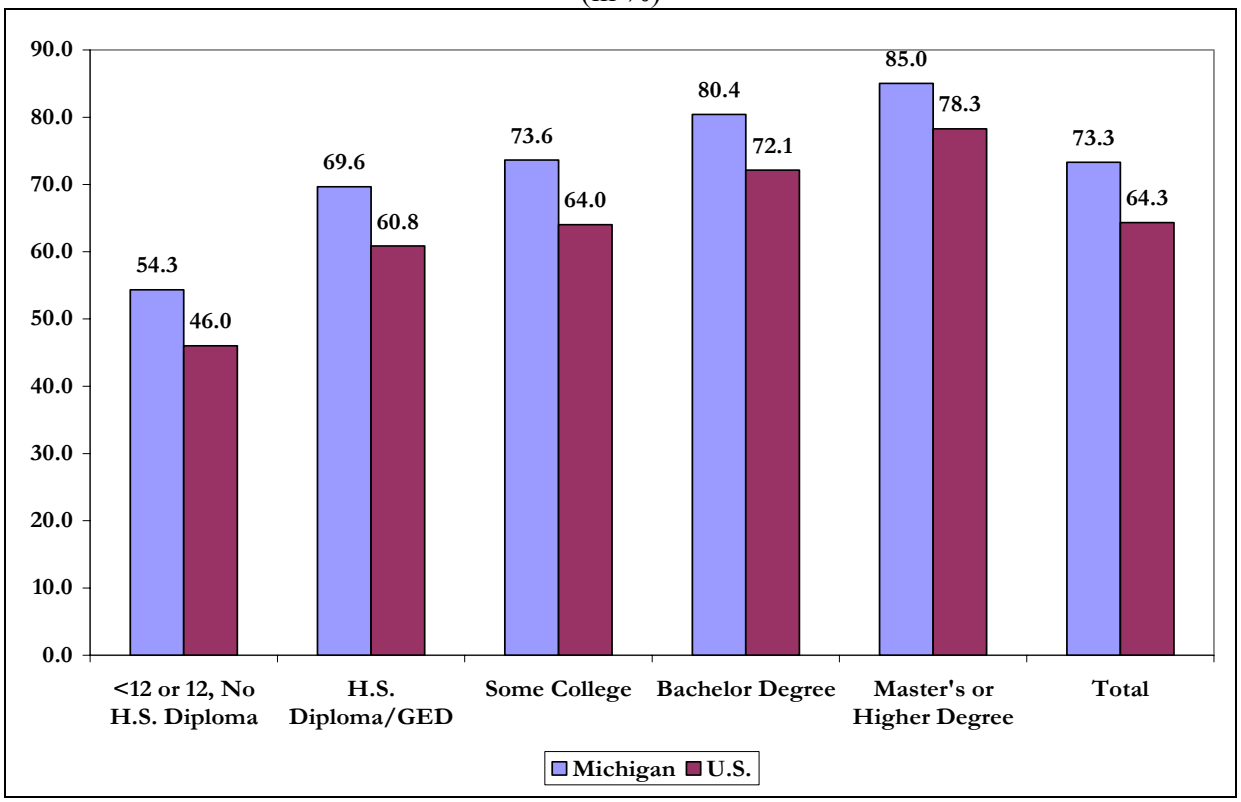
The ability of American adults to own their own homes has been a core element of the American Dream for many decades. Housing analysts and other social scientists have frequently cited the importance of home ownership to family economic success and public opinion polls often find this goal of home ownership to be fundamental to the achievement to the American dream. In her book on housing and the American Dream, Delores Hayden commented that "single family suburban homes have become inseparable from the American Dream of economic success and upward mobility."[54] In a set of national advertisements earlier this decade, the national Fannie Mae mortgage agency proclaimed that, "You see, at Fannie Mae, everything we do is in the pursuit of our goal of making the American dream an affordable one."[55]

[54] See: Delores Hayden, Redesigning the American Dream: The Future of Housing, Work, and Family Life, W.W. Norton and Company, New York, 1984.
[55] See: The Weekly Standard, February 11, 2002, p. 6.

Home ownership opportunities are influenced by the income level of a family and the costs of housing. Evidence for the U.S. clearly provides support for this expectation. Since households headed by individuals with more schooling tend to have consistently higher average incomes, one would expect home ownership rates to rise with the level of schooling completed by the householder.[56] Findings on home ownership rates of Michigan and U.S. non-elderly householders (persons 16-64 years old) by educational attainment in 2006 are displayed in Chart 24 below. Overall, 73 percent of such households in Michigan owned the housing unit that they occupied versus only 64 percent for the entire nation. However, these home ownership rates in both Michigan and the U.S. varied widely by the educational attainment of householders. In Michigan, home ownership rates ranged from a low of slightly above 54% for households headed by an individual lacking a high school diploma/GED, to nearly 70% for high school graduates, and to a high of 84% for households headed by an adult with a Master's or more advanced degree. The percentage point size of the gaps in home ownership rates across educational subgroups were quite large in all 50 states although the size of these percentage point gaps varied somewhat across states. In every educational subgroup, home ownership rates in Michigan were 7 to 10 percentage points higher than those of the nation and better educated householders were much more likely to own their home than their less educated peers.

[56] In the U.S. Census Bureau classification system, the householder is the person in whose name the housing unit is owned or rented. In a married couple family, the householder can be either the husband or the wife.

Chart 24:
Home Ownership Rates of Households Headed by an Individual 16-64 Years Old by Educational Attainment in Michigan and the U.S.: 2006
(in %)

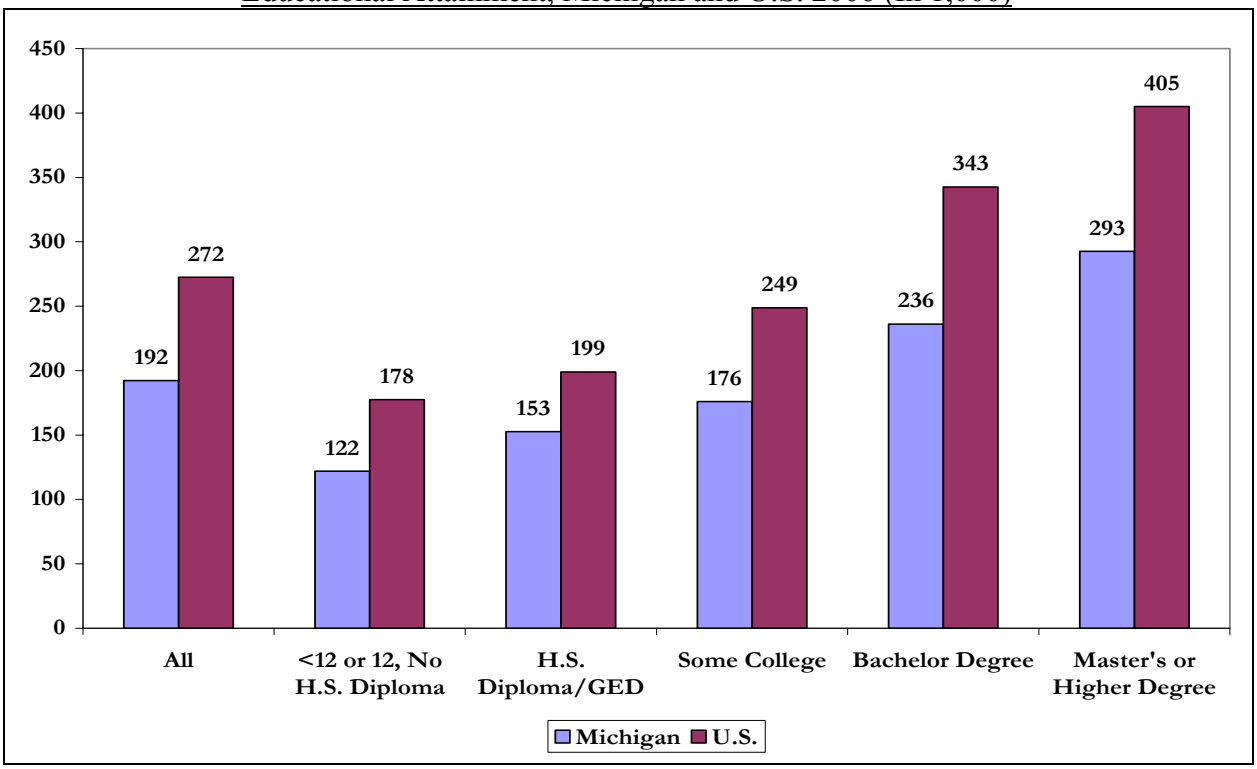


The demand for housing is positively impacted by the income level of household. One would, thus, anticipate that households with higher incomes would own homes of higher value in Michigan. Chart 25 displays the estimated mean values of owner-occupied housing units owned by 16-64 year old persons in Michigan and the U.S. by their educational attainment level. The mean values of the housing units owned by Michigan's non-elderly households varied positively across educational attainment groups. The mean value of these housing units in 2006 in Michigan based on the findings of the ACS survey was approximately $192,000, which was more than $80,000 less than the mean value of homes for this same group in the entire nation.[57] In Michigan, the mean values of these homes ranged from a low of $122,000 among those households headed by an adult lacking a high school diploma/GED, to $153,000 among high

[57] The statistical procedures used by research staff within the Center for Labor Market Studies to estimate these mean and median values of homes are described in a separate appendix of this report.

school graduates, to $236,000 among four year college graduates, and to a high of just under $293,000 for households headed by an adult with a Master's or higher degree (Chart 25).

Chart 25:
Mean Values of Owner-Occupied Homes Headed by Adults 16-64 Years Old, All and by Educational Attainment, Michigan and U.S. 2006 (In 1,000)

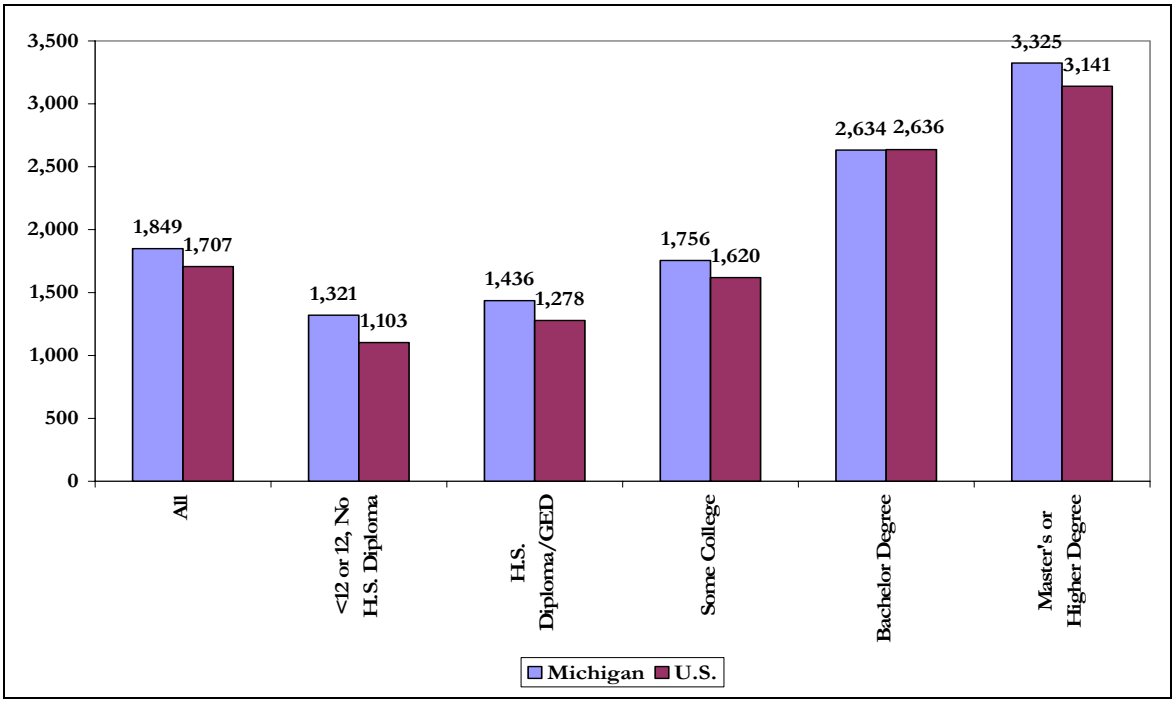


The mean values of homes have a number of important fiscal consequences for local governments across the country, given their frequently high degree of dependence on the property tax for financing their activities. In Michigan, property taxes accounted for nearly 25% of the total revenue of local government.[58] The higher values of the homes owned by adults with more years of formal schooling will increase property tax yields. The 2006 ACS surveys collected information from responding households on the annual amount of property taxes that they paid to local governments on the housing units that they owned. We have combined the data on mean self-reported property tax payments and home ownership rates for each educational

[58] See: State and Local Government Finances published by the U.S. Census Bureau on its web site, see: http://www.census.gov/govs/www/estimate05.html

group of householders to estimate the expected mean annual property tax payments.[59] The mean expected value of property tax payments for non-elderly home owners in Michigan was $1,849 in 2006 versus $1,707 for the U.S. (Chart 26). Mean expected annual property tax payments in both Michigan and the U.S. varied widely across the five major educational subgroup. Mean expected property tax payments in Michigan ranged from lows of $1,321 for those without a high school diploma and $1,436 for those with a high school diploma/GED to highs of $2,634 for those with a Bachelor's degree and $3,325 for those with a Master's or higher degree. A Michigan householder with a Bachelor's degree would be expected to pay 2.3 times much in property taxes per year as their counterparts lacking a high school diploma. The lower annual payment of property taxes by Michigan adults without a high school diploma contributes to the adverse fiscal consequences of dropping out of school. Similar pattern of mean expected property tax payments prevailed across the same five major educational subgroups in the U.S. during that year.

Chart 26:
Mean Expected Property Tax Payments by 16-64 Year Old Householders in Michigan and the U.S. by Educational Attainment, 2006



[59] The estimated property tax payments of households are assigned to the household record rather than to individual members of the household. We have assigned the entire property tax payment to the householder. All other household members are assigned a property tax payment of zero.

The Self-Reported Health Status of Michigan and U.S. Adults By Their Level of Educational Attainment

In addition to the large gaps in labor market, housing, civic, and income outcomes between high school dropouts and their better educated peers, there are also a variety of health outcomes that are linked to the educational attainment of adults. Among these health outcomes are health insurance coverage, access to medical care, overall health status, exposure to various illnesses and diseases, disability problems, and life expectancy. Adults with lower levels of schooling are less likely to receive medical care, less likely to be covered by health insurance, more likely to report poorer health, and much more likely to report physical or mental disabilities than their counterparts with higher levels of schooling. Findings of national longitudinal research also reveal that high school dropouts with limited literacy skill also face considerably greater mortality risks in their 20s and 30s, especially among males.[60]

The health conditions of U.S. adults tend to vary fairly widely across educational attainment and income groups. Better educated adults are more likely to be covered by some form of private health insurance, to enjoy higher levels of health insurance coverage from their employers, to have visited a doctor in the past year, to receive better medical care, to be in better health, and to live longer than their less educated and less literate peers. In recent years, the U.S. Census Bureau has collected information through the March CPS survey from a sample of U.S. adults on their self-reported health status. For example, respondents to the March 2006 and 2007 CPS survey were asked to rate their current health status. The allowable responses fall into the following five categories:

- Excellent
- Very good
- Good
- Fair
- Poor

We have analyzed the responses to this health status question by 18-64 year old adults in Michigan and the U.S. classified by their educational attainment. Key findings are displayed in Table 25. Overall, 63 per cent of Michigan's adults in the 18-64 year old age group reported that they were either in excellent or very good health in March 2006-2007 (Table 25). The proportion

[60] See: Andrew Sum, Mykhaylo Trubskyy, et. al., Morbidity Rates Among U.S. Adults from Ages 16 to 44: Finding of the National Longitudinal Survey of Youth, Center for Labor Market Studies, Northeastern University, Boston, 2007.

of Michigan adults rating their health status as excellent or very good ranged from a low of 45 per cent among those adults lacking a high school diploma/GED to 55 per cent among high school graduates with no post-secondary schooling and to highs of 77 to 78 per cent among bachelor degree recipients and those with a Bachelor's, Master's or more advanced academic degree. Those adults without a four-year college degree in Michigan were less likely to report themselves as being in excellent or very good health compared to their national counterparts. On the other end of the health status distribution, only 11 per cent of Michigan's adults rated their health status as "fair" or "poor". The fraction of the state's adults providing responses in this health status category ranged from a high of 24 per cent among those lacking a high school diploma/GED certificate to 15% among high school graduates and to lows of 3 to 5 per cent among those with a Bachelor's or higher degree. Thus, adult high school dropouts in Michigan were 1.7 times as likely as high school graduates to report being in fair or poor health and were more than four times as likely to do so as their counterparts with a Bachelor's or more advanced degree. Adults in the U.S. followed a very similar pattern across the educational groups in their response to this question.

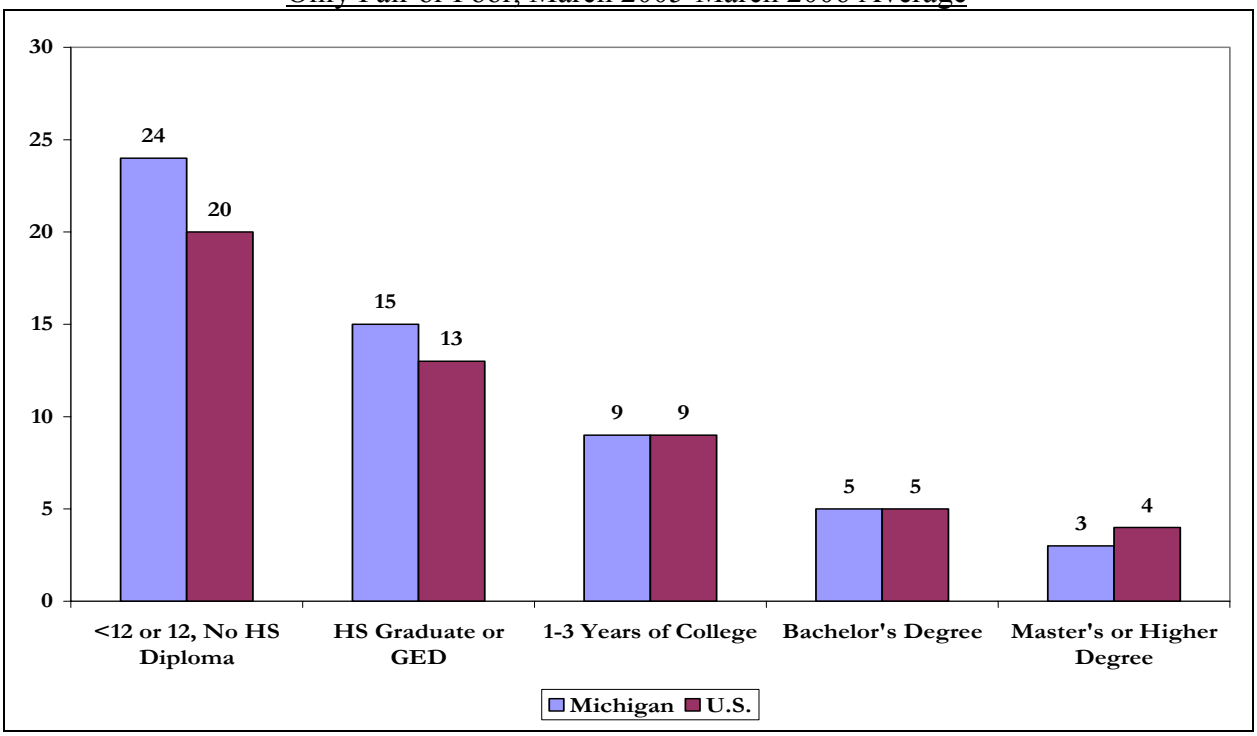
The poorer health of Michigan's less educated adults will lead to higher future rates of disability and medical outlays, a major part of which is financed by the SSI Medicaid systems as well as to lower rates of employment, lower lifetime earnings, and lower life expectancy. Since less educated adults are in poorer health, they can be expected to report disability problems more frequently than their better educated counterparts in the state. To identify the links between schooling and disability status, we will now turn to an analysis of findings from the 2006 American Community Surveys for Michigan and the U.S.

Table 25:
Self-Assessments of the Health Status of 18-64 Year Old Adults in Michigan and the U.S. by Their Educational Attainment, March 2006-2007 (in %)

	Michigan		United States	
Educational Attainment	Percent Reporting Excellent or Very Good Health	Percent Reporting Fair or Poor Health	Percent Reporting Excellent or Very Good Health	Percent Reporting Fair or Poor Health
<12 or 12, No HS Diploma	45.2	24.4	49.2	20.2
HS Graduate or GED	55.1	14.9	57.5	13.4
1-3 Years of College	65.8	8.8	67.3	9.2
Bachelor's Degree	76.7	5.5	76.2	5.3
Master's or Higher	77.7	3.2	78.6	4.3
Total	63.2	11.2	64.5	10.8

Source: March 2006 and 2007, Current Population Surveys (CPS), public use files, tabulations by authors.

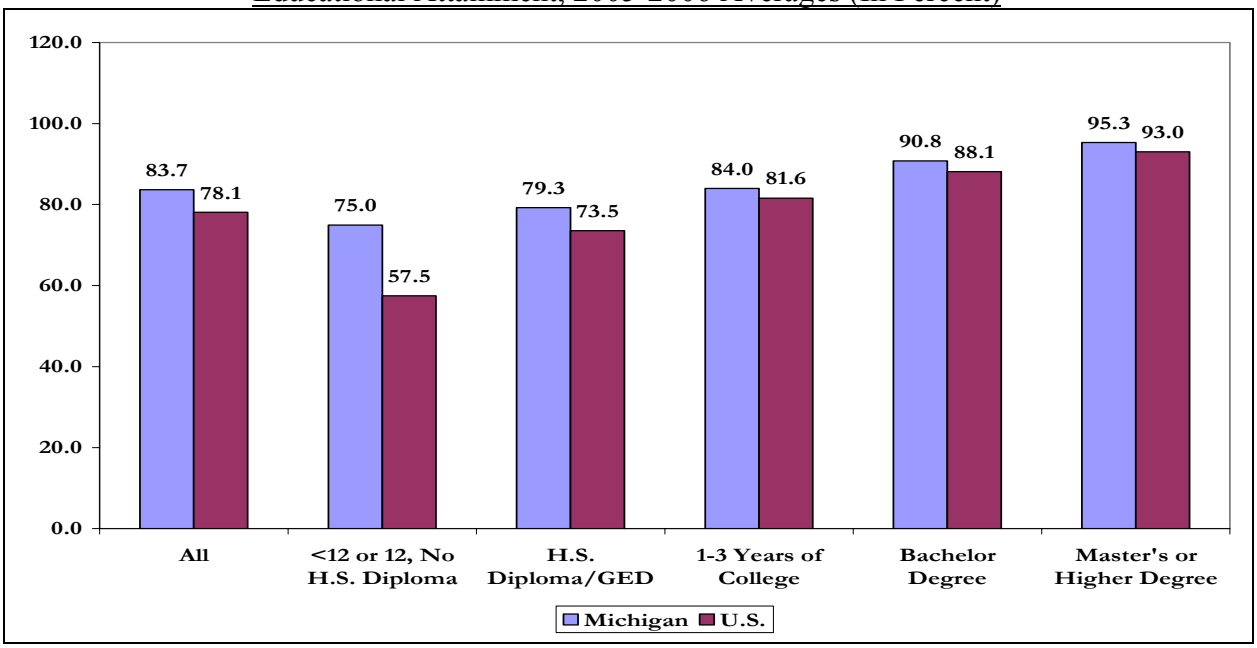
Chart 27:
Percent of 18-64 Year Old Adults in Michigan and the U.S. Reporting Their Health Status as Only Fair or Poor, March 2005-March 2006 Average



Health Insurance Coverage Rates and Medicaid Costs of Michigan and U.S. Adults (18-64 Years Old) by Educational Attainment, 2006-2007

Access to some form of health insurance coverage is critical determinant of the receipt of health care services by adults and children. Nationally, the health insurance coverage rates of non-elderly adults (18-64) tend to vary quite considerably across educational attainment groups. Less educated adults are typically the least likely to be covered by any type of health insurance. Even when they do receive some type of coverage, these adults are less likely than their better educated peers to be covered by health insurance from their employers, and more likely to be reliant on government financed health insurance, such as that provided by the Medicaid/Medicare system. In both Michigan and the nation, the share of adults who were covered by any type of health insurance varied widely in 2005-2006 by their educational attainment level. During the 2005-2006 period, overall health insurance coverage rates of U.S. adults ranged from a low of 57 percent among those persons lacking a high school diploma/GED to 73 percent among high school graduates and to a high of 93 per cent for those adults holding a Master's or more advanced academic degree (Chart 28).[61]

Chart 28:
Health Insurance Coverage Rates of Michigan and U.S. Adults (18-64 Years Old) by Educational Attainment, 2005-2006 Averages (In Percent)



[61] These estimates are based on the findings of the March 2006 and March 2007 CPS household surveys for the U.S. The March CPS contains a supplement that collects data on the health insurance coverage of all household members in the prior calendar year. The estimates in the above chart, thus, pertain to health insurance coverage in the prior calendar year 2005 and 2006. They represent simple two-year averages.

