

The Impacts of the GED Credential and Regular High School Diploma on the Employment, Unemployment, Weekly and Annual Earnings, and Income Experiences of Native-Born Adults (16-74) in the U.S. in 2000, 2009, and 2010

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“...the technology revolution and the global economy. These are dividing opportunity at home and abroad. The middle class is splitting apart, and the fault line is education.”

President William Clinton

1995 Address to a National Convention of Newspaper Editors

“They say this is the land of opportunity. But they forget to tell you that opportunity comes only with education. Here, it is not good to be a dummy, especially in New York. If you can’t read, you’re going nowhere.”

Ginger Dokie

Liberian Immigrant 2000

“Out of a hundred 9th graders in our public schools, only 68 will complete high school on time. Now we live in a competitive world. And a 68 per cent graduation rate of 9th graders is not good enough to be able to compete in this competitive world.”

President George W. Bush

No Child, Left Behind in 2005

January 12, 2005

“In today’s economy, the best predictor of success is a good education.”

President Obama

Weekly Radio Address

June 9, 2012

Introduction

During the past few decades in the United States, labor market and social success as well as civic behavior and personal economic and physical/mental well-being have become increasingly associated with one’s formal educational attainment, literacy/numeracy proficiencies, and occupational skills. Better educated adults, especially those with a Bachelor’s or higher degree, and those with stronger literacy/math skills and technical/professional/managerial skills have achieved substantially better employment, wage, and annual earnings outcomes than their less educated and less literate peers.¹ These growing disparities in individual earnings and incomes combined with widening gaps in marriage formation and stability across educational groups have led to increased income and wealth inequality among families and reduced economic mobility among the nation’s young.

¹ See: (i) Claudia Goldin and Lawrence F. Katz, The Race Between Education and Technology, The Belknap Press of Harvard University, Cambridge, Massachusetts, 2008; (ii) Irwin Kirsch, Andrew Sum, and Kentaro Yamamoto, Pathways to Labor Market Success, Educational Testing Service, Princeton, New Jersey, 2006 (iii) Charles Murray, Coming Apart: The State of White America, 1960-2010, Crown Forum, New York, 2012; (iv) Russell Rumberger, Dropping Out: Why Students Drop Out of High School and What Can Be Done About It, Harvard University Press, Cambridge, 2011; (v) Andrew Sum, Neeta Fogg, and Garth Mangum, Confronting the Youth Demographic Challenge: The Labor Market Problems of Out-of-School Young Adults, Sar Levitan Center for Social Policy Studies, Johns Hopkins University, Baltimore, 2000.

These developments were clearly recognized by our last three Presidents. As the above quotes illustrate, education has been seen as a critical force in our nation's economic growth and competitiveness as well as a key factor underlying personal labor market and economic success and the widening degree of economic inequality. Presidents Clinton, Bush, and Obama had pushed for a wide ranging set of educational reforms to increase the reading, math, and science skills of our elementary and high school students, to raise high school graduation rates, and to increase college graduation rates to the highest in the developed world.²

While many studies of the growing economic importance of education have been focused on post-secondary education, especially Bachelor degree attainment, there has been a renewed focus on the labor market, earnings, and social problems of high school dropouts.³ Important changes in U.S. labor markets over the past few decades, including the forces of deindustrialization, technological change, declining unionization, globalization, and occupational restructuring, have taken a toll on America's workers with no high school diploma, especially males who were overly dependent on well-paying blue collar jobs for their entry into the middle class. Even many high school graduates have not been exempt from many of these changes. The nation's younger adults (under 30) with limited education have been most adversely affected by these developments over the past decade.

The deteriorating employment and earnings prospects of less educated adults have been particularly damaging to young persons from their late teens through their late 20s, often leading to disconnection from the worlds of both school and work, to marginalization in the labor market when employed, and increased difficulties in forming independent households and marriages.⁴ The labor market difficulties and limited earnings prospects for many of America's young, poorly educated adults, especially males and inner city Black men, also have had profound

² In his 2005 presentation, President Bush set of a goal of making U.S. 15 year olds first in the world in math proficiency. In 2010, President Obama set of goal of making the U.S. first in college graduation rates by 2020.