In Michigan, a higher share of the state's 18-64 year olds reported having some type of health insurance coverage than in the nation as a whole (87% vs. 78%) during the 2005-2006 period. The largest difference between Michigan and the U.S. in health insurance coverage rates was among high school dropouts (Chart 28). In Michigan, 75 per cent of adults lacking a regular diploma or a GED reported that they were covered by some form of health insurance coverage versus only 57 per cent of their national peers, a 18 percentage point difference. Still, high school dropouts in the state of Michigan were less likely to be covered by health insurance than their better educated peers, especially those with a Bachelor's (91%) or a more advanced degree (95%).

The higher rate of health insurance coverage among Michigan adults with no regular high school diploma was not attributable to a high rate of health insurance coverage at the workplace but rather to high rates of Medicaid/Medicare insurance coverage, which is subsidized by the state's taxpayers (Table 26). Among the employed in the entire U.S., only 31 of every 100 adults without a high school diploma were covered by a health insurance plan at work versus 52 of every 100 employed high school graduates and two-thirds of the nations' working adults with a Bachelor's or higher degree.[62] Michigan's health insurance coverage rates from employers for employed adults across educational subgroups were substantially higher than those of the nation. Still, the employer-financed health insurance coverage of employed adults in Michigan varied widely by level of educational attainment, ranging from a low of 37 percent among those without a high school diploma to a high of 72 percent among those with a Master's or higher degree.

[62] Some of the employed are covered by the health insurance plan of another family member, including employer-financed plan.

Table 26:
Health Insurance Coverage Rates and Types of Health Insurance Coverage Among 18-64 Year Old Michigan and the U.S. Adults by Educational Attainment, 2005-2006 Averages
(in %)

Area	Educational Attainment	Any Health Insurance	Employed with Employer Provided Health Insurance	Person with Health Insurance Who Were Covered by Medicare/Medicaid
Michigan	All	83.7	57.4	13.1
	<12 or 12, No H.S. Diploma	75.0	37.5	43.3
	H.S. Diploma/GED	79.3	52.8	19.1
	1-3 Years of College	84.0	54.5	8.8
	Bachelor Degree	90.8	67.2	2.9
	Master's or Higher Degree	95.3	72.0	1.5
United States	All	78.1	55.6	12.0
	<12 or 12, No H.S. Diploma	57.5	31.1	36.8
	H.S. Diploma/GED	73.5	51.7	15.9
	1-3 Years of College	81.6	54.4	9.3
	Bachelor Degree	88.1	66.0	3.7
	Master's or Higher Degree	93.0	73.2	2.3

Source: March 2006 and 2007, Current Population Surveys (CPS), public use files, tabulations by authors.

In both Michigan and the U.S., a high share of adults without a high school diploma who were covered by health insurance were covered by Medicaid or Medicare. (Table 26). Slightly more than 13 percent of Michigan adults in the 18-64 age group with some type of healthcare insurance reported that they were covered by either Medicare or Medicaid insurance. The degree to which the state's adults depended on Medicaid or Medicare coverage for their health insurance varied dramatically by their educational attainment. Slightly over 43 of every 100 non-elderly high school dropouts were covered by Medicare or Medicaid versus only 19 of every 100 high school graduates, 9 of every 100 adults with a Bachelor's degree, and fewer than 3 of every 100 adults with a Master's or more advanced degree. Adult dropouts in Michigan were more than twice as likely as high school graduates to receive Medicaid/Medicare coverage, and they were 30 times as likely to do so as adults with a Master's or higher degree (Table 26).

Identifying the costs of supporting adult dropouts on the Medicaid system is a complex task. The actual fiscal outlays on Medicaid recipients vary quite considerably by age group and disability status. For example, the mean annual Medicaid costs per non-elderly, non-disabled

adult were estimated to be only $1,950 versus more than $10,000 per disabled adult and $11,192 per elderly adult in Michigan. The Medicaid system, unfortunately, does not provide data on the educational backgrounds of the individuals covered by this health insurance program. We analyzed the March 2006 and March 2007 CPS data on the educational attainment and disability status of Medicaid recipients in the state. As expected, high school dropouts were disproportionately represented among the ranks of Medicaid recipients, especially those with disabilities.

For example, nearly 60% of the 18-64 year old dropouts on Medicaid in Michigan during 2005-2006 were disabled versus nearly 56% of high school graduates and fewer than 40% of those with a Bachelor's or higher degree. (Table 27). We have used these findings on the disability status of Medicaid recipients to estimate the mean annual costs of providing medical care to non-elderly adults covered by the Medicaid system in Michigan in recent years. Our estimates are displayed in Table 27 below.

Table 27:
The Estimated Annual Average Costs of Providing Medical Care to Non-Elderly Medicaid Recipients (18-64 Years Old) in Michigan and the U.S. by Educational Attainment in 2005-2006

Area	Educational Attainment	<12 or 12, No H.S. Diploma	H.S. Diploma/ GED	1-3 Years of College	Bachelor or Higher Degree	Total
Michigan	% Not Disabled (A)	40.9	44.4	54.6	60.3	46.1
	Annual Cost Per Non-Disabled (B)	1,950	1,950	1,950	1,950	1,950
	Mean Annual Costs (A*B)--1	797	866	1,065	1,175	899
	% Disabled (C)	59.1	55.6	45.4	39.7	53.9
	Annual Cost Per Disabled (D)	10,629	10,629	10,629	10,629	10,629
	Mean Annual Costs (C*D)--2	6,285	5,911	4,821	4,225	5,730
	Total Costs (1+2)	8,235	7,861	6,771	6,175	7,680
United States	% Not Disabled (A)	47.4	48.7	60.3	57.2	51.5
	Annual Cost Per Non-Disabled (B)	2,021	2,021	2,021	2,021	2,021
	Mean Annual Costs (A*B)--1	958	984	1,219	1,156	1,041
	% Disabled (C)	52.6	51.3	39.7	42.8	48.5
	Annual Cost Per Disabled (D)[+]	13,004	13,004	13,004	13,004	13,004
	Mean Annual Costs (C*D)--2	6,841	6,670	5,161	5,568	6,303
	Total Costs (1+2)	8,862	8,691	7,182	7,589	8,324

Source: (i) March 2006 and March 2007 CPS surveys, Work Experience and Income Supplement, public use files, tabulations by authors;

(ii) The Urban Institute and Kaiser Foundation Commission on Medicaid and the Uninsured estimates are based on data from Medicaid Statistical Information System (MSIS) reports from the Centers for Medicare and Medicaid Services (CMS), 2007, web site, http://www.statehealthfacts.org/comparetable.jsp?ind=183&cat=4

For each educational group, we calculated the annual average Medicaid costs per recipients[63] in Michigan by multiplying the share of each Medicaid recipient group that was disabled by $10,629 and the share of Medicaid recipients adults that were not disabled by $1,950. The estimated average annual costs of providing Medicaid-financed care in 2005-2006 ranged from a high of $8,235 for high school dropouts to a low of $6,175 for Bachelor or higher degree holders (Table 27). This pattern of findings for Michigan also held true for the entire nation.

As previously revealed, high school dropouts were much more likely than their better educated counterparts to be dependent on Medicaid for their health insurance coverage. To estimate the taxpayer cost of providing Medicaid coverage to adults in Michigan and the U.S. in 2005-2006, we multiplied the average annual cost of providing Medicaid coverage for the members of each educational group by the percent of the members of each group with health insurance coverage that were Medicaid recipients. Findings of our cost analysis are displayed in Table 28. Given the above average share of high school dropouts that were dependent on Medicaid for their health insurance coverage and their higher costs of care, the average costs of providing Medicaid health care coverage to adults without a high school diploma in Michigan in 2004-2005 was $3,062 versus only $1,108 for high school graduates, and only $70 for adults with a Bachelor's or higher degree. Over the lifetime from ages 18-64, the cost difference of providing Medicaid coverage to adults in Michigan without a high school diploma versus high school graduates with no college was equal to an extraordinarily high $91,838. These high per capita cost of providing government subsidized healthcare to dropouts in Michigan contributes in an important way to the higher per capita fiscal cost of dropping out.

[63] The Medicaid payments for enrollees are for FY 2004. No data for FY 2005 or FY 2006 were released at the time of the writing of this report.

Table 28:
Mean Annual Per Capita Medicaid Costs for 18-64 Year Olds with Some Health Insurance Coverage by Educational Attainment, Michigan and the U.S., 2005-2006

Area	Educational Attainment	Percent with Health Insurance Who Were Covered by Medicaid	Cost of Medicaid (In $)	Average Annual Costs (In $)
Michigan	<12 or 12, No H.S. Diploma	37.2	8,235	3,062
	H.S. Diploma/GED	14.1	7,861	1,108
	1-3 Years of College	6.9	6,771	466
	Bachelor or Higher Degree	1.1	6,175	70
U.S	<12 or 12, No H.S. Diploma	30.9	8,862	2,740
	H.S. Diploma/GED	12.1	8,691	1,053
	1-3 Years of College	7.1	7,182	512
	Bachelor or Higher Degree	2.0	7,589	154

The Links Between the Educational Attainment and the Disability Status of Adults in Michigan and the U.S, 2006

The disability status of adults across the nation and in individual states has been found to be strongly linked to their educational attainment.[64] The American Community Surveys of the U.S. Census Bureau have collected information from respondents on their disability status. The definition of "disables" that underlies the estimates of the disabled population in Michigan and the U.S. in this research report is the same as that used by the U.S. Census Bureau in its official estimates of the nation's disabled population from the American Community Surveys (ACS) and exactly the same as that used by the Rehabilitation Research and Training Center of Cornell University in its analysis of state and national data from the American Community Surveys.[65] According to this definition, an individual participating in the ACS surveys will be classified as "disabled" if he or she meets any of the following six criteria. The information on disability status is based on the self-reports of respondents to the ACS questionnaire and is not tied to the receipt of any cash assistance from the local, state, or federal government for the disabled or participation in any type of rehabilitation program. These six criteria are the following:

[64] See: Andrew Sum, Ishwar Khatiwada, Paulo Tobar, et. al., The Adult Disabled Population (16-74) in Massachusetts and the U.S.: Its Size and Demographic/Socioeconomic Composition in 2003-2004, Prepared for The Commonwealth Corporation and the Massachusetts Rehabilitation Commission, March 2006.

[65] For a more detailed review of these ACS-based disability concepts and measures, see: Rehabilitation Research and Training Center on Disability Demographics and Statistics, 2005 Disability Status Reports, Cornell University, www.disabilitystatistics.org

- Person has any of the following lasting conditions: blindness, deafness, or a severe vision or hearing problem
- Person has a long lasting condition that "substantially limits one or more basic physical activities", such as climbing stairs
- Because of a physical, mental, or emotional condition lasting 6 months or more, this person has difficulty "learning, remembering, or concentrating"
- Because of a physical, mental, or emotional condition lasting 6 months or more, this person has difficulty "dressing, bathing, or getting around inside the home"
- Because of a physical, mental, or emotional condition lasting 6 months or more, this person has difficulty "going outside the home alone or shop or visit a doctor's office"
- Because of a physical, mental, or emotional condition lasting 6 months or more, this person has difficulty "working at a job or business".

Individual respondents to the ACS survey reporting a disability were allowed to check more than one disability type. Persons reporting work-related disabilities often cite one or more other disabilities and are far less likely to be employed than their counterparts with similar demographic and human capital characteristics.

According to our analysis of findings from the 2006 ACS survey, the incidence of self-reported disabilities varied substantially by level of educational attainment among adults in Michigan and the U.S. Table 29 displays estimates of the percentage share of 16-60 year old persons who reported themselves to be disabled in Michigan and the U.S. at the time of the 2006 ACS surveys. Disability rates were somewhat higher in Michigan than in the U.S. for each educational attainment group except for those with a Master's or higher degree where the disability rate of Michigan residents was nearly identical with that of the nation. Overall, 13 percent of 16-60 year olds in Michigan were disabled compared to 11.7 percent of similar aged adults across the entire nation. In both Michigan and the U.S., disability rates were highest for those without a high school diploma. Twenty two percent of 16-60 year old persons without a high school diploma/GED in Michigan reported to have some type of disability, versus an 18.5 percent incidence of the same age group in entire U.S. The reported incidences of disability

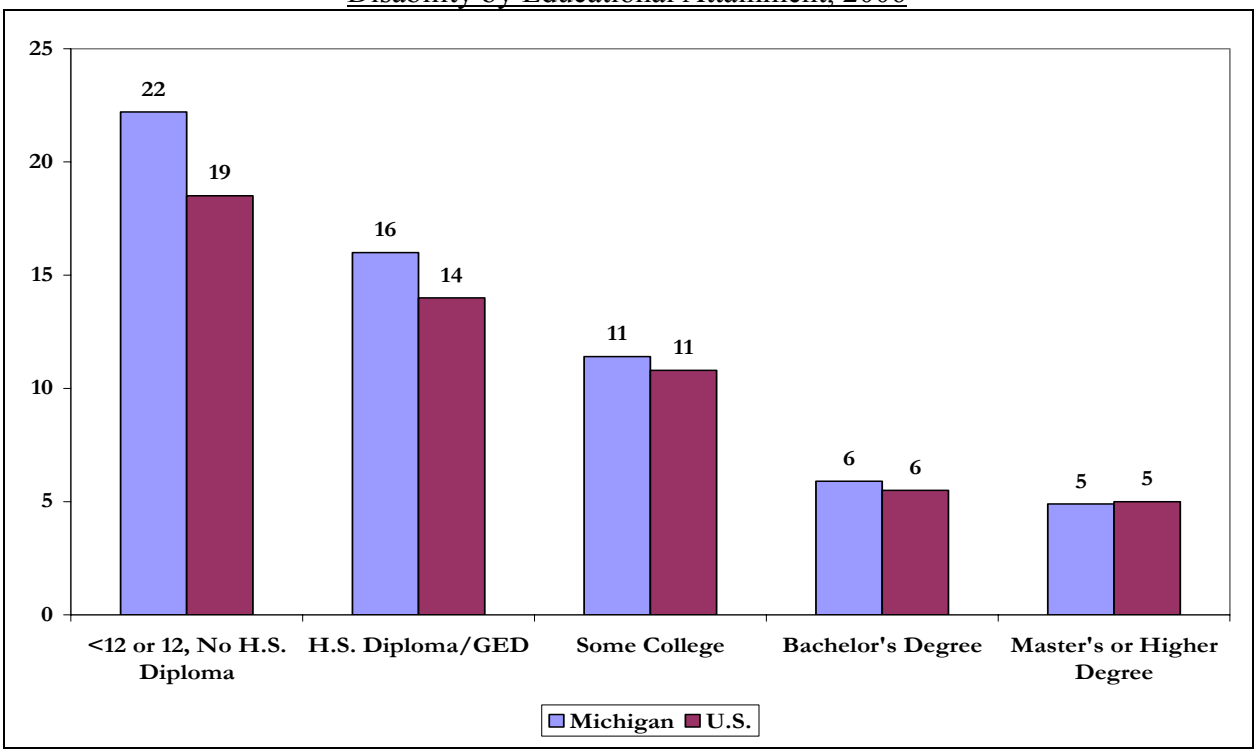
problems declined steadily with higher levels of educational attainment in both Michigan and the U.S. In Michigan, the incidence of disability problems among high school graduates was 16 percent, among those with some college it was 11 percent, and among those with a Bachelor's degree it was slightly below 6 percent (Chart 29). High school dropouts in Michigan were nearly 4 times as likely as bachelor degree holder to report themselves as being disabled in 2006.

Table 29:
The Estimated Incidence of Disability Problems Among 16-60 Year Old Adults by Level of Educational Attainment in Michigan and the U.S., 2006 (In %)

Educational Attainment	Michigan	U.S.	Michigan-U.S.
All	13.1	11.7	1.4
<12 or 12, No H.S. Diploma	22.2	18.5	3.7
H.S. Diploma/GED	16.0	14.0	2.0
Some College	11.4	10.8	0.7
Bachelor Degree	5.9	5.5	0.4
Master's or Higher Degree	4.9	5.0	-0.1

Source: 2006 American Community Survey (ACS), public use files, authors tabulations.

Chart 29:
Percent of 16-60 Year Old Disabled Adults in Michigan and the U.S. Who Self-Reported Disability by Educational Attainment, 2006



The Links Between Disability Problems, Educational Attainment, and the Employment Status of Adults in Michigan and the U.S., 2006

Previous research at the national and state level has shown that the likelihood that a persons with a disability will be employed is strongly linked to his or her level of educational attainment.[66] Employment rates for persons with physical/mental disabilities tend to increase steadily with their level of educational attainment. In Michigan in 2006, those individual with disabilities who lacked a high school diploma/GED certificate were characterized by the lowest employment rate (19.7%), which was 5 percentage points lower than the national average for similarly educated adults. (Table 30, Chart 30). Employment rates were considerably higher for those disabled individual who held a Bachelor's degree (50.8%) and Master's or higher degree (57%).

For both men and women with disabilities in Michigan, employment rates rose steadily and sharply with their level of educational attainment. However, disabled women in each five major educational categories in both Michigan and the U.S. had lower employment rates than their male counterparts.

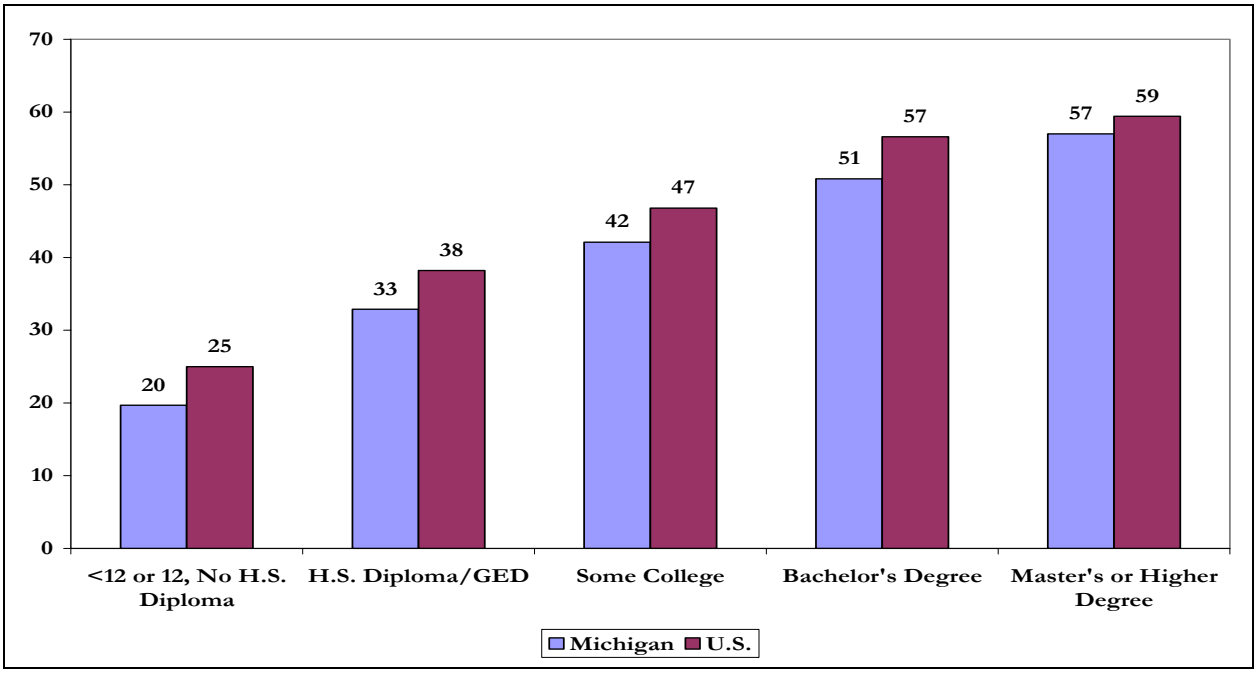
[66] See: Ishwar Khatiwada, Andrew Sum, Joseph McLaughlin, The Labor Market Experiences of the Disabled Adult Population in Massachusetts, Report Prepared by the Center for Labor Market Studies for the Commonwealth Corporation and the Massachusetts Rehabilitation Commission, Boston, Massachusetts, 2006.

Table 30:
Employment/Population Ratios of Persons (16-60) With Disabilities by Their Level of Educational Attainment, Michigan and the U.S., All and by Gender, 2006 (In %)

	Educational Attainment	Michigan	U.S.	Michigan-U.S.
All	All	34.2	39.2	-5.0
	<12 or 12, No H.S. Diploma	19.7	25.0	-5.3
	H.S. Diploma/GED	32.9	38.2	-5.3
	Some College	42.1	46.8	-4.7
	Bachelor Degree	50.8	56.6	-5.8
	Master's or Higher Degree	57.0	59.4	-2.4
Male	All	36.6	42.3	-5.7
	<12 or 12, No H.S. Diploma	20.6	28.3	-7.7
	H.S. Diploma/GED	37.9	42.4	-4.5
	Some College	45.2	50.5	-5.3
	Bachelor Degree	53.0	59.7	-6.7
	Master's or Higher Degree	63.0	62.7	0.3
Female	All	31.8	36.1	-4.2
	<12 or 12, No H.S. Diploma	18.5	21.2	-2.8
	H.S. Diploma/GED	27.9	33.8	-5.9
	Some College	39.5	43.6	-4.1
	Bachelor Degree	48.8	53.9	-5.0
	Master's or Higher Degree	51.8	56.8	-5.0

Source: 2006 American Community Survey (ACS), public use files, tabulations by authors.