³ See: (i) Boston Youth Transitions Task Force, Too Big to Be Seen: The Invisible Dropout Crisis in Boston and America, Boston, 2008; (ii) Russell Rumberger, Dropping Out: Why Students Drop out of High School and What Can Be Done About It, Harvard University Press, Cambridge, 2011; (iii) Andrew Sum, Joseph McLaughlin, Ishwar Khatiwada, et.al., The Labor Market, Income, Civic, Social, and Fiscal Consequences of Dropping Out of High School in Massachusetts, Report Prepared for the Boston Youth Transition Task Force, 2008.

⁴ See: (i) Douglas A. Besharov (Editors), America's Disconnected Youth: Toward A Preventive Strategy, American Enterprise Institute for Public Policy Research, Washington, D.C., 1999; (ii) Tamara Draut, Strapped: Why America's 20 and 30 Somethings Can't Get Ahead, Anchor Books, New York, 2005; (iii) Andrew Sum, Ishwar Khatiwada, et.al., "No Country for Young Men: Deteriorating Labor Market Prospects for Low-Skilled Men in the United States", The Annals of the American Academy of Political and Social Science, Volume 635, May 2011, pp. 24-55.

consequences for the nation's criminal justice system. Jail and prison incarceration rates have risen sharply over the past two decades with 1-100 of the nation's adults (18-64 years old) residing as inmates in jails and prisons in recent years.⁵ The nation's prison population is heavily dominated by young adults who dropped out of high school and who often possess very limited literacy and numeracy proficiencies.

The research findings appearing in this comprehensive report build on the findings presented in two earlier reports prepared by the Center for Labor Market Studies for the U.S. Department of Education's Office of Vocational and Adult Education. We extend the analysis of the effects of the GED certificate and the regular high school diploma on a wide array of employment, unemployment, weekly and annual earnings and family income outcomes by conducting a substantial set of multivariate statistical analyses of these outcomes. The models include multiple regression models, linear probability models, and logistic regression models. We have estimated each of these models for an array of gender, age, race-ethnic, gender by race, gender by age, and regional geographic groups of native-born adults with no formal schooling beyond the high school diploma.⁶

Outline of the Report

The report will begin with a description of the employment, unemployment, weekly and annual earnings, family income inadequacy, and public assistance income measures that will serve as the dependent variables in our multivariate statistical models. The educational groups of native-born adults included in our analysis then will be presented. The educational base group

⁵ See: (i) Devah Pager, Marked: Race, Crime, and Finding Work in An Era of Mass Incarceration, University of Chicago Press, Chicago, 2007; (ii) Bruce Western, Punishment and Inequality in America, Russell Sage Foundation, New York, 2006; (iii) Andrew Sum and Mykhaylo Trubskyy, The Incarceration Experiences of Young Adults in the U.S.: Determinants of Incarceration and Their Labor Market Consequences, Paper Prepared for the Educational Testing Service, Princeton, 2012; (iv) Pew Center on the States, One in A Hundred, Pew Foundation, Washington, D.C., 2009.

⁶ See: (i) Andrew Sum, Ishwar Khatiwada, et. al., The Labor Force Behaviors, Labor Force Experiences and Labor Market Outcomes of the Nation's Adults with No Post-Secondary Education, 2000-2010; Differences in Outcomes Between High School Dropouts, GED Holders, and High School Graduates, Report Prepared by the Center for Labor Market Studies, Northeastern University for the U.S. Department of Education, Office of Vocational and Adult Education, February 2012; (ii) Andrew Sum, Ishwar Khatiwada, Mykhaylo Trubskyy with Sheila Palma and Walter McHugh, The Employment, Annual Earnings, Household Incomes, and Public Assistance Income Reciprocity Experiences of U.S. Native-born Adults 16-74 Years Old with no Post-Secondary Education: 2000-2010, Report Prepared by the Center for Labor Market Studies, Northeastern University for the U.S. Department of Education, Office of Vocational and Adult Education, May 2012.

for each of these models consists of those adults who had dropped out of high school before receiving a diploma and have not earned a GED certificate.

The demographic and geographic subgroups of adults for whom the analyses will be completed will then be identified. These include gender, race-ethnic, gender/race-ethnic, age, age/gender, and geographic subgroups of the 16-74 year old native-born population. The data sources underlying all of the analyses appearing in this report will then be described.

The empirical analysis will begin with an examination of the findings of the multivariate statistical analyses of the labor market, earnings, and income outcomes for calendar year 2000. This will be followed by a presentation of the findings of these same variables for calendar year 2009 and 2010 based on the monthly CPS household surveys for calendar year 2010 and the March 2010 CPS work experience and income supplement.⁷ The findings of the analyses of these same outcomes for 2010 based on the findings of the American Community Surveys will then be provided. The final section will present a brief summary of key findings on the impacts of the GED and regular high school diploma on key labor market and income outcomes for adults and discuss future research issues.

The Labor Force, Employment, Earnings and Income Measures Serving as the Dependent Variables in the Multivariate Statistical Models

There are a wide array of employment, unemployment, earnings, and family and personal income outcomes for native-born adults that will be analyzed in this report (See Table 1). There are three point in-time employment and unemployment measures: the employment, full-time employment, and unemployment status of respondents at the time of the CPS surveys in 2000 and 2010 and the American Community Surveys in 2010. There are two measures of the employment experiences of these adults over an entire year: any paid employment and being employed for 40 or more weeks full-time. Both the weekly earnings of the employed and their annual earnings will be examined. Several measures of family income inadequacy will be examined, including poverty/near poverty and low income, i.e., a family income under 200% of the poverty line. Finally, we will analyze the influence of our four educational variables on the likelihood that a given individual was a recipient of some form of cash public assistance income.

⁷ The March 2010 supplement collects data on employment, earnings, and income experiences in 2009.

Table 1:
The Employment, Unemployment, Earnings, and Income Measures Appearing in the Analysis

- A. Point in Time Employment and Unemployment Measures
 - Employed
 - Employed full-time
 - Unemployed
- B. Annual Employment Measures
 - Did not work at any time during the year
 - Worked 40 or more weeks full-time
- C. Earnings Measures
 - Weekly earnings of wage and salary workers
 - Annual earnings of the employed
- D. Family Income Status or Personal Receipt of Cash Public Assistance Income
 - Lived in a household with an annual income below the poverty/near poverty line
 - Lived in a household with an annual income below 200% of the poverty line
 - Received some form of cash public assistance income, e.g., Temporary Assistance to Needy Families (TANF), Supplemental Security Income (SSI), or general relief

Models of these employment, unemployment, weekly and annual earnings, and income inadequacy measures will be estimated not only for the entire population of 16-74 year old native-born residents, but also for gender, race-ethnic, age, gender by race, gender by age, and geographic subgroups. Over 400 separate logit regression, linear probability, and weekly/annual earnings models were estimated to generate the results appearing in this report.

The Educational Attainment Groups Included in the Multiple Regression Models of the Employment, Unemployment, Weekly Wages, Annual Earnings, and Family Income Status of Native-Born Adults 16-64 or 16-74 Years Old

Similar to our earlier analyses of the labor market, weekly wages and annual earnings, and family income experiences of adults in the U.S., we will focus on those native-born adults who did not complete any years of formal schooling beyond high school. Each adult not enrolled in either high school or college was assigned to one of the following four educational groups:⁸

- Those who completed only 1 to 8 years of schooling.

⁸ The monthly CPS household surveys only collect current school enrollment information for persons 16-24 years of age. Persons 25 and older enrolled in college cannot be identified with the regular monthly data. They can be identified on the October CPS supplement on school enrollment behavior.

- Those who completed 9 to 12 years of schooling but did not obtain either a high school diploma or a GED certificate. This group will frequently be referred to as high school dropouts.
- Those who obtained a GED certificate regardless of their years of secondary schooling completed provided they did not complete any years of post-secondary schooling.
- Those who obtained a regular high school diploma.

In each of the multivariate statistical models appearing in this paper, one group of adults for each variable has to be included in the base group, and its effect on the dependent variable will be reflected in the constant term. For the educational variables, those adults who were high school dropouts were included as members of the base group. The estimated coefficients for each of the other three educational variables, thus, represent their impact on the dependent variable in comparison to high school dropouts with otherwise identical characteristics. For example, suppose that in the regression model predicting the employment status of individuals, the coefficient on the variable representing the GED status of the respondent is $+0.10$. This finding would imply that, holding all other background characteristics and region of location constant, a GED holder would be 10 percentage points more likely to be employed than a high school dropout. We also will compare the coefficients of the GED variable with those for individuals with only a primary school education (1-8 years of school) and those with a regular high school diploma. The key research questions to be answered are the following. Do GED holders fare significantly better in the labor market than primary school leavers and high school dropouts and do they match the labor market outcomes of regular high school graduates? How much better do GED holders perform relative to primary school leavers and high school dropouts? How much worse do they do relative to regular high school graduates? Does the size of these impacts vary across gender, race-ethnic, and age groups or across geographic locations?