Chart 30:
Percent of 16-60 Year Old Disabled Adults in Michigan and the U.S. Who Were Employed at the Time of the 2006 ACS Survey by Educational Attainment

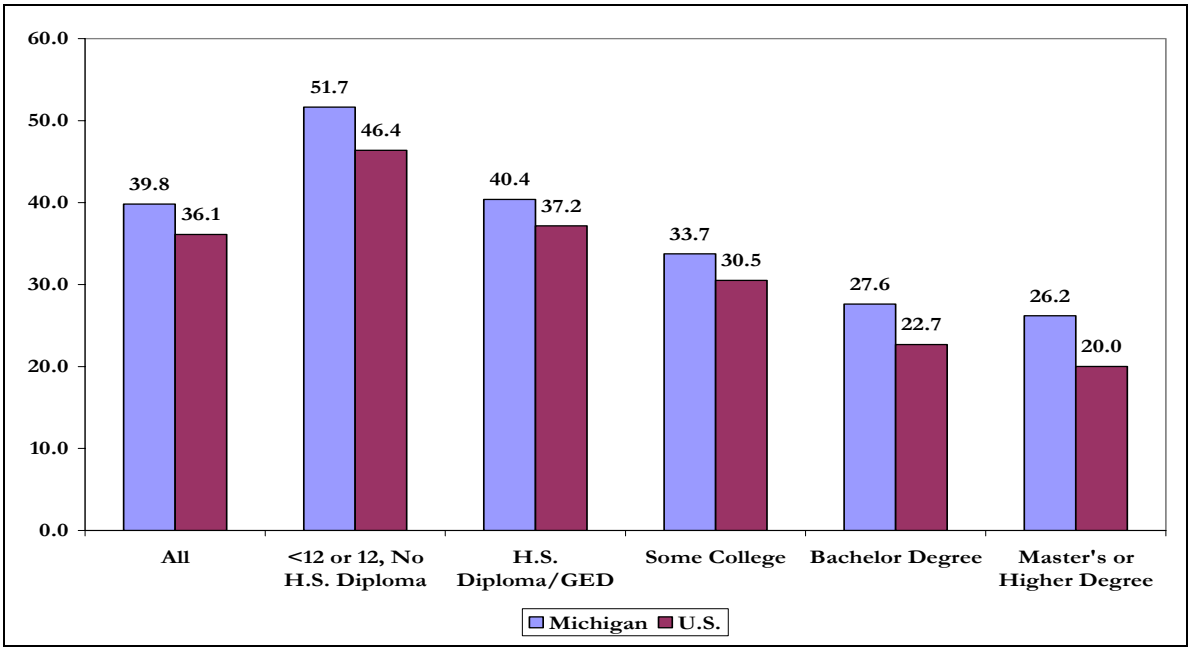


The very high levels of joblessness among the state's disabled population, especially among those adults with no high school diploma, would be expected to increase their dependence on some form of cash public assistance income to support themselves and their families, particularly when they would have been expected to the primary breadwinner for the household. The 2006 ACS survey collected information on the sources of cash income received by respondents during the twelve month period immediately prior to the survey. The survey questionnaire asked respondents to identify their receipt of Supplemental Security Income (SSI), public assistance income (TANF, etc.), and Social Security disability and retirement income.[67] We have identified all 16-60 year old disabled individuals who reported receiving any cash assistance income from the above three sources in the twelve month period immediately prior to the ACS survey. Chart 31 displays our estimates of the percent of disabled 16-60 year olds who received some form of cash public assistance income during 2006 by their educational attainment level in Michigan and the U.S.

Nearly 4 out of every 10 disabled persons between the ages of 16-60 in Michigan obtained some cash public assistance income. The reliance of the adult disabled population in Michigan and the U.S. upon some form of cash public assistance income to support themselves and their families varied considerably by their educational attainment in 2006. Among the disabled lacking a high school diploma or a GED, dependence on cash public assistance was quite high in the state of Michigan. More than half (51.7%) of the disabled adults in Michigan lacking a high school diploma obtained some form of public cash assistance in 2006 in comparisons to 40% of high school graduates/GED holder, 34% of those with some college, and only 26 to 27 percent of those with a Bachelor's or a Master's or higher degree. Very similar patterns prevailed for disabled adults across the country. In every educational attainment subgroups, however, Michigan disabled adults were more likely than their U.S. peers to be dependent on cash public assistance income.

[67] Individual retirees are not allowed to collect any Social Security retirement income until they are at least 62 years of age although survivors of deceased workers are allowed to collect benefits at earlier ages. The bulk of the Social Security income reported to the disabled in our analysis should be disability income under the SSDI program.

Chart 31:
Percent of 16-60 Year Old Disabled Adults in Michigan and the U.S. Who Were Dependent on Some Form of Cash Public Assistance Income by their Educational Attainment, 2006 (In %)



The Degree of Overlap Between Disability and Income Inadequacy Problems in Michigan and the U.S., 2006

Given the high levels of joblessness among disabled adults with no high school diploma and their far more limited earnings when they are employed, one would expect a higher incidence of poverty/near poverty problems among those disabled adults without high school diplomas. The poor are those individuals living in a family with an annual, pre-tax money income below the poverty income thresholds of the federal government. The near poor are those persons living in families with annual, pre-tax money incomes above the poverty thresholds but less than 125 percent of the poverty thresholds.[68] Table 31 displays estimates of the number of disabled adults in Michigan and the U.S. in 2006 who were poor/near poor, and the percent of all adults in each educational attainment subgroup who were both disabled and poor/near poor in that year.

[68] The poverty income thresholds are those of the federal government's Office of Management and Budget (OMB). The poverty lines vary by the number of persons in the household and their age distribution but are the same for all states, metropolitan areas, and cities. The costs of living vary markedly by state, thus, the official poverty income thresholds understate (overstate) the three incidence of poverty problems across states, such as Massachusetts and Michigan.

In Michigan, during 2006, thirty percent of the state's disabled adults were members of poor/near poor families. The incidence of such income inadequacy problems among the disabled adult population in both Michigan and U.S., however, varied quite considerably across educational attainment subgroups. In Michigan, the percent of disabled adults who were poor/near poor ranged from highs of 44% among those lacking a high school diploma and 29% among those with only a high school diploma or a GED to lows of 12% to 14% among those with a Bachelor's or a Master's degree or higher degree. (Chart 32). Again, very similar patterns of income inadequacy problems prevailed among the disabled in the entire nation.

Chart 32:
Percent of 16-60 Year Old Disabled Adults in Michigan and the U.S. Who Were Poor/Near Poor in 2006 by Educational Attainment

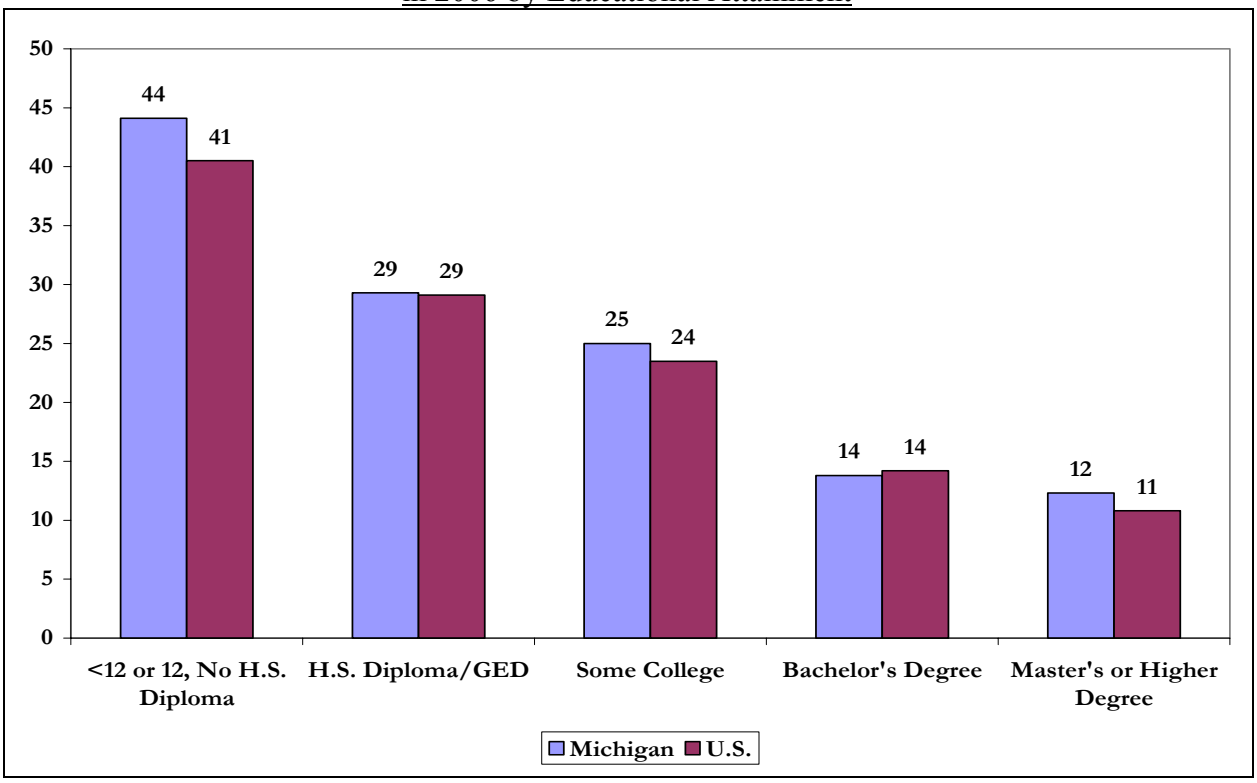


Table 31:
Overlap of Disability and Poor/Near Poor Problems Among 16-60 Year Olds by Their Level of Educational Attainment in Michigan and the U.S., 2006

Area	Educational Attainment	Total Population	Disabled Population	Poor/Near Poor and Disabled	Percent of the Disabled Who Were Poor/Near Poor	Percent of the Population Who Were Both Disabled and PNP
Michigan	<12 or 12, No H.S. Diploma	948,192	210,745	92,907	44.1	9.8
	H.S. Diploma/GED	1,852,198	297,273	87,218	29.3	4.7
	Some College	2,083,293	238,350	59,502	25.0	2.9
	Bachelor Degree	949,979	56,278	7,752	13.8	0.8
	Master's or Higher Degree	476,820	23,274	2,865	12.3	0.6
	Total	6,310,482	825,920	250,244	30.3	4.0
United States	<12 or 12, No H.S. Diploma	32,810,479	6,072,250	2,460,539	40.5	7.5
	H.S. Diploma/GED	53,330,341	7,486,762	2,176,261	29.1	4.1
	Some College	54,618,845	5,879,003	1,379,354	23.5	2.5
	Bachelor Degree	30,435,175	1,676,984	238,657	14.2	0.8
	Master's or Higher Degree	15,258,376	765,497	82,583	10.8	0.5
	Total	186,453,216	21,880,496	6,337,394	29.0	3.4

Source: 2006 American Community Survey (ACS), public use files, authors tabulations.

Findings on the incidence of disability problems by educational attainment level were combined with those on the incidence of poor/near poor problems to estimate the fraction of adults in each educational attainment group who were both disabled and living in families with incomes below 125% of the poverty line. One out of every 10 adults without a high school diploma or a GED in Michigan were both disabled and living in poverty/near poverty. Disabled adults without a high school diploma in Michigan were twice as likely as high school graduates to be both disabled and face severe income inadequacy problems, and they were 12 times more likely to be in such a situation as their peers with a Bachelor's degree. Across the nation, disabled persons without a high school diploma also had a high combined rate of disability and poor/near poor problems. Forty percent of all 16-60 year old disabled persons in the nation without a high school diploma were poor or near poor. This group of adults was also much more likely than their better educated peers to report some form of disability and, when disabled, they were much more likely to be poor/near poor. Problems of poverty/near poverty and

mental/physical disability are closely intertwined in Michigan and the U.S., especially among less educated adults.

The Civic Behavior of Persons 18 and Older and Their Educational Attainment Levels in Michigan and the U.S., 2004 and 2006

The educational attainment level and literacy proficiency of adults in the U.S. have been positively associated with a variety of their civic behaviors; including voting, volunteering, and participation in civic activities at the local level.[69] A society cannot foster a strong democracy without active civic engagement by a high share of its citizens. Less educated persons are less likely to be engaged in civic activities, including voting in national, state, and local elections, volunteering for civic organizations, or informing themselves of political development. There is a plethora of empirical evidence on this issue. In addition, a number of studies in recent years have consistently found that the U.S. has experienced a severe decline in civic participation in recent decades.[70] Another study based on international evidence found that additional years of educational attainment has statistically significant effects on voter participation and support for free speech and increases the quality of civic knowledge.[71]

Longitudinal surveys of young adults in the U.S. have found that their voting registration and voting behavior is strongly associated with their educational attainment. The 2000 survey round of the National Education Longitudinal Survey (NELS) of the eighth grade class of 1988 captured information on their voting behavior in the 1996 presidential election. Findings of our analysis of the voting behavior of these young adults (21 to 24) by their educational attainment as of 2000 are displayed in Chart 33. Voting rates of these young adults rose steadily and strongly with their levels of formal schooling. Only 15 per cent of young high school dropouts without a GED voted in 1996 versus 30 percent of GED holders, 43 per of regular high school

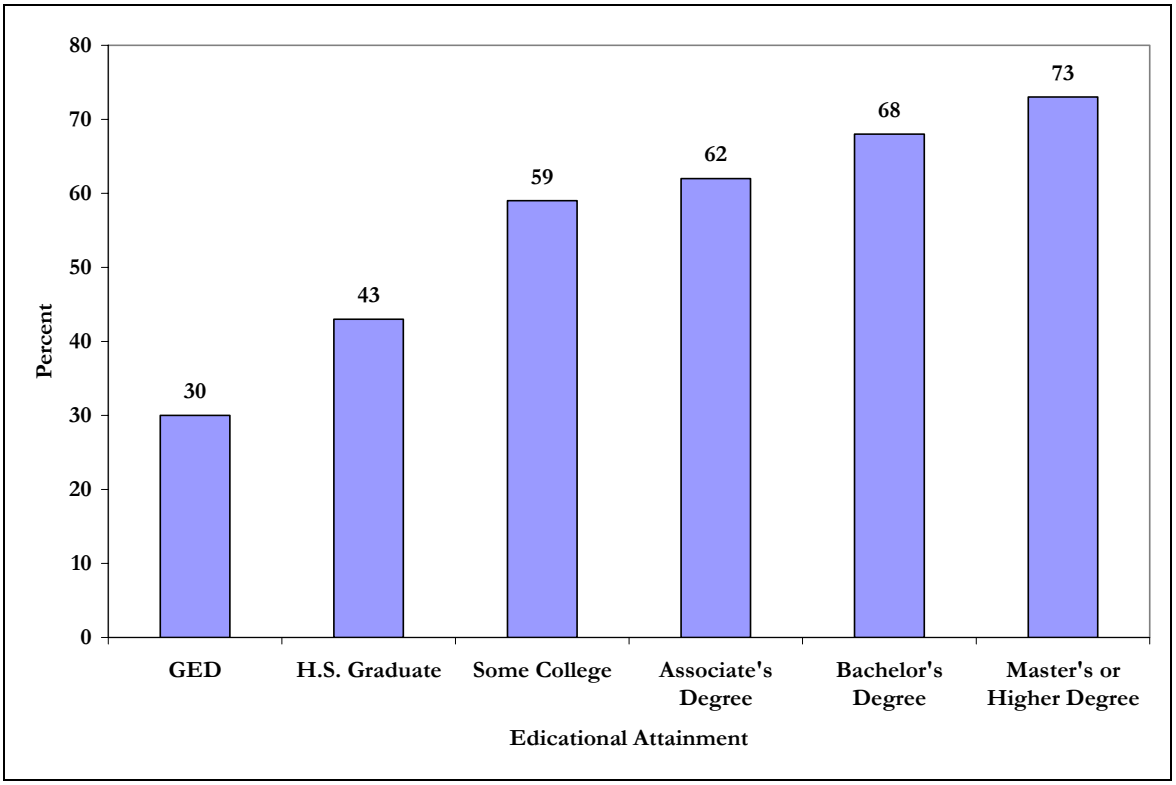
[69] These statistical relationships between the literacy proficiencies/schooling characteristics and civic behavior of adults hold true for both immigrant and native-born adults. For a review of the links between the literacy proficiencies of immigrants and their civic and volunteering behavior, see: Andrew Sum, Irwin Kirsch and Kentaro Yamamoto, A Human Capital Concern: The Literacy Proficiency of U.S. Immigrants, Policy Information Center, Educational Testing Service, Princeton, 2004.

[70] For example of such studies, see: (i) Sidney Verba, Kay Lehman Schlozman, Henry Brady, Voice and Equality: Civic Voluntarism in American Politics, Harvard University Press, Cambridge, Massachusetts, 2006; (ii) Robert D. Putnam, Bowling Alone: The Collapse and Revival of American Community, Simon and Schuster, 2000; (iii) Thomas Ehrlich (Editor), Civic Responsibility and Higher Education, The American Council of Education, The Oryx Press, Phoenix, Arizona, 2000.

[71] See: Thomas S. Dee, Are There Civic Returns to Education? National Bureau of Economic Research (NBER), Working Paper No. 9588, March 2003, Cambridge, Massachusetts.

graduates, 59 to 62 per cent of those with one to three years of college, and 68 to 73 per cent of those with a Bachelor's or higher academic degree. Among these young high school dropouts, voting rates were lowest among those in the lowest quintile of the reading/math test score distribution based on 10th grade test scores. Only 13 per cent of dropouts in the lowest skills quintile voted versus 20 per cent of those in the second and middle quintiles of the distribution. Young adults with strong reading/math skills (top quintile) and a Bachelor's degree were five to six times more likely to vote than dropouts with very limited reading/math skills. The latter group of young adults has voluntarily disenfranchised themselves from the American political system.

Chart 33:
Percent of 21-24 Year Old Adults Who Voted in the 1996 Presidential Election by Educational Attainment, U.S.



More recent data on the voting behavior of Michigan and U.S. adults (voter eligible 18 and older U.S. citizens) in the November 2004 presidential election and the November 2006 Congressional election are available from the 2004 and 2006 supplements to the standard monthly CPS labor force questionnaires. Our analysis of the findings reveals that a higher share

of citizens voted in the 2004 presidential election than in the off-year Congressional elections of 2006. Charts 34 and 35 display the estimated percent of citizens 18 and older in Michigan and U.S. who voted by their educational attainment level. In every educational attainment category, Michigan citizens voted at a modestly higher rate than their national counterparts. However, only 46 percent of Michigan's citizens without a high school diploma voted in the November 2004 election. The voting rates among adults in Michigan rose steadily with their educational attainment level. Slightly more than 62% of high school graduates voted in the November 2004 election, while 71% of those with some college did so, and 78 to 85 percent of those with a Bachelor's and Master's or higher degree, respectively, voted in Michigan. Similar voting patterns prevailed in then nation in the 2004 elections. Voter turnout in the November 2006 election was lower than in November 2004 in both Michigan and the U.S. This finding is consistent with that for earlier off-year elections. In Michigan, voting rates in November 2006 rose steadily and strongly with the years of formal schooling of adults. Only 37 percent of adult dropouts voted versus 52% of high school graduates, 69 percent of bachelor degree holders, and 76 percent of those adults with a Master's or higher degree. (Chart 35).

Chart 34:
Percent of Voting Eligible Adults (18 and Older) Who Voted in the November 2004 Election by Level of Educational Attainment, Michigan versus U.S.

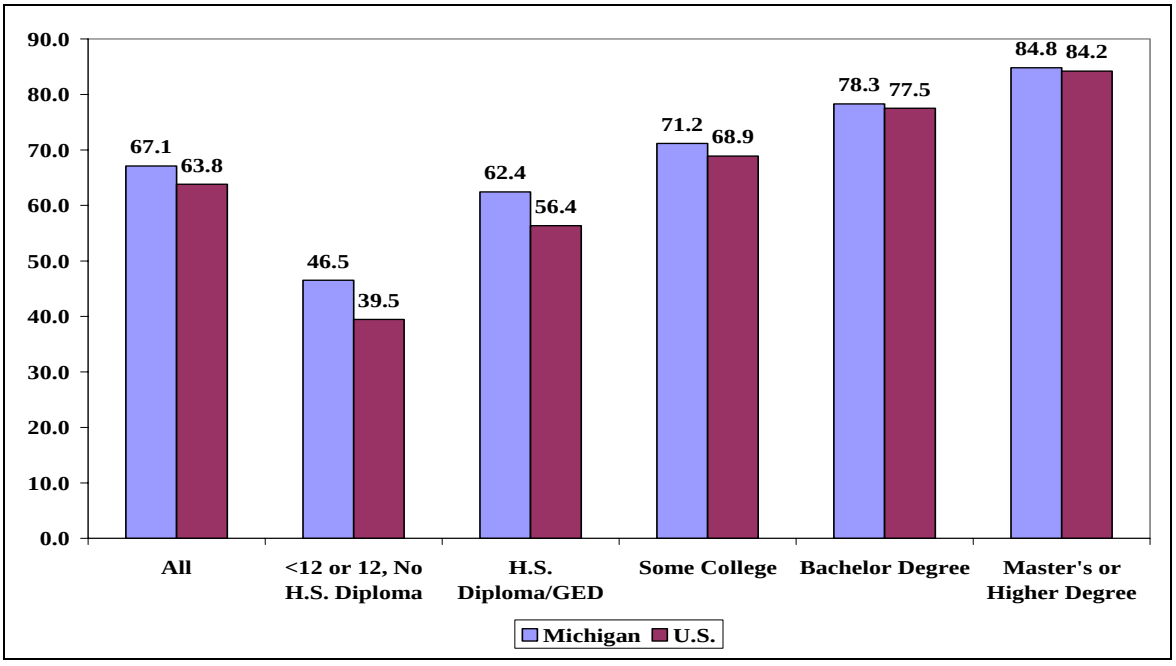
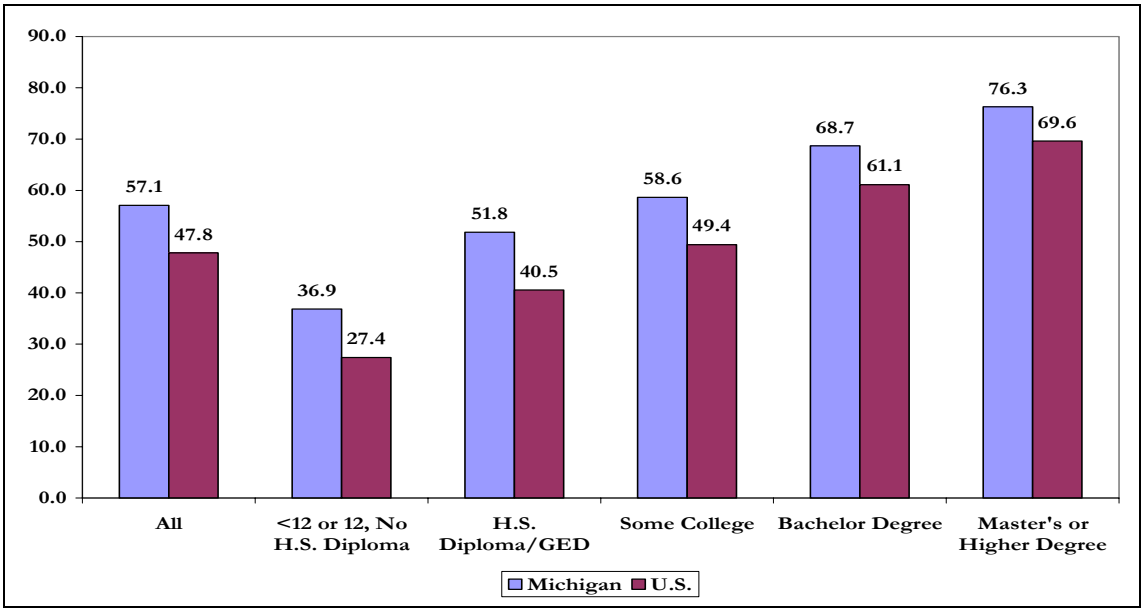


Chart 35:
Percent of Voting Eligible Adults (18 and Older) Who Voted in the November 2006 Election by Level of Educational Attainment, Michigan versus U.S.



National surveys of the volunteering activities of Michigan and U.S. adults in recent years also reveal a strong association between the incidence, breadth, and types of volunteering activities of adults and their educational attainment. Data on the volunteering behavior of Michigan and U.S. adults 16 and older are collected in September of each year by the U.S. Census Bureau as a supplement to the standard monthly CPS labor force questionnaire for that month.[72] We have analyzed public use data files for the September 2006 CPS Supplement to examine the volunteering activities of adults 16 and older in Michigan and the U.S. by their educational attainment level. In Michigan, slightly under 24% of the sate's working-age adults reported to have done some type of volunteer work between September 2005 and September 2006.[73] (Chart 36). Michigan's volunteering rate for 16 and older adults was modestly higher

[72] "Volunteer work" is unpaid work performed for a non-profit or government organization. See: U.S. Bureau of Labor Statistics, Volunteering in the U.S.: 2006, Washington, D.C., 2007.