The Demographic and Geographic Subgroups of Adult Respondents Included in the Labor Market Analysis

The findings of the analysis of the employment, unemployment, weekly and annual earnings, poverty and other income inadequacy problems, and the cash / in-kind transfers of U.S. adults in each of our four educational subgroups will be presented for an array of demographic and geographic subgroups. The demographic groups will include gender, age, and race-ethnic

groups and various combinations of these traits (See Table 2). The sample of adults was divided into six age groups, ranging from those 16-24 years of age to those 65-74 years old.⁹ The sample was divided into the following four race-ethnic groups: Asian, Black not Hispanic, Hispanic, and White not Hispanic. All of the estimates for all variables will be provided for the native-born only.

Table 2:
Demographic Subgroups of Adults for Whom Labor Market Outcomes Will Be Provided

- Gender (men, women)
- Age groups (16-24, 25-34, 35-44, 45-54, 55-64, 65-74)
- Race-ethnic groups (Asians, Black, not Hispanic; Hispanic; White, not Hispanic)
- Gender/race-ethnic combinations
- Gender/age combinations

The sample of respondents was also divided into a number of geographic subgroups based on the regional locations of the residences of respondents at the time of the CPS or ACS surveys. The identification of the geographic region in which they lived was based on the regional divisions of the U.S. Census Bureau. One of the main objectives of the analysis is to determine whether the differences in labor market and income outcomes between high school dropouts and GED holders and between high school graduates with regular diplomas and GED holders vary across these different geographic areas.

Table 3:
Geographic Regions of Adults for Whom Labor Market Outcomes will Be Provided

- | Regions | |
|---|---|
| <ul style="list-style-type: none"> • New England • Mid-Atlantic • East North Central • West North Central • South Atlantic | <ul style="list-style-type: none"> • East South Central • West South Central • Mountain • Pacific |

Data Sources for the Analysis

The findings of the multivariate statistical analyses presented in this paper are based on five different sources of data. The analyses of the employment, full-time employment and unemployment status and the weekly earnings of native-born adults in 2000 are based on the

⁹ Due to typically small sample sizes for GED holders over 75, we have not produced separate estimates of labor market outcomes for those 75 and older. Very few older adults with no post-secondary schooling (under 10%) are attached to the labor force.

monthly CPS household surveys for that year. The findings on their weeks of employment, their annual earnings, their household income status (poor/near poor, low income), and their cash public assistance income status in calendar year 2000 are based on the March 2001 CPS work experience and income supplement, which tracked the employment, earnings, and incomes of respondents in the prior calendar year.

The analyses of the employment and unemployment status and weekly earnings of native-born adults in 2010 are based on two different sources of data: the monthly CPS surveys for 2010 and the American Community Surveys for 2010. The very large sample sizes for the ACS survey allow us to estimate these regression models for each of the nine geographic divisions and for detailed age/gender groups of the native-born population.

The analyses of the employment experiences, annual earnings, household income status, and cash income status of respondents in calendar years 2000 and 2010 are based on two different sources of data: the March 2010 CPS work experience and income supplement, and the American Community Surveys for 2010 which collected information on the weeks and hours of employment, the earnings, and incomes of respondents in the 52 week period prior to the completion of the ACS questionnaire. Since households completed these ACS questionnaires throughout the calendar year, the timing of this 52 week period will vary across individuals.