73 The CPS questionnaire asked respondents to identify one or more of the 17 categories of organizations for which they volunteered some type of work. Among the 17 types of organizations, a majority of respondents (56%) reported to have volunteered for either religious organizations or children's education, sports, and recreation groups. The other categories of volunteer organizations included educational, social and community service organizations, civic organizations, cultural or arts organizations, environmental or animal care organizations, health research or health education organizations, hospital, clinics, or healthcare organizations, immigrant/refugee assistance, international

than that of the nation (21.4%). In four of the five educational categories, adults from Michigan volunteered at a higher rate than that of their national counterparts.[74] However, the fraction of adults in Michigan reporting some volunteer work in 2006 varied widely by their educational attainment, ranging from lows of 13 percent for high school dropouts and 16 percent for high school graduates to highs of 37 percent among adults with a Bachelor's degree and 47 percent among adults with a Master's or higher degree. Michigan adults with a Bachelor's or higher degree were three to four times as likely to volunteer as their peers with no high school diploma.

Not only are better educated adults in Michigan more likely to volunteer than their less educated counterparts, but they also volunteer for more organizations and a wider array of civic, political, and social organizations than their less educated fellow residents. Adult school dropouts are most likely to volunteer for church organization and children's sports (like league, soccer, basketball) than for other types of volunteer organization including labor, health, political, social organizations. Excluding volunteer work in religious organizations and children's education, sports and recreational programs also yields even larger relative gaps in volunteering work across the five major educational groups. Slightly more than 12% of adults in Michigan provided some volunteer work in organizations other than religious and children's education, sports and recreational activities.[75] Only 6 of every 100 adults without a high school diploma volunteered for one or more organizations versus 21% of adults with a Bachelor's degree and 32% of adults with a Master's or higher degree did so. (Chart 37). The state's best educated adults were considerably more likely to provide step in for civic and political organizations than were adults with no post-secondary schooling.

---

organizations, labor union, business, or professional organizations, political party or advocacy groups, public safety organizations, sports or hobby groups, youth service groups, or some other type of organizations.

[74] Among adults with 13-15 years of schooling, the volunteering rate of Michigan adults was the same as that of their U.S. counterparts.

[75] The other categories of volunteer organizations included educational, social and community service organizations, civic organizations, cultural or arts organizations, environmental or animal care organizations, health research or health education organizations, hospital, clinics, or healthcare organizations, immigrant/refugee assistance, international organizations, labor union, business, or professional organizations, political party or advocacy groups, public safety organizations, sports or hobby groups, youth service groups, or some other type of organizations.

[75] Among adults with 13-15 years of schooling, the volunteering rate of Michigan adults was the same as that of their U.S. counterparts.

Chart 36:
Percent of Persons 16 and Older in Michigan and the U.S. Who Did Volunteer Work in 2006 by Educational Attainment

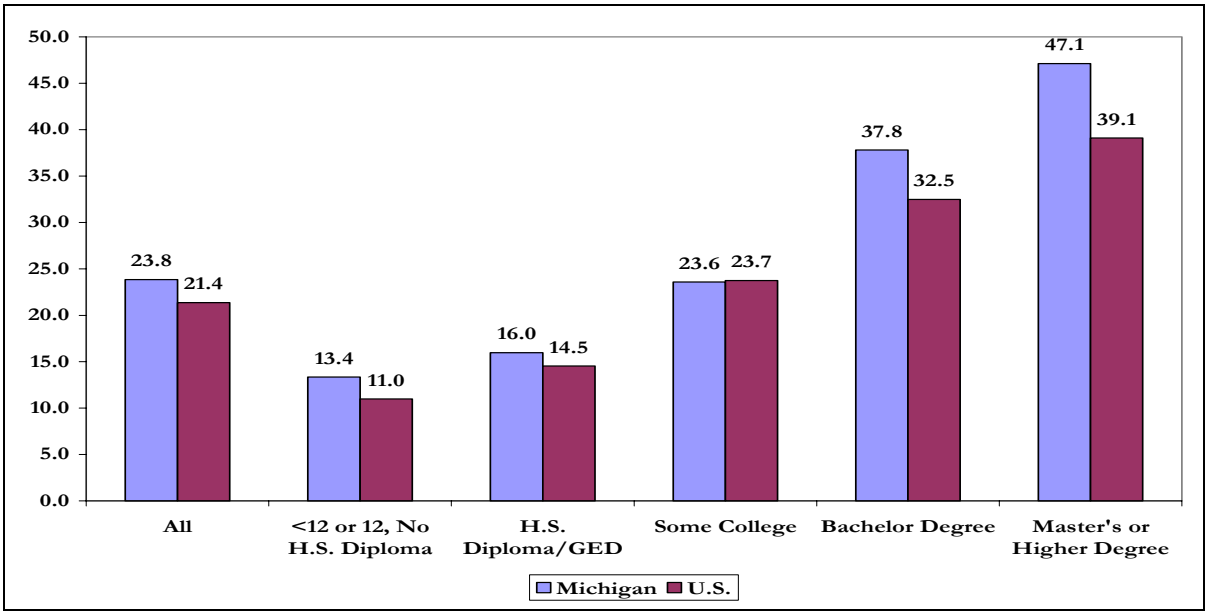
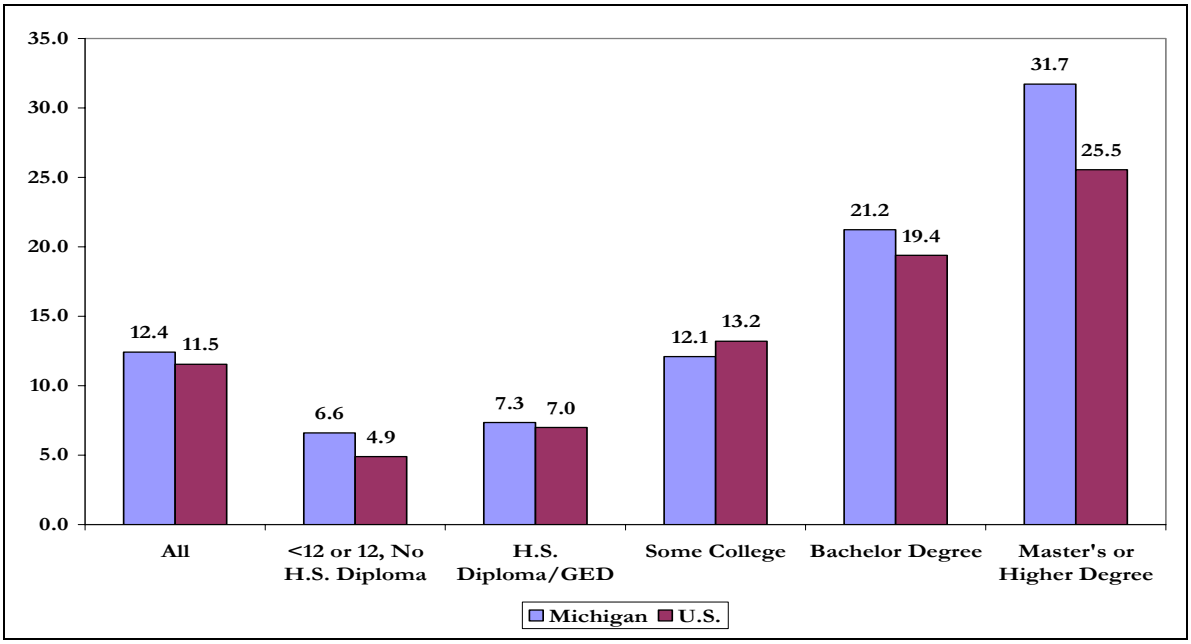


Chart 37:
Percent of Persons 16 and Older in Michigan and the U.S. Who Did Volunteer Work, Excluding Volunteer Work in Religious Organizations and Children's Education, Sports, and Recreation Activities) and in 2006 by Educational Attainment



The Incidence of Institutionalization Problems Among Adults in Michigan and the U.S. by Educational Attainment

During the past three decades, the number of U.S. adults who are maintained in institutions, such as jails, prisons, and nursing homes, has risen considerably. Among non-elderly adults, i.e., those under 65 years of age, the major factor underlying this substantial rise in the institutionalized population is the rapid growth in the prison and jail population. From the early 1970s through 2004, the number of federal and state prison inmates per 100,000 residents of the U.S. rose nearly fivefold from 100 to 486.[76] If we include inmates of local jails as well, there were nearly 2.2 million individuals residing in jails or prisons on a given month in 2004.[77]

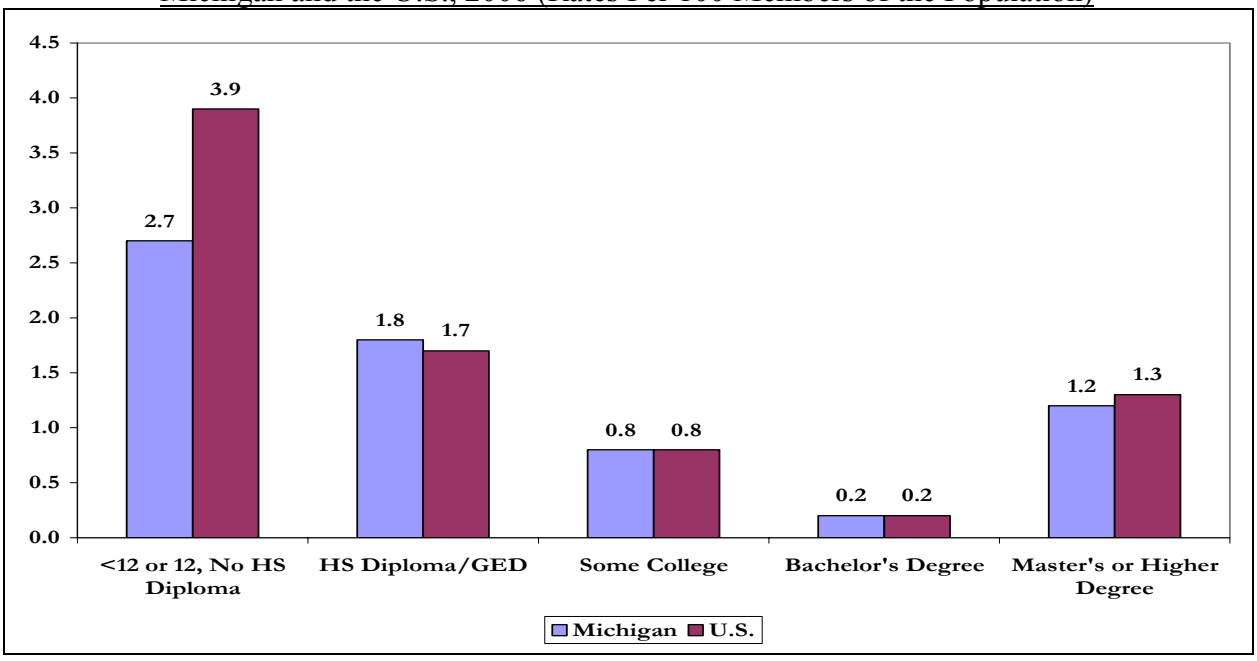
Incarceration and some other institutionalization rates tend to be considerably higher among less educated and less literate adults.[78] Thus, the per capita annual fiscal costs of institutionalization will be higher for adults with more limited formal schooling and literacy/ numeracy proficiencies. To estimate rates of institutionalization among the non-elderly adult population of the nation and the state of Michigan in 2006, we analyzed the findings of the 2006 American Community Surveys, which interviewed residents of group quarters for the first time during that year. The ACS survey identified the institutionalization status of each adult respondent. This group includes those persons who were under supervision in correctional facilities (jails/prisons), nursing/skilled nursing facilities, mental (psychiatric) hospitals, in patient hospice facilities, and group homes for juveniles. The public use files for the ACS survey unfortunately do not identify the specific type of institution in which these individuals were living at the time of the survey. Nationally, the U.S Census Bureau's publication of institutionalization data from the 2006 ACS survey revealed that a substantial majority (over 70 percent) of the members of the institutionalized population under the age of 60 were inmates of

[76] See: Devah Pager, Marked: Race, Crime, and Finding Work in an Era of Mass Incarceration, University of Chicago Press, Chicago, 2007.
[77] See: Paige M. Harrison and Allen J. Beck, Prison and Jail Inmates at Mid Year 2005, U.S. Department of Justice, Bureau of Justice Statistics, Washington, D.C., 2006.
[78] For a review of the educational attainment and literacy/numeracy proficiencies of U.S. prison inmates in 1992, See: (i) Karl O. Haigler, Caroline Harlow, Patricia O'Connor, and Anne Campbell, Literacy Behind Prison Walls: Profiles of the Prison Population from the National Adult Literacy Survey, National Center for Education Statistics, Washington, D.C., 1994; (ii) Andrew Sum, Ishwar Khatiwada, Joseph McLaughlin, et.al., An Assessment of the Labor Market, Income, Health, Social, Civic and Fiscal Consequences of Dropping Out of High School: Findings for Massachusetts Adults in the 21st Century, Prepared for Boston Youth Transition Funders Group, Boston, Massachusetts, January 2007; (iii) Andrew Sum, Ishwar Khatiwada, Joseph McLaughlin, et.al., An Assessment of the Labor Market, Income, Health, Social, and Fiscal Consequences of Dropping Out of High School: Findings for Massachusetts Adults in the 21st Century, Prepared for the Alternative Schools Network, Chicago, IL, October 2007.

correctional facilities. The public use files from the 2006 ACS survey were used to estimate the incidence of institutionalization problems among the non-school enrolled population of 16-60 year olds and 18-34 year olds in the aggregate, by educational group, and for a variety of selected age/gender/educational subgroups in Michigan. Some comparisons with findings for the U.S. also are provided.

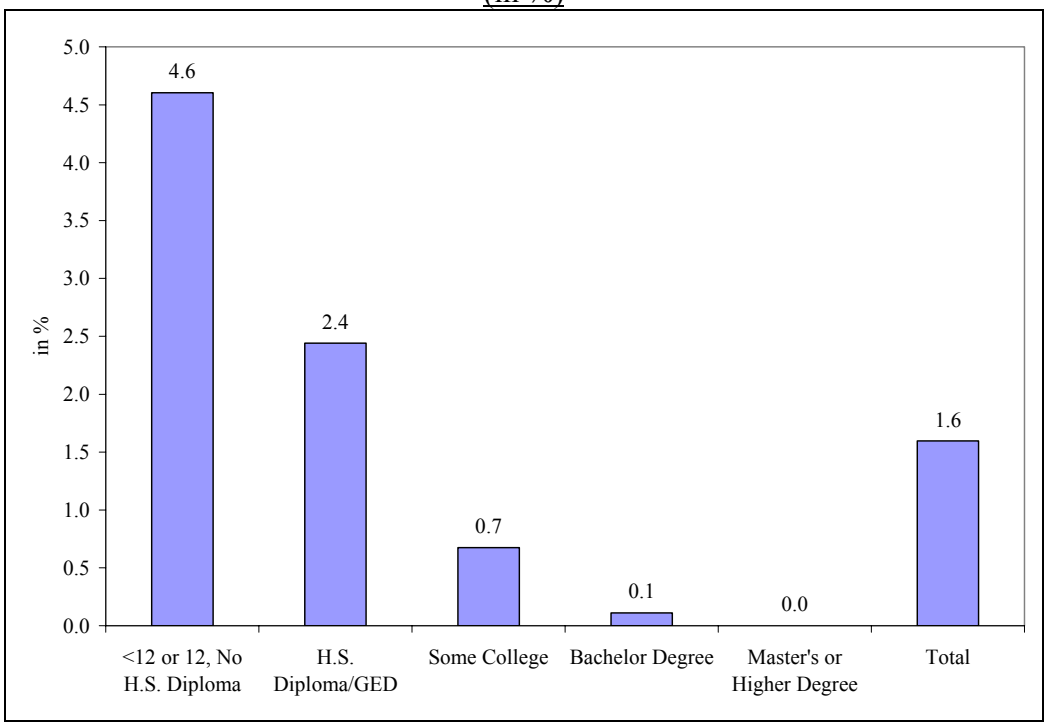
Chart 38 displays the institutionalization rates of 16-60 year old adults in Michigan and for the nation as a whole during calendar year 2006. Overall, 1.3 percent of the adults in this age group or nearly 2.4 million were institutionalized during 2006 in the United States versus 1.2 percent in the state of Michigan. Institutionalization rates of these adults varied widely by their level of educational attainment in both Michigan and the U.S. In Michigan, institutionalization rates ranged from a high of 2.7 percent among those adults without a high school diploma or GED, to slightly under 2 percent among adults with a high school diploma or GED, to lows of only 0.1% to 0.2% among those adults with a Bachelor's, Master's, or higher academic degree. High school dropouts in Michigan had a lower institutionalization rate than their national counterparts in 2006, but they were 14 times more likely to be institutionalized than an adult with a bachelor's degree and 27 times more likely to be institutionalized than someone with a Master's or higher degree in the state.

Chart 38:
Institutionalization Rates of 16-60 Year Old Adults by Educational Attainment Level in Michigan and the U.S., 2006 (Rates Per 100 Members of the Population)



The institutionalization rates of adults in Michigan and the U.S. also varied by age group, with younger adults being more likely to be institutionalized than their older peers. Among 18-34 year olds in Michigan, 1.6% of the population were inmates of institutions (primarily jails and prisons), an incarceration rate that matched the national average for this age group. The higher incidence of institutionalization problems among these younger adults was due almost entirely to higher rates of incarceration among those adults with 12 or fewer years of schooling. Among these 18-34 year olds, institutionalization rates ranged from a low of under .1% among those with a bachelor's or higher degree to a high of 4.6% for those young adults who lacked a high school diploma/GED certificate (Chart 39). Younger high school dropouts were twice as likely to be incarcerated as high school graduates and nearly 50 times more likely to be incarcerated as their peers with a bachelor's degree in the state of Michigan in 2006.

Chart 39:
Institutionalization Rates of 18-34 Year Olds in Michigan by Educational Attainment, 2006 (in %)



Source: 2006 American Community Surveys, tabulations by authors.

Young males in Michigan dominated the ranks of the institutionalized population of 18-34 year olds, reflecting the much higher incarceration rates of these young men in comparison to

those of young women. The institutionalization rate among young male adults (2.8%) was nearly 10 times higher than that among their female counterparts (.3%) in 2006. Approximately 7% of young adult males with no high school diploma/ GED certificate and over 4% of males with only a high school diploma were institutionalized versus only 1 of every 1000 males with a Bachelor's and higher degree. (Table 32).

The high rate of institutionalization among male high school dropouts was primarily due to the very high incarceration rates of African Americans. Within each race-ethnic group, the institutionalization rates of male dropouts were higher than those of better educated males; however, the disparities in incarceration rates between African-American and White and Hispanic male dropouts were particularly large. During 2006, nearly 18% of male African American dropouts between the ages of 18 and 34 years old were institutionalized versus 3.4% of White and 2.7% of Hispanic male dropouts (Chart 40). The high and rising incarceration rates of young males, especially African-Americans with no diplomas, are strongly associated with the steep deterioration in their labor market prospects, especially the sharp drop in their annual earnings, over the past three decades.[79] The adverse impacts of incarceration on future marriage prospects of young Black men also have been found to be more severe than those among White and Hispanic males.[80]

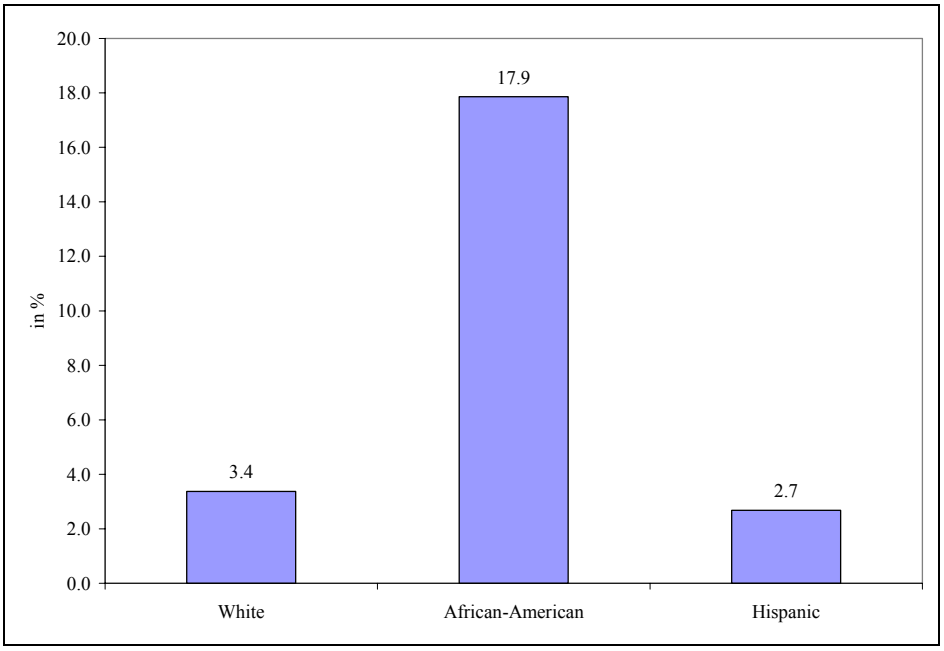
Table 32:
Institutionalization Rates of 18-34 Year Olds in Michigan by Gender and Educational Attainment, 2006 (in %)

Educational Attainment	(A) Men	(B) Women
All	2.8	0.3
<12 or 12, no diploma	7.3	0.9
High school diploma/GED	4.0	0.5
13-15 years	1.2	0.2
Bachelor's degree	0.1	0.2
Master's or higher degree	0.0	0.0

Source: 2006 American Community Surveys, tabulations by authors.

[79] For a comprehensive review of the declining economic fortunes of young men with no post-secondary schooling over the past few decades,
See: Andrew Sum, Tim Barnicle, Ishwar Khatiwada, et al., Educational and Labor Market Outcomes for the Nation's Teens and Young Adults Since the Publication of America's Choice, Report Prepared for the New Commission on the Skills of the American Workforce, Washington, D.C., 2006.
[80] See: Bruce Western with Leonard Lopoo, "Incarceration, Marriage, and Family Life," in Punishment and Inequality in America, Russell Sage Foundation, New York City, 2006, pp. 131-167.

Chart 40:
Institutionalization Rates of 18-34 Year Old Male High School Dropouts in Michigan by Race-Ethnic Subgroup



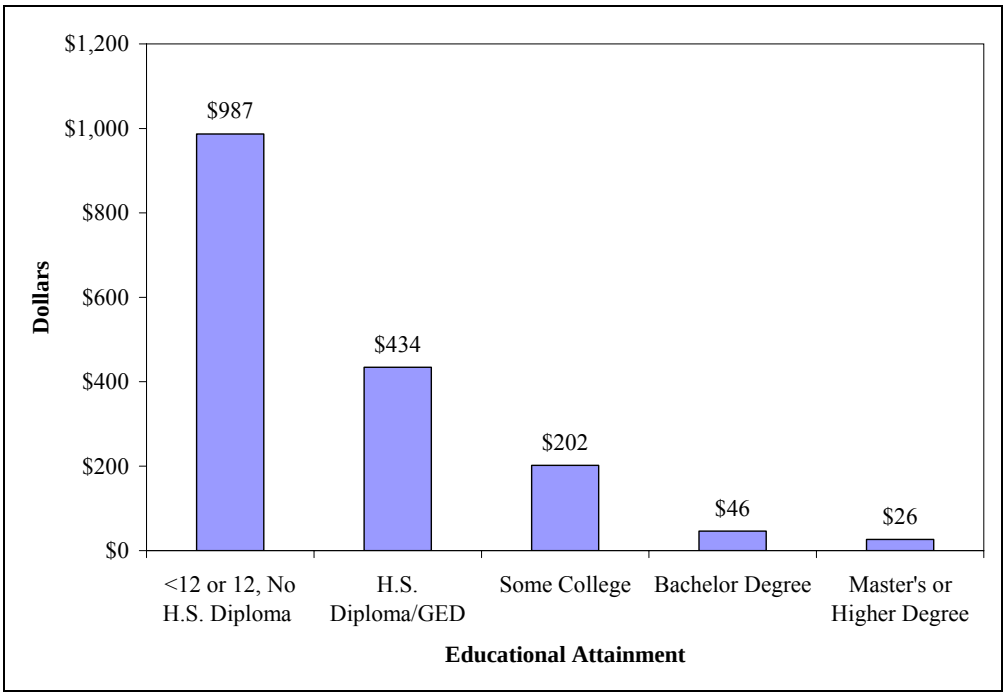
As noted above, the 2006 American Community Survey did not identify the specific type of institution in which each adult resided at the time of the survey; thus, we cannot estimate how many adults in each educational attainment group were in each type of institution or how large the annual fiscal costs of housing these adults were by type of institution. Nationally, the bulk of the non-elderly institutional population reside in jails and prisons, and the overwhelming share of the costs of operating these correctional facilities is borne by state and local governments, placing a substantial burden on taxpayers at these levels of government. In the absence of full information on the distribution of adult residents by type of institution and the annual costs of housing adults within each type of institution, we have applied the national average cost data on the annual expenditures per inmate of state prisons to the entire institutionalized population 16-64 years old in the U.S. We have repeated this analysis for the state of Michigan using state data on the incidence of institutionalization and annual costs of operating state prisons. These expenditure data include both operating expenditures and current capital expenditures on state prisons as of 2001 for the U.S. The 2001 expenditure data per state prison inmate were extrapolated to 2006 by applying the change in the national Consumer Price Index for All Urban

Consumers (CPI-U) from 2001-2006 to the 2001 per inmate expenditure data for state prisoners across the nation. For Michigan, we obtained annual costs of operating state prisons for 2005. The fiscal costs of housing the adult institutionalized population throughout the nation were disaggregated by educational level to estimate the national costs of institutionalizing the 16-64 year old population in each educational group.[81] We then divided these costs of institutionalization for each educational group by the number of 16-64 year old persons in the entire population and in each educational group to estimate the mean costs of institutionalization per person in the resident population of the nation and the state of Michigan.