Table 4:
Alternative Data Sources for the Analysis of Employment,
Unemployment, Weekly and Annual Earnings, and Family Income Status

- The monthly CPS household surveys for calendar year 2000 (January – December)
- The March 2001 CPS work experience and income supplement
- The monthly CPS household surveys for calendar year 2010 (January – December)
- The March 2010 CPS work experience and income supplement
- The 2010 American Community Surveys

The Employment, Unemployment, Weekly and Annual Earnings Experiences, and Family Income Status of Native-Born Adults in 2000 and 2010: The Dependent and Independent Variables in the Multivariate Statistical Models

To identify the independent impacts of a primary school education, the GED certificate, and regular high school diplomas on the labor market experiences and family income status of

native-born adults in the U.S. in both 2000 and 2010, we estimated a comprehensive set of multivariate statistical models, including linear probability models, logit regression models, and weekly and annual earnings multiple regression models.¹⁰ The dependent variables include the employment and unemployment status of the respondents at the time of the monthly CPS survey, their weekly earnings from paid employment, their weeks and hours of employment in the prior calendar year, their annual earnings and their family's poverty/near poverty status and public assistance income status in the calendar year (2000 and 2009). A listing and definitions of the dependent and independent variables appearing in these models are presented in the table on the following few pages. All of the data come from the monthly CPS household surveys for calendar years 2000 and 2010 and the March CPS work experience surveys for 2001 and 2010.

¹⁰ The logit regression models were used to estimate the influence of the educational attainment variables on dichotomous labor market variables such as the employment status or the full-time employment status of the respondent. More than 400 separate models were run with the CPS and 2010 ACS data.

Table 5:
Definitions of the Dependent and Independent Variables Appearing in the
Multiple Regression Models Predicting the Employment Status, Unemployment Status, Full-
Time/Year-Round Employment Status, Weekly and Annual Earnings, the Poverty/Near Poverty
Status and Public Assistance Income Status of 16 to 74 Year Old Native-Born Civilians with
Formal Education No More than A High School Diploma, U.S., 2010

Definition of Variable	
Dependent Variables	
Employed at time of survey	A dichotomous variable representing the employment status of a person at the time of the 2000 or 2010 CPS survey 0 = if else 1 = if a person was employed
Employed at some time during the year	A dichotomous variable representing employment for at least one week during either 2009 or 2000 0 = if else 1 = if a person was employed at some point
Worked full-time at time of survey	A dichotomous variable representing the full-time employment status of a person at the time of the 2010 or 2000 CPS survey 0 = if else 1 = if a person was employed full-time
Worked full-time, year-round	A dichotomous variable representing the full-time/year-round (40 weeks, 35+ hours) employment status of a person during 2000 or 2009 0 = if else 1 = if a person was employed full-time/year-round
Unemployed	A dichotomous variable representing the unemployment status of a person at the time of the 2010 or 2000 CPS survey 0 = if else 1 = if a person was unemployed
Ln_annual_earnings	A continuous variable representing the natural log of the annual earnings of workers in 2000 or 2009
Ln_weekly_earnings	A continuous variable representing the natural log of the weekly earnings of workers at the time of the 2000 or 2010 CPS survey

Definition of Variable	
Poor/near poor	A dichotomous variable representing the poverty/near poverty status of a person during 2009 as recorded in the March 2010 CPS survey 0 = if else 1 = if a person's family income was below 1.25 times the Federal poverty threshold
Welfare Recipient	A dichotomous variable representing the welfare recipient status of a person during 2009 as recorded in the March 2010 CPS survey 0 = if else 1 = if a person received some form of cash public assistance income
Food Stamps	A dichotomous variable representing the food stamp recipient status of a person's family during 2009 as recorded in the March 2010 CPS survey 0 = if else 1 = if a person's family received food stamps at some point during the year
Independent Variables:	
male	A dichotomous gender variable 0 = Female 1 = Male
black	A dichotomous race/ethnic variable 0 = if else 1 = if Black, non-Hispanic
asian	A dichotomous race/ethnic variable 0 = if else 1 = if Asian, non-Hispanic
hispanic	A dichotomous race/ethnic variable 0 = if else 1 = if Hispanic
other_race	A dichotomous race/ethnic variable 0 = if else 1 = if "Other" race