The data on institutionalization rates for educational subgroups of adults available from the 2006 American Community Survey can be combined with data on the annual per inmate cost in state prisons to estimate the annual institutionalization costs associated with adults in each educational group. According to estimates from the U.S. Bureau of Justice Statistics, the annual per state prison inmate costs for the entire nation in 2001 was $22,650. Adjusting this per inmate cost for inflation between 2001 and 2006, a per inmate cost of $25,783 in 2006 was derived. By multiplying the institutionalization rate for each educational group of adults from the 2006 American Community Survey by the per inmate cost, we can estimate the average annual costs of institutionalization per adult in each educational attainment group. On average, adults without a high school diploma or GED cost the nation approximately $987 in expenditures related to institutionalization per year (Chart 41). The mean annual costs of institutionalization for adults without a high school diploma was more than 2 times as high as that of high school graduates without any post-secondary schooling and 21 times higher than that of adults with four-year college degrees.

[81] Over 57 percent of all inmates of federal/state prisons and local jails resided in state prisons in 2004. This set of cost calculations is based on the assumption that costs per prison inmate do not vary by their educational attainment and that the mean costs of housing inmates in other institutions (local jails, long stay hospitals, mental institutions, hospices) are approximately the same as those for state prison inmates.

Chart 41:
Mean Annual Costs of Maintaining 16-64 Year Old U.S. Adults in Institutions by Educational Attainment, 2006
(in Dollars)



According to Michigan's Department of Corrections, the average annual cost per prisoner in 2005 was $25,601.[82] Using the same formula described above for the U.S., we multiplied this cost of incarceration by the average institutionalization rate of each educational group in 2006. The cost of incarceration in Michigan was within $200 of the national average cost of incarceration. Thus, the results for Michigan and the U.S. are very similar with one exception. Given the lower institutionalization rate of Michigan's high school dropouts, the average annual incarceration costs generated by dropouts in Michigan were slightly lower than the national average ($689 vs. $987). This educational group still had the highest average annual costs of incarceration in the state, exceeding the average annual cost of high school graduates by $230 (Table 33).

[82] Michigan Department of Corrections, 2005 Annual Report.www.michigan.gov/corrections.

Table 33:
Mean Annual Costs of Maintaining 16-60 Year Old Michigan Adults in Institutions by Educational Attainment, 2006
(in Dollars)

Educational Attainment	(A) 2006 Institutionalization Rate	(B) Cost of Incarceration in 2005	(C) Average Annual Cost of Incarceration
<12 or 12, No H.S. Diploma	2.7	$25,601	$689
H.S. Diploma/GED	1.8	$25,601	$458
Some College	0.8	$25,601	$194
Bachelor Degree	0.2	$25,601	$52
Master's or Higher Degree	0.1	$25,601	$26
Total	1.2	$25,601	$311

These institutionalization costs per person only represent the estimated, current annual fiscal costs associated with their confinement. For persons in correctional and mental institutions, these annual costs are likely to be very conservative estimates of their true long run fiscal and societal costs. First, the annual per inmate costs of housing persons in jails/prisons included only current capital expenditures and excluded annualized capital costs of past construction, which are likely to far exceed current capital outlays. Second, these annual costs ignore all future parole and probation costs associated with monitoring the future behavior of the jailed. In Michigan, there were over 70, 500 persons on probation or parole in 2005, and they cost the state on average approximately $1,977 during that year.[83] Third, being jailed today sharply reduces the future earnings potential of both men and women, with the size of these earnings losses ranging from 20 to 25 percent among men to more than 40 percent among women.[84] The lower earnings potential of the formerly incarcerated reduces their future tax contributions to federal and state governments and increases their dependence on cash and in-kind transfers to support themselves and their families. We will analyze the fiscal consequences of dropping out of high school in a following section of this paper.

[83] Michigan Department of Corrections, "Annual Report 2005," www.michigan.gov/corrections.
[84] See: Scott Davies and Julian Tanner, "The Long Arm of the Law: Effects of Labeling on Employment," The Sociological Quarterly, Volume 44, Number 3, pages, 385-404.

Receipt of Cash Public Assistance Income Among Michigan and U.S. Adults by Their Level of Educational Attainment in 2006

The limited annual earnings of employed adults without a high school diploma in Michigan and across the nation and their much higher rates of year-round joblessness can be expected to increase their reliance on various forms of cash public assistance income to support themselves and their families. In this section, we will estimate the percentage share of all adults without a high school diploma/GED certificate in the state of Michigan and the U.S. who received cash income support in 2005-2006 from one of the following three sources of cash public assistance income: Supplemental Security Income for the Disabled (SSI), public assistance income (including TANF benefits), and Social Security disability and retirement income.[85] Estimates of the share of the Michigan and U.S. 16-60 year old population who received some form of cash public assistance income during 2005-2006 by educational attainment group are displayed in Chart 42 for both Michigan and the U.S.[86]

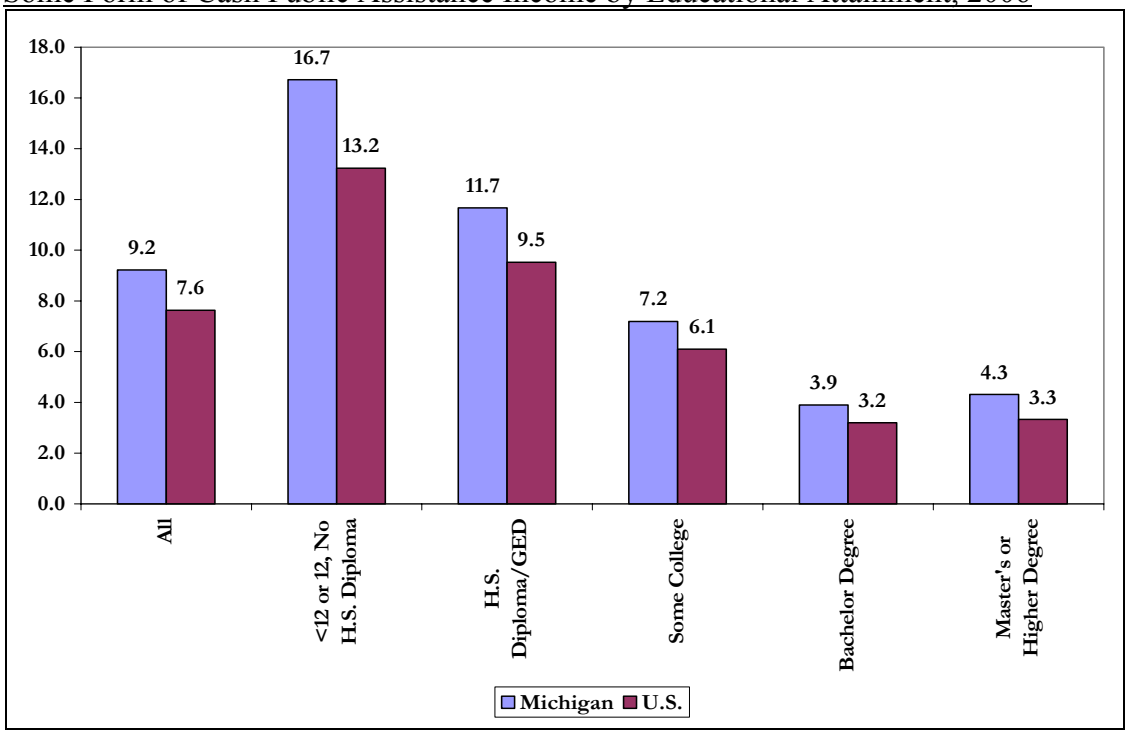
The likelihood that an adult in Michigan received some type of cash public assistance income in 2005-2006 varied systematically by their years of completed schooling. In Michigan, approximately 17 of every 100 adults lacking a high school diploma or a GED certificate were recipients of some type of cash public assistance income versus 12 percent of high school graduates, slightly more than 7 percent of those adults with one to three years of college, and only 4 percent of adults with a bachelor's or higher degree (Chart 42). High school dropouts in Michigan were four times as likely as their peers with a Bachelor's or higher degree to receive cash public assistance income. Very similar patterns prevailed in the U.S. where 13 of every 100 adults without a high school diploma or GED were dependent on some form of cash public assistance income versus only 3 percent of similar-aged adults with a Bachelor's or higher

[85] Individual retirees are not allowed to collect any Social Security retirement income until they are at least 62 years of age although survivors of deceased Social Security contributors are allowed to collect at earlier ages. The bulk of the Social Security income reported by these 16-60 year olds in our analysis should be disability income rather than retirement income.

[86] We included only three types of public assistance income in our analysis: (i) Supplemental Security Income (SSI), (ii) Temporary Assistance to Needy families (TANF) and other cash public assistance income, and (iii) Social security income. However, there are two other types of income in ACS- retirement income and "all other" income. According to the U.S. Census Bureau, retirement income includes retirement pensions and survivor benefits from a former employer, labor unions, or federal, state or local government, and the U.S. military; disability income from companies or unions, federal, state, or local government, and annuities; periodic receipts from annuities and insurance, and regular income from IRA and Keogh plans. The "all other" category , according to the Census Bureau, includes unemployment compensation, Veteran's Administration (VA) payments, alimony and child support, contributions periodically received from people not living in the household, military family allotments, and other kinds of periodic income other than earnings.

academic degree. It should be noted, however, that adults without a high school diploma in Michigan were more dependent than their U.S. counterparts on some form of cash public assistance income to support themselves (17% vs. 13%), indicating more severe structural labor market problems among dropouts in the state.

Chart 42:
Percent of the 16-60 Year Old Population in Michigan and the U.S. Who Were Dependent on Some Form of Cash Public Assistance Income by Educational Attainment, 2006



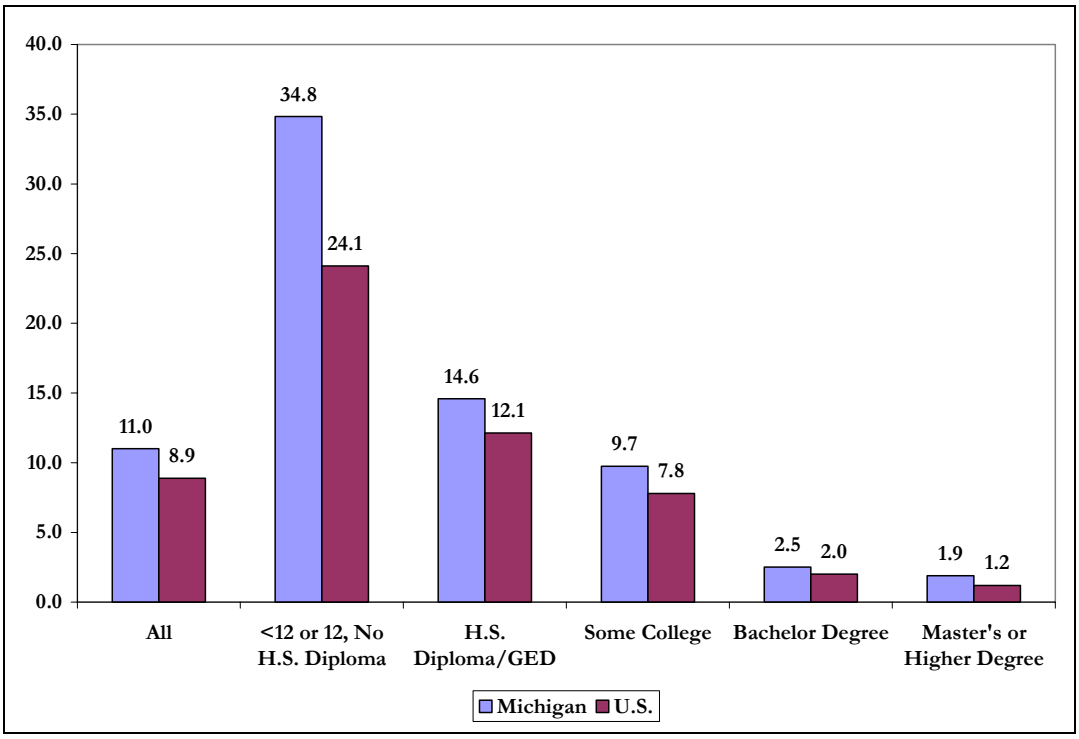
Source: 2006 American Community Surveys, public use files, tabulations by authors.

Receipt of Food Stamp Benefits Among Michigan and U.S. Adults by Level of Educational Attainment in 2006

The 2006 American Community Survey (ACS) questionnaire also asked households whether they received any food stamp benefits during 2006. Chart 43 reveals the percent of 16-64 year old householders in Michigan and the U.S. who received food stamp benefits during 2006 by their educational attainment level. A relatively high share of Michigan households received food stamp benefits compared to the nation (11% versus 9%). High school dropouts were the most likely to collect such benefits in Michigan. More than one-third of Michigan households headed by a person without a high school diploma/GED received food stamp benefits during 2006 while only a quarter of households in this educational group received food stamps

across the nation. The shares of households collecting food stamp benefits declined steadily and sharply at the higher end of the educational attainment distributions in both Michigan and the U.S. In Michigan, slightly more than 14 percent of households headed by high school graduates obtained food stamp benefits versus only 9.7% of those with some college, only 2.5% of those with a Bachelor's degree, and under 2 percent of those with a Master's or a higher degree. High school dropouts in Michigan were 14 times more likely to collect food stamp benefits than their counterparts with a bachelor's degree and 18 times more likely to do so than someone with a Master's or higher degree.

Chart 43:
Percent of 16-64 Year Old Householders Who Received Food Stamps During 2006 by Level of Educational Attainment in Michigan and the U.S



Source: 2006 American Community Surveys, public use files, tabulations by authors.

The Fiscal Consequences of Michigan Adults Completing Additional Years of Schooling

The impacts of increased formal educational attainment on improving a wide array of labor market, civic, health, and social outcomes for Michigan adults in recent decades have been well documented in earlier sections of this report. Better educated adults fared better than their peers on a wide array of labor market outcomes, including employment rates, access to more highly skilled and highly paid occupations, annual earnings, lifetime earnings, and annual incomes. Due to their higher annual incomes and higher marriage rates, Michigan adults with more schooling were less likely to be poor/near poor or low income, and they were less dependent on cash and in-kind transfers from the government to support themselves and their families.

The benefits of higher schooling accrue to society as a whole as well as to the individuals themselves.[87] Among the economic benefits of increased schooling to society as a whole are the higher levels of taxes paid annually to federal, state, and local governments in the form of higher federal and state income taxes, Social Security payroll taxes, federal government retirement contribution, state sales taxes, and local property taxes and the reduced dependence of better educated and more literate adults on a wide array of both cash and in-kind transfers from national and state governments to support themselves and their families.[88]

This section of the research monograph will provide detailed estimates of the fiscal contributions of Michigan adults to federal, state, and local governments. We will provide

[87] An analysis of the economic, social, and health spillover benefits of higher levels of schooling and literacy can be found in the following publications:
(i) Jere Behrman and Nevzer Stacey, (Editors), The Social Benefits of Education, University Michigan Press, Ann Arbor, 1997; (ii) George Psacharoupoulos and Harry Patrinos, Returns to Investments in Education: A Further Update, World Bank, Policy Research Working Paper, 2002; (iii) Gordon Berlin and Andrew Sum, Toward A More Perfect Union: Basic Skills, Poor Families and Our Economic Future, Ford Foundation, New York, 1988.

[88] See: (i) Andrew Sum, Ishwar Khatiwada, Joseph McLaughlin, et. al., An Assessment of the Labor Market, Income, Health, Social, Civic and Fiscal Consequences of Dropping Out of High School: Findings for Massachusetts Adults in the 21st Century, Prepared for Boston Youth Transition Funders Group, Boston, Massachusetts, January 2007; (ii) Ishwar Khatiwada, Joseph McLaughlin, Andrew Sum, The Fiscal Economic Consequences of Dropping Out of High School: Estimates of the Tax Payments and Transfers Received by Massachusetts Adults in Selected Educational Subgroups, Prepared for Boston Youth Transition Funders Group, Boston, Massachusetts, February 2007; (iii) Andrew Sum, Ishwar Khatiwada, Joseph McLaughlin, et. al, An Assessment of the Labor Market, Income, Health, Social, and Fiscal Consequences of Dropping Out of High School: Findings for Illinois Adults in the 21st Century, Prepared for the Alternative School Network, Chicago, October 2007;)iv) Andrew Sum, Ishwar Khatiwada, and Joseph McLaughlin, The Net Fiscal Contributions of U.S. Adults (16-64 Years Old) by Level of Educational Attainment: Implications for the Nation's Adult Basic Education System, National Commission on Adult Literacy, New York, 2007.

estimates for 2004-2005 of the annual tax payments, annual cash and in-kind transfers (e.g., food stamps, Medicaid expenditures, energy assistance, rental housing subsidies), and the institutionalization costs, especially incarceration costs, of Michigan and U.S. adults by their educational attainment. The mean net annual fiscal contributions (taxes – transfers – institutionalization costs) of adults will be presented and analyzed for all 16-64 year old adults in five educational attainment categories.[89] We will compare the mean sizes of these fiscal contributions across these five educational groups and calculate the lifetime net fiscal contribution of these each of these educational groups.

Data Sources and Calculations Underlying the Estimates of the Net Fiscal Contribution of Michigan and U.S. Adults

The estimates of net fiscal contributions of Michigan and U.S. adults in selected educational subgroups in this section of the report are based on a number of different data sources and a massive series of data calculations by the U.S. Census Bureau and the Center for Labor Market Studies of Northeastern University. The primary source of data for most of the annual tax and cash/in-kind transfer data is the Annual Social and Economic Supplement to the March Current Population Survey.[90] During March of each calendar year, approximately 57,000 households across the U.S. and 2,500 households in Michigan are interviewed as part of the March CPS survey. The Annual Social and Economic Supplement to the March CPS survey is used by the U.S. Census Bureau to collect information from sample respondents 15 and older on their work experience, annual earnings, annual incomes, and income sources during the previous calendar year. These data are used by the U.S. Census Bureau to provide annual estimates of the money incomes of U.S. households and families and the poverty status of persons and families across the nation. Information on the receipt of a wide array of cash and in-kind benefits from the state and federal government, including Temporary Assistance to Needy Families (TANF) benefits, SSI and Social Security disability payments, unemployment benefits, general relief, federal Earned Income Tax Credits (EITC), and in-kind government transfers, such as food

[89] The only group excluded from our analysis is 16-24 year olds who were enrolled in high school or college at the time of the March 2005 and March 2006 CPS surveys.

[90] For more details on the design of the March CPS supplement and the definitions for each of the variables for which data are collected. See: www.census.gov/CPS.

stamps, energy assistance, Medicaid/Medicare benefits, and rental subsidies, also are collected from either sample respondents or households.[91] (Table 34).

Given the self-reported information on annual earnings and incomes, sources of those incomes, the marital status of respondents, and the type of household in which the respondent lived (married couple family, single parent family, single individual), the U.S. Census Bureau calculates estimates of their Social Security payroll taxes, federal government retirement contributions, and their state and federal income tax liability.[92] For each sample individual ages 16-64 who was not enrolled in school at the time of the March survey, we have summed their estimated annual tax payments in the above four tax categories. These combined annual tax payments were estimated for adults in the aggregate and in each of the following five educational subgroups:

- Less than 12 or 12 years of school, no high school diploma or GED certificate.[93]
- High school diploma or GED, no completed years of post-secondary schooling
- One to three years of college, including Associate degree holders
- Bachelor degree holders, no advanced degree
- Master's or higher degree holders

Table 34:
A Listing of the Income, Payroll, Sales, and Property Tax Payments to the Federal Government and State and Local Governments

(A) Federal Government	(B) State and Local Governments
Federal income tax payments Federal retirement payroll deductions Social Security retirement payroll taxes	State income tax liability Property tax liability State Sales tax Payments

The U.S. Census Bureau also has used the March CPS supplement to collect data from respondents on their receipt of a wide array of cash income transfers from local, state, and federal governments, including unemployment insurance payments, Temporary Assistance to

[91] Data on food stamps, rental subsidies, and energy assistance are collected at the household level while data on unemployment insurance benefits, disability payments, TANF benefits, SSI disability, and Medicaid expenditures are collected at the individual level.
[92] For married couples, an assumption is made by the U.S. Census Bureau that the couple files a joint tax return in determining its federal income tax liability.
[93] High school students and college students under the age of 25 are excluded from the analysis. The monthly CPS survey collects data on the school enrollment status of persons 16-24 years of age.

Needy Families (TANF) benefits, Supplemental Security Income (SSI) payments for the aged and the disabled, Social Security Disability payments, general relief, and veteran's payments. The combined annual incomes from each of these cash income transfer programs was calculated for each respondent (Table 35). The March CPS questionnaire also collected information on respondents' receipt of a wide array of in-kind transfers from state and federal governments, including food stamps, federal Earned Income Tax Credits (EITC) Medicaid/Medicare health insurance benefits, energy assistance and rental subsidies.[94] The U.S. Census Bureau has imputed cash values for each of these in-kind benefits. They are primarily assigned to the household unit rather than to individual household members. We have assigned most of these in-kind transfers to the householder.[95] We then summed the cash values of each of these in-kind benefits and added them to the estimated value of cash income transfers for each household member.

Table 35:
A Listing of the Cash and Non-Cash Transfers Received by Individuals or Households

(A) Cash Transfers	(B) Non-Cash Transfers (In-Kind Benefits)
Unemployment benefits	Market value of food stamps
Worker's compensation	Market value of Medicare insurance
Social Security payments	Market value of Medicaid benefits
Supplemental Security Income for the disabled and aged	Family market value of housing subsidies
Public assistance income (TANF, general relief)	Family market value of school lunch subsidies
Veteran's payments	Energy assistance payments
Survivor's income benefits	
Other disability income	
Federal Earned Income Tax Credits	

The U.S. Census Bureau does not provide any estimates of annual state sales tax payments for persons interviewed during the March CPS survey. In our fiscal contributions analyses, we have estimated sales tax payments for individuals by using a combination of

[94] The federal Earned Income Tax Credit (EITC) is primarily a cash tax credit refunded to low earner households by the Internal Revenue Service. The federal EITC is treated as a cash transfer rather than a negative tax by the U.S. Census Bureau in its calculations of the taxes paid and transfers received by individuals. For a review of the design and operations of the federal EITC program, see: Saul Hoffman and Laurence S. Seidman, Helping Working Families: The Earned Income Tax Credit, W.E. Upjohn Institute for Employment Research, Kalamazoo, 2003.

[95] Medicaid/Medicare expenditures are assigned to an individual household member by the U.S. Census Bureau.

personal income data from the 2005 ACS survey and sales tax tables for states that are published annually by the U.S. Department of Treasury's Internal Revenue Service (IRS).[96] Federal taxpayers are allowed to claim state and local sales taxes paid when filing their federal income tax returns. Tax filers use published data from IRS tables to estimate their sales tax deductions based on their taxable income and the number of exemptions. We have used IRS data to generate estimates of state sales tax payments for each Michigan adult with a positive income in 2005. The allowable deductions for state sales taxes are based on the number of exemptions. In our analysis of Michigan sales taxes, we applied a single person exemption to each individual respondent 16-64 years old with a positive income. For each Michigan adult in our analysis, we assigned a state sales tax payment equal to the IRS sales tax deduction for a person with their annual income in 2005.

The U.S. Census Bureau also does not collect information on the annual property taxes paid by households that own their homes. Although property taxes are imputed in the March CPS supplement on earnings and incomes, due to small sample sizes and a high degree of sample variability, we did not use the March CPS supplement data on property tax payments. We have analyzed data from the 2005-2006 American Community Surveys (ACS) on home ownership rates of Michigan households and their annual property tax payments to compute their expected annual property tax payments.[97] The property tax payments are assigned to the householder in each Michigan household that owned the housing unit they occupied at the time of the 2006 ACS survey.

As noted earlier, our tax payment estimates for Michigan and U.S. adults during 2004 and 2005 include federal and state income taxes, social security payroll taxes including the Medicare tax, federal government retirement contributions, as well as state sales taxes and local property taxes. The U.S. Census Bureau imputes estimates of the federal and state income tax payments for each non-married individual and assigns these payments to their personal record. For married couple families, however, the U.S. Census Bureau assumes that they file a joint tax return. The Census Bureau's estimate of the federal and state income tax liability of these

[96] U.S. Department of Treasury, Internal Revenue Service, "State and Local General Sales Taxes", Publication 600, 2005, www.irs.gov.

[97] The expected values of these property tax payments are the product of the home ownership rate for a given group and the mean value of their property tax payments. Not all homeowners paid a property tax. Overall, 3.5 percent of the households across the U.S. did not pay any positive amount of property tax in 2005.

married couples is assigned entirely to the head of these married couple families.[98] A "zero value" is assigned to the federal and state income tax payments of the spouse. We have developed a straightforward methodology for computing the husband and wife's share of their joint federal and state income tax liability and calculated their respective, annual levels of federal and state income tax payments. A detailed description of this methodology is presented in Appendix B.

Social Security payroll taxes and federal government retirement contributions were estimated by the U.S. Census Bureau for each individual based on their annual earnings and the source of their annual earnings. Only the employee's contribution to the Social Security payroll tax is included in the official Census Bureau estimate. Covered employers also pay an equivalent amount of Social Security payroll taxes to the federal government. Findings of national labor market research on the incidence of the payroll tax on employers suggest that it is primarily ultimately shifted back to the employee in the form of lower wages.[99] Thus, we have multiplied the Social Security payroll tax of the individual by two to adjust for the shifting of the employer's Social Security tax contribution back onto the employee.

The Incidence of Annual Tax Payments (2004-2005) of Michigan and U.S. Adults by Educational Attainment

Information on six types of federal, state, and local taxes paid by adults (16-64) during 2004 and/or 2005 were available.[100] The likelihood that an adult would pay a given tax during any year is a function of their employment status, annual earnings, and other money incomes. Given the greater likelihood of employment and the higher earnings of more educated adults, one would expect the incidence of tax payments to rise with the level of schooling of these adults. Findings in Table 36 and Charts 44 and 45 provide strong empirical support for such an expectation.

[98] In a married couple family, the householder can be either the husband or the wife.
[99] For evidence, see: Daniel S. Hamermesh, Labor Demand, Princeton University Press, Princeton, 1993.
[100] The estimates of annual sales taxes and property taxes pertain to only calendar year 2005. The estimates of federal and state income taxes, Social Security payroll taxes, and federal government retirement contributions are two year simple averages for 2004 and 2005.

Table 36:
Percent of 16-64 Year Old Adults[1] in Michigan and the U.S. Who Paid Various Types of Federal, State, and Local Taxes During 2004-2005 by Educational Attainment and Type of Tax

Area	Type of Tax Paid	All	<12 or 12, No HS Diploma	HS Diploma/ GED	Some College	Bachelor's Degree	Master's or Higher Degree
Michigan	Federal Income Tax	66.0	45.4	59.4	68.6	77.2	82.2
	State Income Tax	73.9	54.1	68.4	76.8	83.7	87.1
	Social Security Payroll Tax	74.6	55.3	71.2	79.1	82.1	78.1
	Federal Government Retirement Contributions	3.3	0.1	2.2	3.1	4.2	10.7
	Local Property Taxes	69.0	46.7	64.4	69.0	78.9	83.9
United States	Federal Income Tax	65.5	43.9	61.1	68.6	76.3	80.8
	State Income Tax	60.4	44.7	57.9	62.0	67.7	71.7
	Social Security Payroll Tax	76.4	62.0	74.9	79.8	81.8	81.2
	Federal Government Retirement Contributions	3.1	0.7	2.1	2.9	4.4	7.7
	Local Property Taxes [2]	61.6	41.8	57.7	61.5	70.6	77.2

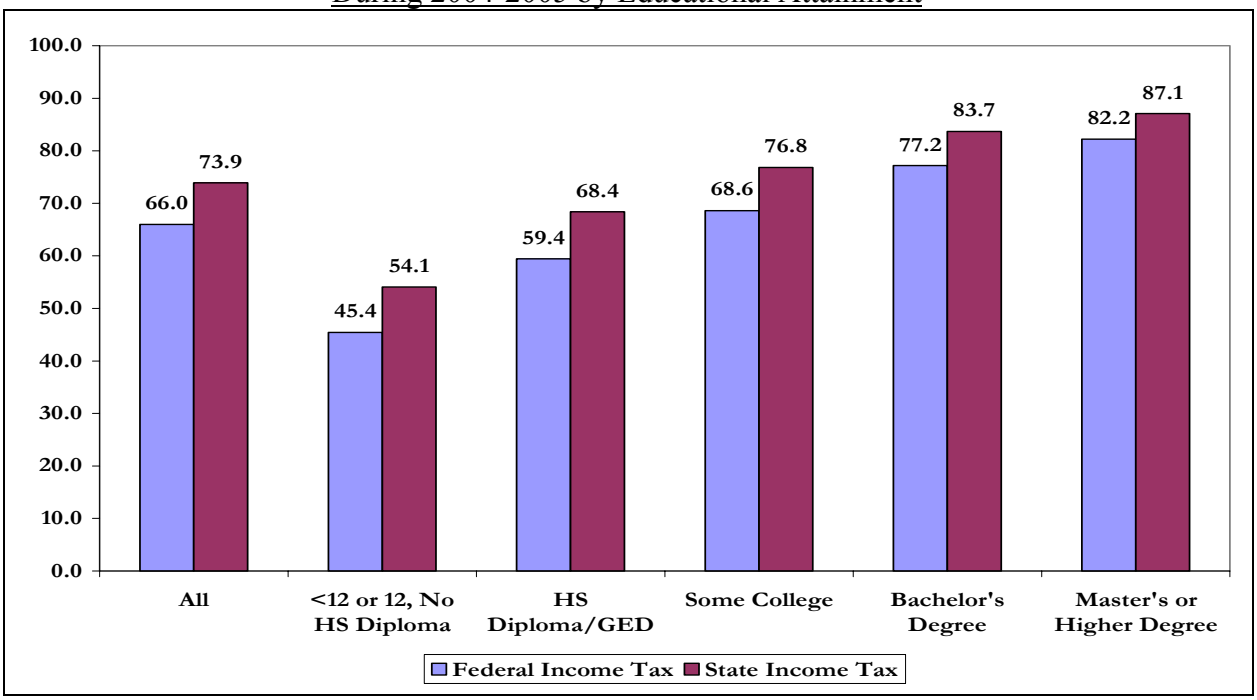
Notes: (1) These persons 16-24 who were enrolled in school in March 2005 and March 2006 were excluded from the analysis of tax payments.

(2) Property taxes were assigned to the householder of each household that paid property taxes. The percent estimates in this row pertain to the percent of householders who paid some property tax on housing units that they owned and occupied during 2005.

During calendar year 2004-2005, nearly 66 of every 100 adults in Michigan and the U.S. paid some federal income tax (Table 36 and Chart 44). In both Michigan and the U.S., the fraction of adults paying some federal income tax rose steadily and strongly with their level of schooling. In Michigan, only 45 percent of adults lacking a high school diploma/GED paid any federal income tax during 2004-2005 versus 59 percent of high school graduates, 77 percent of adults with a Bachelor's degree and slightly more than 82 percent of those with a Master's or higher degree. Very similar patterns prevailed for the incidence of state income tax payments in both Michigan and the U.S. Overall, just under 74 percent of 16-64 year old adults in Michigan paid some state income tax compared to only 60 percent for the nation.[101] In Michigan, the fraction of adults doing so ranged from a low of 54 percent among adults lacking a regular high school diploma/GED to a high of 87 percent among adults with a Master's or higher degree (Chart 44).

[101] The lower state income payment share in the U.S. is due to the fact that nine states (Alaska, Florida, Nevada, New Hampshire, South Dakota, Tennessee, Texas, Washington, and Wyoming) do not have a personal income tax.

Chart 44:
Percent of 16-64 Year Old Michigan Adults Who Paid Any Federal or State Income Taxes During 2004-2005 by Educational Attainment

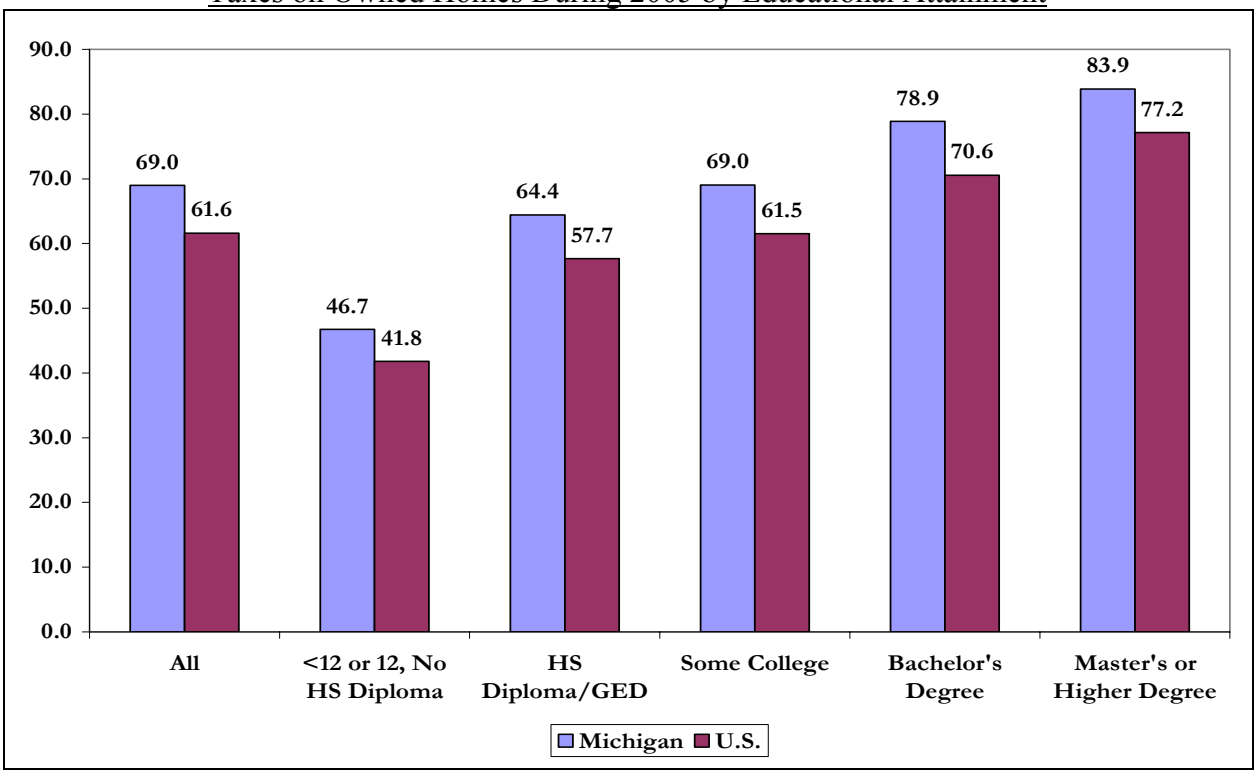


Given the fact that Social Security payroll taxes start being paid from the first dollar of earnings in jobs subject to the FICA tax, the highest overall incidence of tax payments is for the Social Security payroll tax. In both Michigan and the U.S., between 75 and 76 of every 100 adults paid some Social Security payroll taxes during 2004-2005. In Michigan, the percent of adults paying such taxes ranged from a low of 55 percent among those lacking a high school diploma or a GED certificate to highs of 84 percent among adults completing some post-secondary schooling. Only 3 percent of adults in Michigan and the U.S. paid retirement contributions to the federal government. The fraction of adults paying such taxes increased steadily with their years of formal schooling. In Michigan, adults with a Master's or higher degree were almost eleven times more likely to contribute to the federal governments' retirement plan than their peers lacking high school diplomas. This finding reflects the much higher share of college educated adults who work for the federal government.

Our estimates of the incidence of property tax payments are confined to those adults who were classified by the U.S. Census Bureau as the head of their households; i.e., the "householder" in Census jargon. As noted earlier, better educated householders are more likely

to own their housing units and they are somewhat more likely to report paying some positive property taxes on their units.[102] Sixty-nine percent of adults householders (16-64 years old) in Michigan reported to have paid some property taxes on the housing units they occupied in 2005 versus only 62 percent for the entire nation. The share of householders doing so rose steadily with their level of educational attainment, ranging from a low of 47 percent among those lacking a high school diploma or GED to 64 percent among high school graduates and to a high of just under 84 percent for those with a Master's or more advanced degree (Chart 45). In every educational category, a higher share of householders in Michigan paid property taxes than their counterparts across the nation.

Chart 45:
Percent of 16-64 Year Old Householders in Michigan and the U.S. Who Paid Property Taxes on Owned Homes During 2005 by Educational Attainment



[102] In the U.S., only 91 percent of those householders without a diploma who owned their home reported a property tax payment in 2005 versus nearly 99 percent of those with a Master's or higher degree.

Mean Combined Annual Tax Payments of Michigan and U.S. Adults (16-64) by Their Educational Attainment

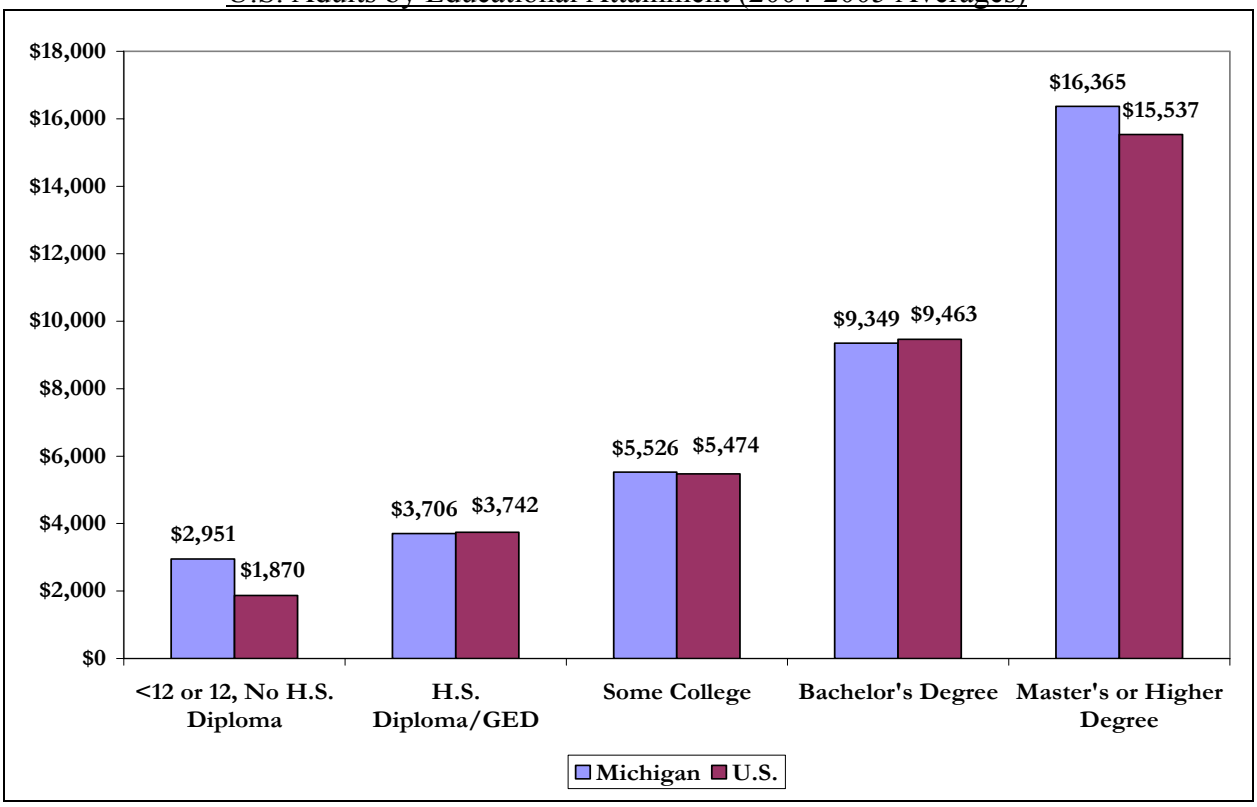
Not only are better educated adults more likely to pay each of the six types of federal, state, and local taxes, but they also pay a substantially higher mean amount of such taxes each year (Table 37). For each type of tax, mean annual payments rose with the level of education. The differences were particularly large for federal and state income taxes where adults with a Bachelor's or higher degree paid three to five times as much in income taxes annually as their counterparts who lacked a high school diploma/GED certificate. Mean annual state and federal income taxes combined were equal to $2,951 for high school dropouts. (Chart 46).

Table 37:
Estimates of Mean Annual Tax Payments of Michigan Adults 16-64 Years Old[(1)] by Type of Tax Paid and Educational Attainment, Michigan (2004-2005, Averages in Dollars)

Area	Type of Tax	All	<12 or 12, No H.S. Diploma	HS Graduate or GED	1-3 Years of College	Bachelor Degree	Master's or Higher Degree
Michigan	Federal Income Tax Payments	4,921	2,292	2,800	4,259	7,502	13,495
	State Income Tax Payments	1,323	659	906	1,267	1,847	2,870
	Social Security Payroll Taxes	4,508	1,905	3,332	4,453	6,469	8,207
	Federal Government Retirement Contributions	106	0	45	90	154	445
	Sales Taxes	398	271	331	394	497	633
	Expected Property Tax Payments	1,849	1,321	1,436	1,756	2,634	3,325
	Total Tax Payments	**13,105**	**6,448**	**8,850**	**12,219**	**19,103**	**28,975**
United States	Federal Income Tax Payments	4,780	1,419	2,849	4,249	7,472	12,396
	State Income Tax Payments	1,336	451	893	1,225	1,991	3,141
	Social Security Payroll Taxes	4,597	2,099	3,549	4,514	6,388	8,438
	Federal Government Retirement Contributions	99	11	49	85	151	336
	Sales Taxes	382	262	318	379	482	602
	Expected Property Tax Payments	1,707	1,103	1,278	1,620	2,636	3,141
	Total Tax Payments	**12,901**	**5,345**	**8,936**	**12,072**	**19,120**	**28,053**

Source: (i) March 2005 and March 2006 Annual Social and Economic (ASEC) Supplement, Current Population Survey (CPS) conducted by the U.S. Census Bureau for the U.S. Department of Labor, public use files, tabulations by authors; (ii) 2006 American Community Survey (ACS), U.S. Census Bureau, public use files, tabulations by authors; (iii) U.S. Bureau of Justice Statistics, Special Report, U.S. Department of Justice; (iv) Sales tax exemption tables for 2005 produced by the Internal Revenue Service (IRS), tabulations by the authors. Note: [(1)] Those 16-24 year old adults who were enrolled in school at the time of the March 2005 and March 2006 CPS surveys were excluded from the analysis.

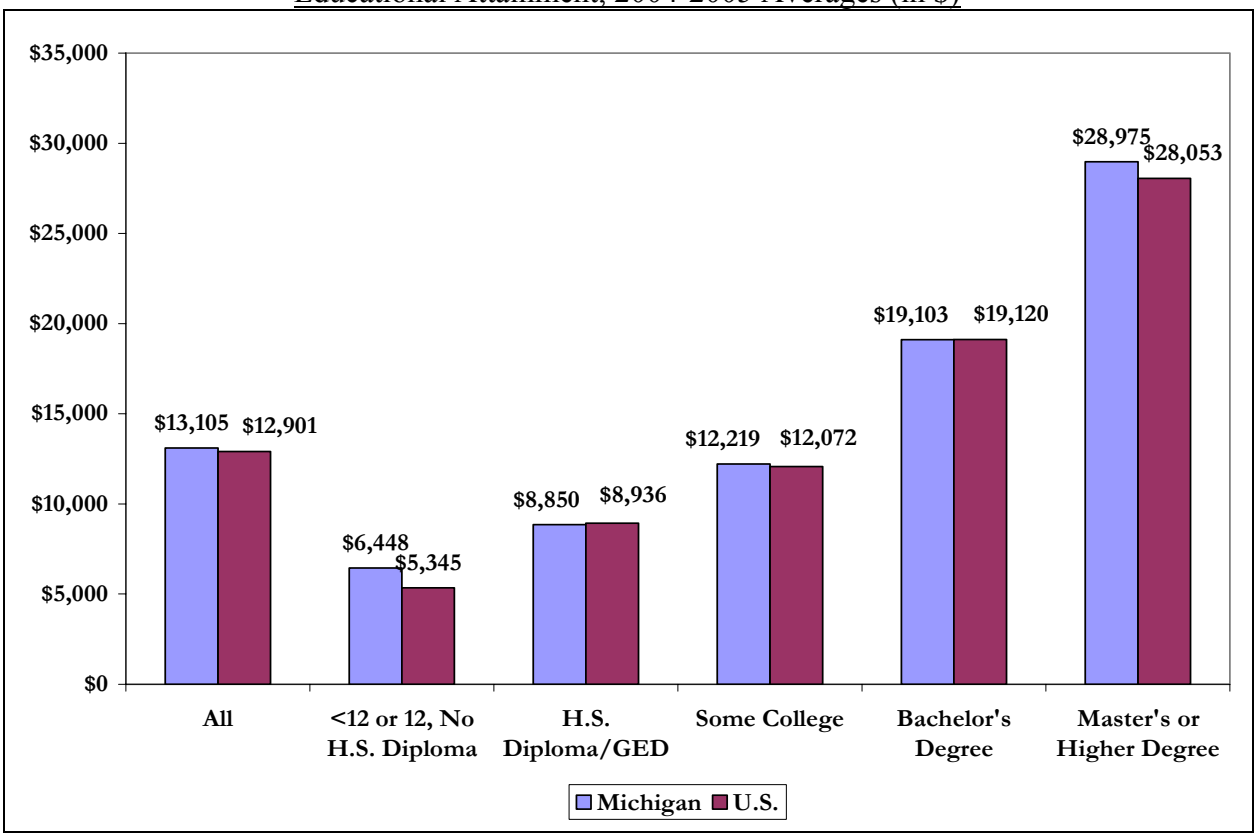
Chart 46:
Mean Combined Annual Federal and State Income Taxes Paid by 16-64 Year Old Michigan and U.S. Adults by Educational Attainment (2004-2005 Averages)



During the 2004-2005 period, the mean annual taxes paid by 16-64 year old Michigan adults in the six tax categories combined was $13,105, slightly higher than that for the entire nation (Chart 47). In both Michigan and the U.S., the mean annual amount of these tax payments varied quite widely across the five educational subgroups of adults (Table 37 and Chart 47). In Michigan, the mean annual values of these tax payments ranged from a low of $6,448 among those adults lacking a high school diploma/GED, to $8,850 among high school graduates/GED holders with no completed years of post-secondary schooling, to $19,103 for bachelor degree recipients, and to a high of $28,975 for those adults with a Master's or higher degree (Chart 47). In Michigan, high school graduates paid 37% more than high school dropouts in annual taxes, bachelor degree holders paid 158% more than high school graduates, and those with Master's and higher degrees paid nearly 52% more annually in taxes than bachelor degree holders. The mean combined annual tax payments of non-elderly Michigan adults with a Master's or higher

degree were nearly 5 times higher than those of their peers who lacked a high school diploma/GED certificate.[103]

Chart 47:
Mean Annual Tax Payments of 16-64 Year Old Adults in Michigan and the U.S. by Educational Attainment, 2004-2005 Averages (in $)



[103] Unfortunately, the March CPS files of the U.S. Census Bureau do not distinguish between those adults with a regular high school diploma and those with a GED certificate.

The Receipt of Various Cash and In-Kind Government Transfers by Michigan and U.S. Adults by Educational Attainment

Eligibility for most cash and in-kind transfer programs funded by the national and state governments is dependent at least in part on the income of the household or the individual. The March CPS survey collects information from responding households and individual household members on the receipt of such benefits. Table 38 presents findings on the estimated percent of Michigan's 16-64 year old adults who received various types of cash and in-kind benefits in 2004 and 2005. These in-kind transfer payments include Medicare/Medicaid health insurance benefits, food stamps, rental subsidies in both public and private housing, and energy assistance.[104] As revealed earlier, the employment rates, mean annual earnings, and annual incomes of adults rise sharply with their years of completed schooling. For this reason, the percent of Michigan's 16-64 year olds who obtained various cash and non-cash income transfers varied fairly widely by their level of educational attainment in 2004 and 2005.

[104] With the exception of Medicaid/Medicare health care benefits, the U.S. Census Bureau imputes values of in-kind transfers to the household rather than to individual household members. We have assigned the imputed monetary values of these in-kind transfers to the householder. Estimates of the incidence of receipt of these in-kind transfers refer only to householders.

Table 38:
Percent of 16-64 Year Old Adults in Michigan and the U.S. Who Received Various Cash and In-Kind Transfers During 2004-2005
(Excluding 16-24 Year Olds Enrolled in School)

Area	Type of Cash or In-Kind Transfer	All	<12 or 12, No HS Diploma	HS Diploma/ GED	Some College	Bachelor's Degree	Master's or Higher Degree
Michigan	Unemployment Compensation	5.6	7.9	7.3	6.2	2.3	1.5
	Workers Compensation	0.9	0.6	1.4	1.0	0.5	0.3
	Social Security Income[(1)]	6.3	10.8	7.7	5.8	3.1	3.8
	Public Assistance Income	1.5	5.0	1.8	1.4	0.2	0.0
	Veterans Payments	1.0	0.1	0.8	1.9	0.4	0.9
	Survivors Income	0.6	1.6	0.7	0.5	0.2	0.8
	Disability Income	0.9	1.8	0.7	0.8	0.6	1.0
	Earned Income Tax Credit	9.1	14.2	11.2	9.8	4.3	2.9
	Supplemental Security Income	2.5	11.1	2.9	1.5	0.5	0.0
	Food Stamp[(2)]	8.8	25.6	11.8	7.2	2.7	0.7
	Energy Assistance[(2)]	1.3	1.6	2.9	0.8	0.0	0.0
	Housing Subsidy[(2)]	2.9	8.1	2.8	3.6	0.4	1.6
	Medicare	3.7	9.8	4.2	2.9	2.2	1.5
	Medicaid	8.9	25.7	11.5	6.9	2.4	0.6
United States	Unemployment Compensation	3.4	3.2	4.1	4.0	2.4	1.5
	Workers Compensation	0.9	1.1	1.1	1.0	0.5	0.4
	Social Security Income[(1)]	5.5	9.4	6.9	5.0	2.7	2.6
	Public Assistance Income	1.0	2.7	1.1	0.9	0.2	0.1
	Veterans Payments	0.8	0.4	0.8	1.3	0.7	0.8
	Survivors Income	0.5	0.4	0.5	0.6	0.5	0.7
	Disability Income	0.9	1.3	1.0	1.0	0.5	0.6
	Earned Income Tax Credit	9.8	18.3	11.5	9.9	4.5	2.4
	Supplemental Security Income	2.3	6.4	2.8	1.4	0.5	0.4
	Food Stamp[(2)]	7.4	21.4	9.0	6.1	1.2	0.7
	Energy Assistance[(2)]	2.0	4.7	2.7	1.8	0.4	0.1
	Housing Subsidy[(2)]	3.5	9.4	4.2	3.0	0.8	0.4
	Medicare	3.4	6.9	4.1	2.8	1.5	1.2
	Medicaid	8.1	19.8	9.6	6.4	2.5	1.8

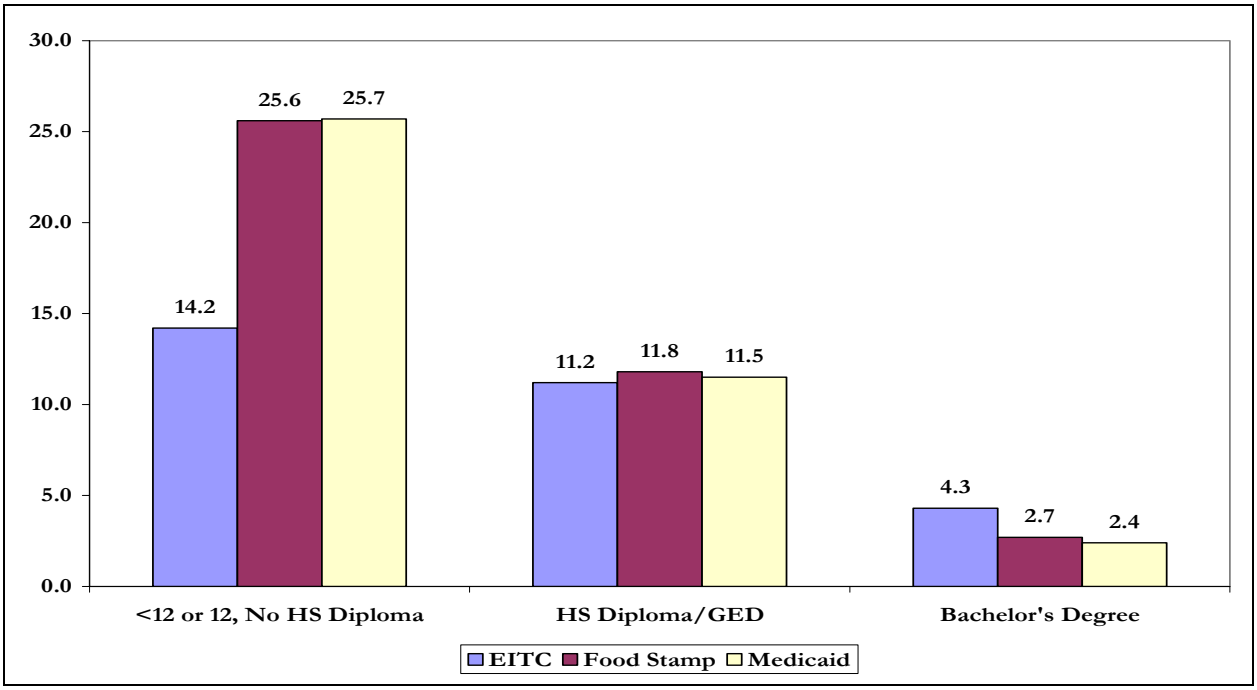
Source: (i) 2005 and 2006 Annual Social and Economic (ASEC) Supplements, Current Population Survey (CPS), Conducted by the U.S. Census Bureau for U.S. Bureau of Labor Statistics, public use files, tabulations by authors.
Note: [(1)] Some respondents receiving Social Security survivor benefits and Social Security Disability Income (SSDI) may have mistakenly reported income as Social Security Retirement. [(2)] Estimates are for heads of households only.

The least educated adults (those without high school diplomas) were much more likely than their better educated peers to rely on most cash and non-cash transfer incomes from federal,

state, and local governments for their economic subsistence in both Michigan and across the entire U.S. For example, in Michigan, slightly under 11 percent of 16-64 year olds without a high school diploma reported that they had collected some form of Social Security payments while only 8 percent of those with a high school diploma/GED, 6 percent of those with some college, and under 3 percent of those with a Bachelor's or higher degree obtained Social Security payments from the federal government.[105] (Table 38). Adult high school dropouts also were far more likely than their more educated peers to receive EITC cash benefits, Food Stamp benefits, and Medicaid coverage. (Chart 48). Approximately 26% of adults without a high school diploma/GED were dependent upon Medicaid for their health insurance coverage while only 2 to 3 percent of those adults with four-year college degrees were dependent on Medicaid for their health insurance. One-fourth of those household heads without a high school diploma or GED were reliant on food stamps versus only 3 percent of four year college graduates. This pattern of in-kind benefits receipt across the five educational attainment groups was very similar to that of the nation.

[105] Adults are not allowed to collect Social Security retirement benefits until they reach age 62. Some of the respondents citing the receipt of Social Security benefits may have been receiving Social Security Survivor benefits or Social Security disability benefits.

Chart 48:
Percent of 16-64 Year Old Michigan Adults Receiving EITC Payments, Food Stamp Benefits, or Medicaid Benefits by Educational Attainment, 2005



The estimated mean annual amount of the cash and in-kind transfers received by 16-64 year old Michigan and U.S. adults in each of our five educational groups over the 2004-2005 period are displayed in Table 39. For the entire 16-64 year old Michigan population (excluding these 16-24 year olds who were enrolled in school at the time of the March CPS surveys), the mean combined annual amount of the cash and in-kind benefits was $3,385 of which $1,624 was in the form of cash transfers. The mean values of these annual transfers varied considerably across the five educational subgroups in Michigan, ranging from a high of $8,582 for those adults lacking a high school diploma/GED certificate, to slightly under $4,000 for high school graduates, to lows of around $1,300 for those adults with a Bachelor's degree. Adults without high school diplomas/GED certificates received a mean level of cash and in-kind transfers that was more than six to seven times as high as those of their peers with a four year degree during calendar years 2004 and 2005.

Table 39:
Estimates of the Mean Annual Value of the Cash and In-Kind Transfer Payments Received by U.S. Adults 16-64 Years Old by Educational Attainment
(2004-2005 Averages in Dollars)

Area	Cash/In-Kind Benefits	(A) Less than 12 or 12, no diploma/ GED	(B) High School Diploma/GED	(C) 13-15 Years	(D) BA Degree	(E) Master's or Higher Degree	(F) All
Michigan	Cash income benefits	$2,762	$1,824	$1,669	$834	$1,130	$1,624
	In-Kind benefits	$5,820	$2,161	$1,253	$489	$188	$1,761
	Total transfer payments	$8,582	$3,985	$2,922	$1,323	$1,318	$3,385
U.S.	Cash income benefits	$2,062	$1,596	$1,406	$857	$926	$1,407
	In-Kind benefits	$2,781	$1,371	$851	$338	$240	$1,121
	Total transfer payments	$4,843	$2,967	$2,257	$1,195	$1,166	$2,528

Sources: March 2005 and March 2006 CPS surveys, Annual Social and Economic Supplement public use files, tabulations by authors.

The Mean Annual Net Fiscal Contributions of 16-64 Year Old Michigan and U.S. Adults by Educational Attainment

The above findings on the mean annual tax payments of Michigan and U.S. adults and the mean annual values of their cash and in-kind transfers and their institutionalization costs can be combined to estimate their mean annual net fiscal contribution to federal, state, and local governments in 2004-2005. In Table 40 we display estimates of the mean annual tax payments of all 16-64 year old adults and those in each of the five educational attainment subgroups as well as their mean, annual cash and in-kind transfers and institutionalization costs. The difference between these two sets of tax payments and transfer/institutionalization cost receipts is equal to the value of their mean annual net fiscal contribution.

Table 40:
The Mean Annual Net Fiscal Contributions of 16-64 Year Old Michigan and U.S. Adults[1] by Educational Attainment, 2004-4005 Averages[2]
(in Dollars)

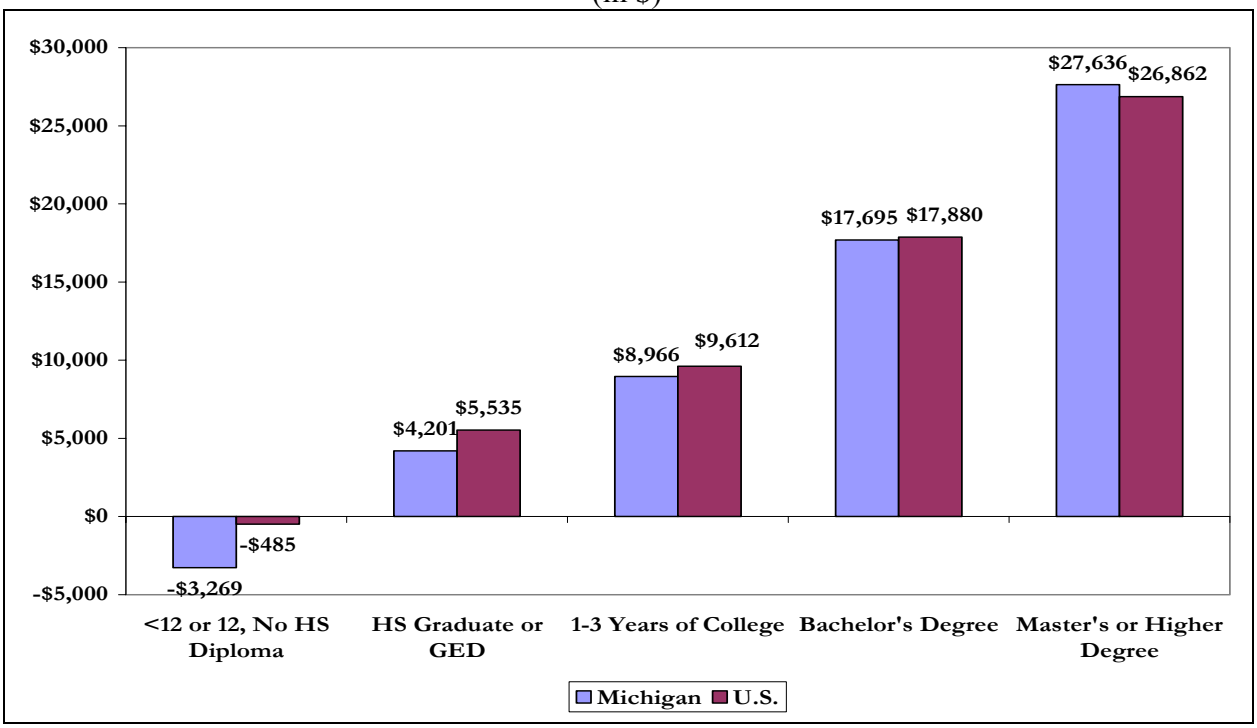
Area	Fiscal Variable	All	<12 or 12, No HS Diploma	HS Graduate or GED	1-3 Years of College	Bachelor's Degree	Master's or Higher
Michigan	Mean Annual Tax Payments	$13,105	$6,448	$8,850	$12,219	$19,103	$28,975
	Mean Annual Cash and In-Kind Transfers and Institutionalization Costs	$3,851	$9,717	$4,649	$3,253	$1,408	$1,339
	Annual Mean Net Fiscal Contribution	$9,254	-$3,269	$4,201	$8,966	$17,695	$27,636
U.S.	Mean Annual Tax Payments	$12,901	$5,345	$8,936	$12,072	$19,120	$28,053
	Mean Annual Cash and In-Kind Transfers and Institutionalization Costs	$2,875	$5,830	$3,401	$2,460	$1,240	$1,192
	Annual Mean Net Fiscal Contribution	$10,026	-$485	$5,535	$9,612	$17,880	$26,862

Notes: (1) Persons 16-24 years old who were enrolled in school at the time of the March 2005 and March 2006 CPS surveys were excluded from the fiscal impact analyses.
(2) Our estimates of property tax payments are based only on the findings of the 2005 American Community Surveys.

On average, over the 2004-2005 period, the mean annual tax payments of all 16-64 year old Michigan adults were $13,105 while the mean value of their cash and in-kind transfers and their institutionalization costs was equal to $3,851. This yielded a mean annual net fiscal contribution of $9,254. The mean annual values of these net fiscal contributions varied markedly by the educational attainment of adults across the state (Table 40 and Chart 49). Among those adults lacking a high school diploma/GED certificate, the mean net fiscal contribution was a large negative $3,269 versus only a negative $485 for the U.S., i.e, Michigan adults collected nearly $3,300 more in cash and in-kind transfers and imposed more in institutionalization costs than they paid in federal/state/and local taxes. Adults in each of the other four educational subgroups were characterized by positive net fiscal contributions. However, the mean annual values of these net positive fiscal contributions varied widely across these four educational subgroups, ranging from a low of $4,201 for high school graduates, to $8,966 for those with 1-3

years of post-secondary schooling, to $17,695 for BA holders, to a high of $27,636 for those adults with a Master's or higher degree (Chart 49). High school graduates with no post-secondary schooling contributed $7,478 more per year to the fiscal positions of federal, state, and local governments than their peers with no high school diploma/GED, and bachelor degree holders contributed $20,964 more per year than high school dropouts. Clearly, those Michigan adults who failed to graduate from high school impose substantial annual fiscal burdens on their fellow residents.

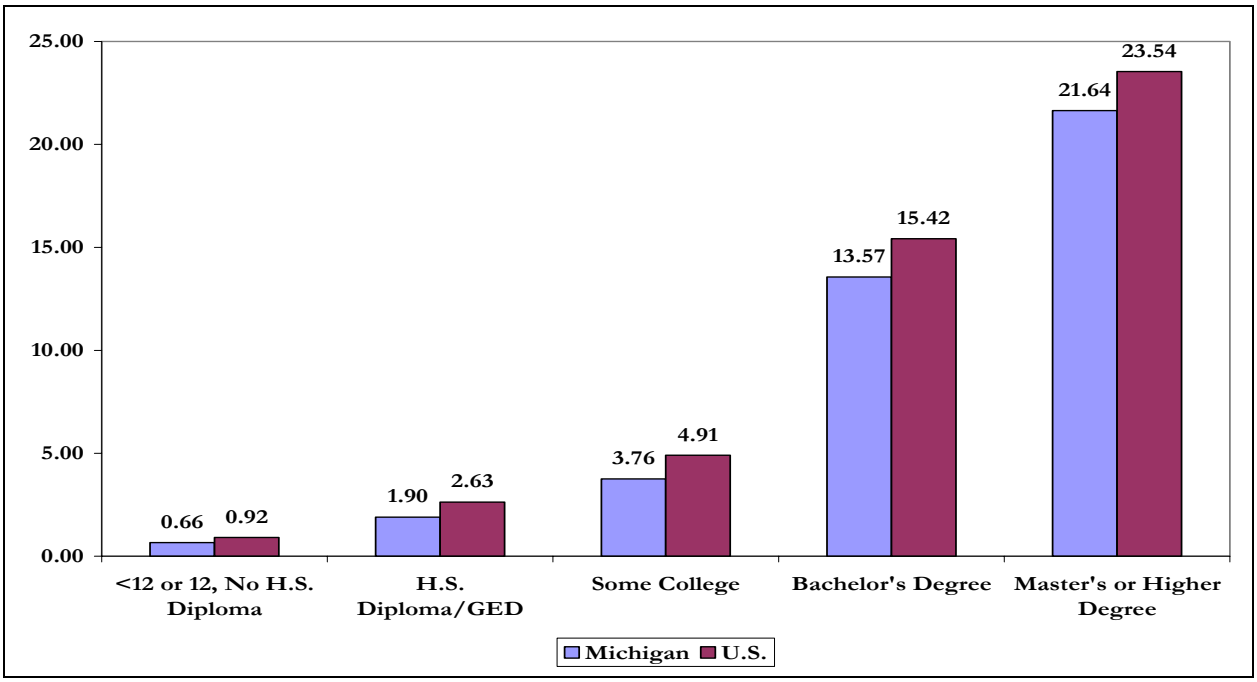
Chart 49:
The Mean Net Annual Fiscal Contributions of 16-64 Year Olds in Michigan and the U.S. by Educational Attainment, Annual Averages, 2004-2005
(in $)



It should be noted that the above estimates of the gaps between the net fiscal contributions of adults by level of schooling are likely to be quite conservative since they exclude the public costs of educating the children of these adults, probation/parole costs, the social costs of administering cash and in-kind transfer programs, state and local government expenditures on public housing, construction/maintenance, and their differential use of health care services not paid by health insurance plans. Another method for presenting the findings of the fiscal impact analysis involves the calculation of ratios of mean annual tax payments to mean

annual cash and in-kind transfers and institutionalization costs for each educational subgroup. In Chart 50, we display the values of these fiscal contribution ratios for Michigan and U.S. adults in each of the five educational subgroups. The values of these ratios rise continuously and substantially with their level of formal schooling. Among those Michigan adults without high school diplomas, the ratio was only .66,[106] but it then rose to 1.90 for high school graduates, to 3.76 for adults with 1-3 years of college, and to a high of 23.54 for adults with a Master's or more advanced academic degree. Members of the last group of adults were characterized by a ratio of taxes/transfers that was nearly 34 times higher than that of their peers who lacked a regular high school diploma or a GED certificate.

Chart 50:
The Ratios of the Mean Annual Tax Payments to the Combined Value of Cash and In-Kind Transfers and Institutionalization Costs of 16-64 Year Old Adults in Michigan and the U.S. by Educational Attainment

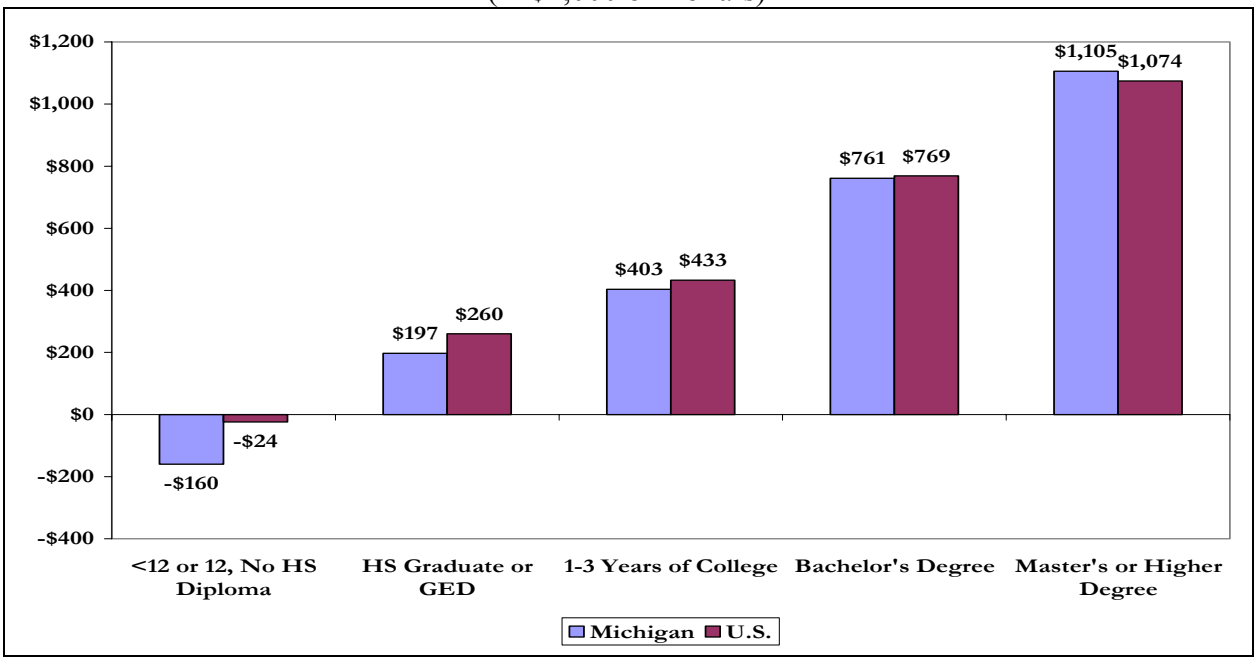


[106] A ratio of .64 implies that adults without high school diplomas paid only $.64 in taxes for every dollar that they received in cash/in-kind transfers and institutionalization costs.

The Mean Lifetime Net Fiscal Contributions of Michigan and U.S. Adults by Educational Attainment

The estimates of the mean annual net fiscal contributions of 16-64 year old adults in each educational attainment group can be converted into mean work-life estimates by multiplying them by the number of years over the work-life. For dropouts, we used a 49 year period, for high school graduates 47 years, for those with some college 45 years, for Bachelor degree holders 43 years, and 40 years for those with a Master's or higher degree.[107] Over this 49 year time period, given continuity of the results that prevailed in 2004-2005, the average high school dropout in Michigan would produce a substantial net fiscal burden of $160,000 while the average high school graduate would generate $197,000 more in taxes than he/she would impose in transfer costs and institutionalization costs (Chart 51). The lifetime, net fiscal contributions of adults rose steadily and strongly with their years of post-secondary schooling, increasing to $403,000 for those completing one to three years of post-secondary schooling, $761,000 for those obtaining a Bachelor's degree, and to a high of slightly over $1.1 million for those with a Master's or higher degree.

Chart 51:
Mean Lifetime Net Fiscal Contributions of U.S. Adults from Ages 16-64 by Educational Attainment, 2004-2005 Averages
(in $1,000 of Dollars)



[107] We assumed that an average high school graduate would receive a diploma at age 18, a bachelor degree holder at age 22, and a Master's degree at 24.

The estimated size of the gaps between the lifetime fiscal contributions of adults without a high school diploma and better educated Michigan adults increased steadily and substantially with their level of educational attainment (Table 41). Over the working-age lifetime, the gap between the net fiscal contributions of high school graduates and those adults without a high school diploma would be equal to $358,000 while the gap between high school graduates and bachelor degree holders would be $564,000. Those Michigan adults earning a Bachelor's degree would contribute $921,000 more over their working lifetime to the tax coffers of federal, state, and local governments than their peers without a high school diploma. Adult dropouts in the state of Michigan in recent years have been a major fiscal burden to the rest of society. Among the economic benefits of successful dropout prevention and recovery programs would be fiscal dividends to the rest of the tax paying public in the form of higher taxes, lower transfers, and reduced institutionalization costs.

Table 41:
Differences Between the Estimated Mean Lifetime Net Fiscal Contributions of Michigan Adults in Selected Educational Groups (Amount in 1,000)

Groups Being Compared	Michigan	U.S.
High school graduate vs. dropout	$358	$284
13-15 years vs. high school dropout	$564	$456
B.A. degree vs. high school graduate	$563	$509
B.A. degree vs. high school dropout	$921	$793

Summary of Key Research Findings and Their Implications for State Educational Policies to Reduce Future Dropout Rates in Michigan

This research report was primarily designed to identify and assess the labor market, income, social, housing, health, civic, and fiscal behaviors of Michigan adults in selected educational attainment groups both in recent years (2004-2006) and since the late 1970s. The frequently deteriorating economic and social outcomes for Michigan adults with no high school diplomas and those graduates with no post-secondary schooling, especially males were emphasized. A summary of the main research findings and their implications for future educational policy toward dropout prevention and recovery is presented below.

(i). A substantial majority of Michigan adults (18-64) in recent years report that they held a regular high school diploma. The share of dropouts (including GED holders with no post-secondary schooling) in its 18-64 year old population was 12.7%, ranking 23rd highest among the 50 states in 2006. Over 58% of the adults completed at least one year of post-secondary schooling and 24% were reported to have a Bachelor's or higher degree.

(ii) Estimates of recent high school graduation rates in Michigan vary considerably by source. Michigan's Department of Education provides published estimates of the state's high school graduation rate. These estimated graduation rates have been quite high, well above those produced by other methodologies. Over the 2002-2005 time period, the state's reported graduation rate has ranged between 84.8% and 88.7%. However, three alternative measures yield very different graduation rates in comparison to the reported graduation rate in Michigan. For example, the average graduation rate for the 2003-2004 and 2004-2005 school years was reported by the Michigan Department of Education to be 88.2%, which was approximately 17 percentage points higher than a 2-year average of the Cumulative Promotion Index (CPI) graduation rate for the Classes of 2001 and 2004 and 14 percentage points higher than that yielded by the diploma count methodology for the Classes of 2003 and 2004. CLMS staff have developed a comprehensive methodology to estimate the number of 16-24 year olds in the state of Michigan who dropped out of school without obtaining a regular high school diploma using findings from the ACS survey, from the annual awards of GED certificates produced by the American Council on Education, and estimates of dropouts living in the institution across the state. Using our methodology, the estimated number of 16-24 year old dropouts residing in

Michigan during 2005 was 186,672, representing 15% of all 16-24 year olds living in the state in 2005. The estimated dropout rate was only 9.4% for teenagers, but many of them were still enrolled in high school at the time of the ACS surveys. The dropout rate was just under 20% for 20-24 year olds. Thus, we estimate that approximately one in five young adults in Michigan in recent years would have left high school without obtaining a regular high school diploma.

(iii). The difficulties traditionally faced by Michigan's and the nation's out of school teens in securing employment, especially in major central cities and high poverty urban areas, have intensified since the end of the national and state labor market boom in early 2001. Those out-of-school youth that possess a high school diploma/GED certificate have found it substantially easier to find employment than their peers who left high school without obtaining a diploma or acquiring a GED. Only 30 percent of teenaged dropouts were successful in finding any type of work in Michigan during 2005 and 2006 while nearly 61% of similar-aged, high school graduates not enrolled in college were employed. In the city of Detroit, during 2005 and 2006, only 18 percent of teen dropouts were estimated to be employed, an employment rate that was less than half as high as that prevailing among their national counterparts during the same time period. Young high school dropouts in the state of Michigan find it very difficult to secure employment in the early school leaving years, thereby increasing their involvement in criminal activities, parenting, and other forms of at-risk social behavior.

(iv). The labor force participation rates, unemployment rates and employment/population ratios of Michigan adults (ages 18-64) in 2006 were strongly associated with their educational attainment. Labor force participation rates of adults (both overall and by gender) rose strongly with their level of schooling while unemployment rates declined steadily and steeply with their years of schooling completed. Adult dropouts in Michigan faced an unemployment rate of 21-22 percent in 2006, the equivalent of Depression-era unemployment problems.[108]

Only 43 of every 100 Michigan adult dropouts were employed on average during 2006 versus 63 of every 100 high school graduates, 73 percent of those with 1-3 years of college, and nearly 83 of every 100 adults holding a Master's or higher degree. Adult dropouts in Michigan

[108] In 1932 at the depth of the Great Depression, the nation's overall unemployment rate was estimated to be in the 24 to 25 percent range. For a review of economic and labor market conditions in the U.S. from 1929 through the end of the 1930s,
See: Robert S. McElvaine, The Great Depression: America, 1929-1941, Times Books, New York, 1984.

were much less likely to work than their better educated peers in the state and less likely to work than adult dropouts across the entire country (42 vs. 52 percent).

(v). Since the late 1970s, work rates of Michigan adults have declined for men (-6 percentage points) and increased sharply for women in the aggregate (+12 percentage points). Among males, the declines in work rates (any weeks of paid employment during the year) were most severe among high school dropouts closely followed by male high school graduates with no post-secondary schooling. In 2006, 35 percent of male dropouts and 18 of every 100 male high school graduates reported that they were jobless during the entire calendar year. Among women with no high school diploma/GED, a slight majority (51%) reported no paid employment at any time during the year.

(vi). Due to their lower employment rates, lower mean annual hours of work during the year, and lower hourly earnings when employed, adult dropouts in Michigan earned substantially less than their better-educated counterparts in 2005-2006. The mean annual earnings of Michigan adults with no high school diploma/GED certificate were only $12,900 versus $21,800 for high school graduates, $48,200 for Bachelor degree holders, and $72,800 for those adults with a Master's or higher degree.[109] Very similar mean annual earnings patterns by educational attainment prevailed among both men and women in the state.

(vii). The mean expected lifetime earnings of Michigan adults in 2006 also varied considerably across the five educational attainment subgroups. The mean, expected lifetime earnings of Michigan adults with no high school diploma as of 2006 were estimated to be only $614,000, more than one-third less than that of high school graduates ($966,000), less than one-third as high as that of Bachelor degree holders, and only one-fifth as high as that of Master's or higher degree holders. Since 1980, the mean lifetime earnings of Michigan males without Bachelor degrees have declined considerably. Male high school dropouts saw their mean lifetime earnings decline by close to 50 percent between 1979 and 2006 while the expected lifetime earnings of male high school graduates fell by 40 percent, placing substantial downward pressures on their marriage rates

(viii). Mean expected years over the working lifetime with income inadequacy problems in Michigan varied considerably across educational subgroups. As of 2006, high school dropouts

[109] These estimates of mean annual earnings include adults with no reported employment during the year.

could be expected to spend twice as many years as high school graduates with an income that would classify them as poor/near poor (15 vs. 8 years) and fifteen times as many years as those adults with a Master's or higher degree (15 vs. 1). Over the past two decades, there has been a substantive increase in the most severe income inadequacy problems among Michigan adults who completed 14 or fewer years of school, with high school dropouts experiencing the largest increase in mean expected years of being poor/near poor.

The mean expected years of being in a low income status also ranged widely across Michigan adults in 2006, varying from a low of 3 years among the state's best educated adults to highs of 14 years among high school graduates and 23 years among adults lacking high school diplomas and GED's. Again, since 1980, the expected number of years in a low income status over the 18-64 age interval rose strongly among all educational groups with less than a Bachelor's degree, with the largest increases taking place among high school dropouts and high school graduates with no post-secondary schooling.

(ix). The decline in marriage rates in Michigan over the past few decades has been quite variable among adults with different levels of schooling. In Michigan, between 1980 and 2006, marriage rates either held steady or declined very slightly for both men and women with a four year or higher college degree. In contrast, marriage rates have deteriorated substantially over this 26 year period for persons without a high school diploma or any substantial post-secondary schooling. Despite the steep drop in marriage rates among less educated women, there has not been an equivalent decline in their childbearing rates. As a consequence, a high and rising share of births to female dropouts in Michigan and the U.S. have been taking place out of wedlock, placing their children at high risk of being raised in a poor or low income environment.

(x). Given the limited annual earnings of single mothers without a high school diploma and the frequent absence of second adult earners in their families, a very high share of less educated single parent families in Michigan and in the U.S. were either poor or near poor in 2006. The economic and social well-being of families with children is strongly linked to the educational attainment of the heads of those families and their marital status. Nearly two-thirds of single parent families headed by a person lacking a high school diploma/GED were poor or near poor in 2005-2006. Having a high school diploma also did not shield many single parent families from poverty/near poverty problems. Approximately 47 percent of single parent families

headed by an individual with a high school diploma or GED were poor or near poor versus only 15% of such families headed by an individual with a Bachelor's or higher degree. The steep decline in marriage rates among men and women, especially those with less than a high school diploma, have severe negative social and economic repercussions for their children. National and state research findings have consistently revealed that a child raised in a low income, single parent family is more likely to have serious cognitive problems, drop out of high school, be out-of-school and out-of-work in their 20's, engage in criminal activity, be teen parents, and more likely to become incarcerated.

(xi). The educational attainment of Michigan and U.S. adults was found to be strongly associated with their incidence of disability problems and the labor force attachment of the disabled adult population was closely linked to their educational attainment. As a result, there is a high degree of overlap in self-reported disability status, poverty status, and level of educational attainment among non-elderly adults in Michigan and across the entire nation. A relatively high share of Michigan and U.S. adults without a high school diploma reported some type of disability problem. In Michigan, adults without a high school diploma were 4 times more likely to report a disability problem than their peers with a Bachelor's or high degree. Employment rates of disabled adults without a high school diploma also were very low in Michigan. Employment rates of the disabled rose steadily and strongly with their level of educational attainment. Disabled adults in Michigan with a Bachelor's or a higher degree were 2.6 to 3 times more likely to be employed than their counterparts without a high school diploma.

(xii). Due to their low work rates and low earnings levels, these less educated disabled adults also experienced a much higher incidence of poverty/near poverty problems. Forty-four percent of disabled Michigan adults lacking a high school diploma were poor/near poor versus only 12 to 14 percent of adults with a four year college degree. The high joblessness and poverty problems among Michigan's disabled population, especially among those adults with no high school diploma, would be expected to increase their dependence on some form of cash public assistance income to support themselves and their families, particularly when they would have been expected to the primary breadwinner for the household. Nearly 4 out of every 10 disabled persons between the ages of 16-60 in Michigan obtained some cash public assistance income. More than half (52%) of the disabled adults in Michigan lacking a high school diploma obtained some form of public cash assistance in 2006 in comparison to 40% of high school

graduates/GED holder, 34% of those with some college, and only 26 to 27 percent of those with a Bachelor's or higher degree.

(xiii). A society cannot foster a strong democracy without active civic engagement by a substantial share of its citizens. Our analysis of a variety of national data bases and for Michigan adults revealed that less educated persons were considerably less likely to be engaged in civic activities, including voting in national, state, and local elections, volunteering for civic/social organizations, or keeping themselves informed of political developments. The voting rate of adults (18 and older) with a Bachelor's or higher degree in Michigan in the 2004 Presidential election was nearly 2 times higher than that of adults lacking a high school diploma. Michigan adults with a high school diploma were 16 percentage points more likely to vote in that election than their peers without a high school diploma (62% versus 46%). Not only were adults without a high school diploma less likely to vote in national elections, but also were less likely to volunteer for a wide array of civic, political, and social organizations than their more educated fellow residents. When they did volunteer, adult school dropouts were most likely to volunteer for church organizations and children's sports activities (soccer and basketball) than for other types of volunteer organizations including civic, labor, health, political, and social organizations. In both Michigan and the U.S., the best educated adults were considerably more likely to provide volunteer services for civic and political organizations than were adults with no post-secondary schooling.

(xiv). Less educated adults, especially males, were far more likely to be institutionalized than their better educated peers in Michigan. Incarceration rates, in particular, tend to be considerably higher among less educated and less literate adults, especially males. Thus, the per capita annual fiscal costs of institutionalization will be higher for adults with more limited formal schooling and literacy/ numeracy proficiencies. Younger high school dropouts (under 24) were twice as likely to be incarcerated as high school graduates and nearly 50 times more likely to be incarcerated as their peers with a bachelor's degree in the state of Michigan in 2006. These incarceration developments have very adverse long-term effects. Being jailed today sharply reduces the future earnings potential of both men and women, with the size of these earnings losses ranging from 20 to 25 percent among men to more than 40 percent among women at the national level. The lower future earnings potential of the formerly incarcerated reduces their

marriage potential, their future tax contributions to federal and state governments, and increases their dependence on cash and in-kind transfers to support themselves and their families.

(xv). A number of the economic benefits of higher schooling accrue to society as a whole. Among the economic benefits of increased schooling to society as a whole are the higher levels of taxes paid annually to federal, state, and local governments in the form of federal and state income taxes, Social Security payroll taxes, federal government retirement contribution, state sales taxes, and local property taxes. A second benefit to the rest of society includes reduced dependence of better educated and more literate adults on a wide array of both cash and in-kind transfers from national and state governments to support themselves and their families. The total annual, mean taxes (federal income, state income, Social Security payroll, federal government retirement, sales, and property taxes) paid by Michigan adults lacking a high school diploma in 2004-2005 were $6,448 versus tax payments of $19,000 by those with a four-year college degree and nearly $29,000 by those with a Master's or higher degree. Thus, Michigan adults without a high school diploma paid only one-third of to one-fifth as much in taxes as their peers with a Bachelor's or higher degree.

(xvi). Less educated adults were much more likely than their peers with more years of formal schooling to be dependent on government-financed cash and in-kind transfer payments for their subsistence. Michigan adults lacking a high school diploma obtained an annual mean value of $8,000 in cash and in-kind payments from the government while those with a Bachelor's or higher degree obtained only $1,300. Michigan adults lacking a high school diploma obtained a mean level of cash and in-kind transfers from government that was 6 times higher than that obtained by Bachelor's or higher degree holders. The mean net fiscal contribution (taxes-transfers/institutionalization costs) of Michigan adults lacking a high school diploma was a negative $3,269 during 2004-2005. Clearly, those Michigan adults who failed to graduate from high school impose substantial annual fiscal burdens on their fellow residents. In contrast to these findings, the mean net fiscal contribution of high school diploma holders was a positive $5,000, for those with a Bachelor's degree it was $17,700, and for those with a Master's or higher degree it was $27,636. Over the working lifetime, given continuity of the fiscal results that prevailed in 2004-2005, the average high school dropout in Michigan would produce a substantial net fiscal burden of $160,000 while the average high school graduate with no post-

secondary schooling would generate $197,000 more in taxes than he/she would impose in transfer costs and institutionalization costs, especially incarceration costs.

The evidence on the personal and social economic costs of dropping out of high school in Michigan provides an overwhelming case for immediate actions to reduce high school dropout rates among existing students and help recover more of those who have already dropped out of school. The evidence also shows that many of these costs associated with dropouts, especially among males, are increasing over time in both Michigan and the U.S. These higher lifetime costs include lower employment rates, fewer hours worked during the year, substantially lower annual and hourly earnings, lower marriage rates, higher rates of income inadequacy, and higher incarceration rates. The children raised in families headed by adult dropouts face a variety of cognitive, health, nutrition, and educational problems that will hinder their abilities to successfully transition into adulthood. The evidence in this case is quite clear, convincing, and compelling on all counts.

In civil trials in the U.S., the criterion that juries are expected to apply to their verdict is "a preponderance of evidence". In criminal trials, guilt is supposed to be established "beyond a reasonable doubt".[110] In Michigan, the case for public policy actions to minimize the number of young adults who will drop out of high school has been found to be based on both a "preponderance of evidence" and established "beyond a reasonable doubt". Case closed.

[110] For a recent discussion of these jury verdict criteria and their real world applications, see: Sebastian Junger, A Death in Belmont, W.W. Norton and Company, New York, 2006.

Appendix A:
Methodologies for Estimating Median and Mean Values of Homes and Annual Property Taxes Paid by Michigan Householders

The 2005 American Community Survey (ACS) collected data on the characteristics of the homes occupied by responding households, including ownership status, the home's estimated market value, the year when the house was built, and annual property tax payments. Both the data on estimated home prices and property tax payments were collected in a categorical form rather than in continuous form. For example, the respondent was asked to identify the estimated value of their home from 24 pre-assigned categories, ranging from under $10,000 to over $1 million. Similarly, the household was asked to choose from over 68 categories the size of their annual property tax payments ranging from $0 to $10,000 or more.

Using these categorical data on home price and property tax payments, we calculated mean/median home prices and property tax payments for householders in each of the five educational categories appearing in our analysis. We used the following two formulas to estimate mean and median values of homes and annual property tax payments appearing in our analysis. The mean values of homes and property tax payments are likely somewhat underestimated due to the absence of upper limits for the top category. For example, the property value of homes in the top category was $1,000,000 or more and for property tax payments it was $10,000 and over. However, there were very few cases in these upper housing value and property tax categories. The estimated mean and median values of the two variables were calculated as follows:

$$\text{Mean} \cong \frac{\sum_{j=1}^{c} \text{mj fj}}{n} \text{----------(1)}$$

Where, c = number of income classes in the frequency distribution

m_j = mid point of home prices or property tax payments in the j^{th} class

f_j = frequency of the observations in the j^{th} income class

n = number of households who owned their home

$$\text{Median} \cong l + \frac{h}{f}\left(\frac{N}{2} - C\right) \text{----------(2)}$$

Where, l = lower bound of the response category containing the median value of homes or property taxes (in dollars)

h = width of the median response category (in dollars)

f = frequency of the median category

N = (Total number of sample cases)

C = Cumulative frequency preceding the median category

Appendix B:
Methods for Estimating the Annual Federal and State Income Taxes Paid by Husbands and Wives in Married Couple Families

In computing the annual federal and state income tax payments of adults in the March CPS Annual Social and Economic Supplement, the U.S. Census Bureau adopts a different practice for husbands and wives in married couple families than it does for all other individuals with incomes during the year. For married couple families, the U.S. Census Bureau adopts the assumption that the couple files a joint federal and state income tax return. Research staff then estimate the federal and state income tax liability for the married couple and assign the entire federal and state income tax liability to the head of the married couple family. The householder of this married couple family can be either the husband or the wife. In approximately 85 percent of the cases, the householder in a non-elderly married couple family is the husband.[111] For all other individuals, whether living in families or in non-family households, the federal and state income tax liability appears on their personal record. Given the above practice in assigning income tax liabilities to the head of a married couple family, we cannot identify from the existing March CPS records the specific federal and state income tax liability of the husband and spouse in a married couple family. To avoid exaggerating the income tax payments of the heads of married couple families and severely underestimating the income tax payments of the spouses in such families, we developed a set of computer programming instructions with the SPSS statistical package that allowed us to generate separate estimates of the federal and state income tax liability of husbands and wives.

[111] Our definition of a non-elderly family is one whose head is an individual under the age of 65.

The procedures used to estimate husband/wife income tax liability can be summarized as follows. We first calculated the percentage shares of joint husband/wife earnings during the year that were earned by the family head and the spouse. The family head's percentage share of earnings (e.g., 70%) was then multiplied by the estimated joint federal income tax liability of the married couple to estimate his (her) federal income tax payments. Suppose that the married couple's federal income tax liability was $20,000 and the head obtained 70% of the combined earnings during the year. The head's federal income tax liability was computed to be $20,000 * .70 = $14,000. The remaining $6,000 in federal income tax liability was then assigned to the spouse.[112] The same statistical procedures were used to compute the state income tax payments of the husband and wife.

Appendix C:
Estimating State Sales Tax Payments for Individuals

The U.S. Census Bureau does not provide any estimates of annual state sales tax payments for persons interviewed during the March CPS survey. In our fiscal impact analyses, we have estimated state sales tax payments for individual adults in Michigan by using a combination of personal income data from the 2005 ACS survey and sales tax tables for Michigan published annually by the U.S. Department of Treasury's Internal Revenue Service (IRS). In our analysis of state sales taxes, we applied a single person exemption to each individual respondent ages 16-64 with a positive income. For each person in our analysis, we assigned Michigan state sales tax payment equal to the IRS sales tax deduction for a person in Michigan with their annual income in 2005. Below is a sample table of the allowable sales tax deductions for residents of California in 2005.

[112] In a married couple family, the spouse can be either the husband or wife depending on which of the two was classified as the family householder.

Appendix Table B-1:
Optional State Sales Tax Tables, Michigan, 2005

Income		Exemptions					
At least	But less than	1	2	3	4	5	Over 5
$0	$20,000	$196	$228	$250	$266	$280	$299
$20,000	$30,000	$340	$395	$431	$460	$483	$515
$30,000	$40,000	$417	$484	$528	$563	$591	$631
$40,000	$50,000	$485	$562	$614	$653	$686	$732
$50,000	$60,000	$546	$633	$691	$736	$773	$824
$60,000	$70,000	$604	$700	$763	$812	$853	$909
$70,000	$80,000	$659	$763	$832	$885	$929	$991
$80,000	$90,000	$710	$822	$896	$954	$1,001	$1,067
$90,000	$100,000	$759	$879	$958	$1,019	$1,070	$1,140
$100,000	$120,000	$825	$954	$1,040	$1,106	$1,161	$1,237
$120,000	$140,000	$915	$1,058	$1,154	$1,227	$1,287	$1,371
$140,000	$160,000	$996	$1,151	$1,254	$1,333	$1,399	$1,490
$160,000	$180,000	$1,077	$1,244	$1,355	$1,441	$1,511	$1,610
$180,000	$200,000	$1,151	$1,329	$1,447	$1,539	$1,614	$1,718
$200,000 or More		$1,637	$1,528	$1,762	$1,917	$2,037	$2,135

Source: Internal Revenue Service, "State and Local General Sales Taxes", Publication 600: 2005, www.irs.gov.