Definition of Variable	
age_16_24	A dichotomous age variable 0 = if else 1 = if a person was 16-to-24 years old
age_25_34	A dichotomous age variable 0 = if else 1 = if a person was 25-to-34 years old
age_35_44	A dichotomous age variable 0 = if else 1 = if a person was 35-to-44 years old
age_45_54	A dichotomous age variable 0 = if else 1 = if a person was 45-to-54 years old
age_55_64	A dichotomous age variable 0 = if else 1 = if a person was 55-to-64 years old
educ_1_8_grade	A dichotomous educational attainment variable 0 = if else 1 = if a person's educational attainment level was 1 st -8 th grade only
educ_GED	A dichotomous educational attainment variable 0 = if else 1 = if a person had a GED but no post-secondary schooling
educ_reg_hs_diploma	A dichotomous educational attainment variable 0 = if else 1 = if a person had a regular high school diploma but no completed years of post-secondary schooling
new_england	A dichotomous place of residence variable of a person 0 = if else 1 = if a person's place of residence was the New England region
middle_atlantic	A dichotomous place of residence variable of a worker 0 = if else 1 = if a person's place of residence was the Middle Atlantic region

	Definition of Variable
east_north_central	A dichotomous place of residence variable of a worker 0 = if else 1 = if a person's place of residence was the East North Central region
west_north_central	A dichotomous place of residence variable of a worker 0 = if else 1 = if a person's place of residence was the West North Central region
south_atlantic	A dichotomous place of residence variable of a worker 0 = if else 1 = if a person's place of residence was the South Atlantic region
east_south_central	A dichotomous place of residence variable of a worker 0 = if else 1 = if a person's place of residence was the East South Central region
west_south_central	A dichotomous place of residence variable of a worker 0 = if else 1 = if a person's place of residence was the West South Central region
mountain_region	A dichotomous place of residence variable of a worker 0 = if else 1 = if a person's place of residence was the Mountain region
pacific_region	A dichotomous place of residence variable of a worker 0 = if else 1 = if a person's place of residence was the Pacific region
Experience	Years of potential work experience; a proxy for work experience equal to age – 5 – educational attainment (in years)
Experiencesq	Years of potential work experience squared

The Estimated Influence of Educational Attainment on the Employment and Full-Time Employment Status of Native-Born Adults (16-74 Years Old) in 2000

Our first set of models of the labor force behavior of native-born adults is focused on their employment and unemployment status at the time of the monthly CPS interviews in 2000. Each of the three dependent variables selected for this analysis (employment status, full-time employment, unemployment) is a dichotomous variable coded as a one or zero. Logit regression models were used to estimate the coefficients for these models. To facilitate the interpretation of the results, the raw regression coefficients were converted into their marginal probability values at the mean values of the right-hand side predictor variables. The estimated values of the marginal probability impacts for each of the educational variables are displayed in Table 6 below for all 16-74 year olds, for men and women separately, for gender by race-ethnic groups, and for six age groups. The educational base group for the analysis consists of adults who were high school dropouts with no GED certificate. The results of the full logit regression models for all native-born adults, gender, and selected race-ethnic groups are available by request through the Center for Labor Market Studies.

For the entire sample of native-born adults and for nearly every gender, race-ethnic, and age group; the probability of being employed at the time of the monthly CPS household surveys in 2000 rose steadily as their educational attainment improved (See Table 6 and Chart 1). Holding other demographic background variables and location of residence constant, those adults with only a primary school education were significantly less likely to be employed than high school dropouts while both GED holders and regular high school graduates were more likely to be employed than high school dropouts. The difference in the marginal probability impacts of being a GED holder and a regular high school graduate was slightly more than 10 percentage points in the model for all native-born adults, a statistically significant difference.

The impact of obtaining a GED certificate on the probability of employment for all women was sharply higher than that of men (10.4 vs. 3.1 percentage points) (See Table 6 and Chart 2). Similar findings prevailed for Blacks and Whites. Black men with a GED actually performed modestly worse than their high school dropout peers (-1 percentage points) in obtaining employment while Black women were about 10 percentage points more likely to obtain a job than their counterparts who had dropped out of high school. Across five of the six

age groups, GED holders were more likely to be employed than dropouts in calendar year 2000. The one exception to this rule were 65-74 year olds. The employment rate of GED holders in this age group was not statistically different from that of dropouts.

Table 6:
The Estimated Impacts of Educational Attainment Variables on the
Probability of Employment Among 16-74 Year Old Native-Born Adults in the
U.S., All and by Gender, Gender/Race-Ethnic Group, and Age Group, 2000

Demographic Group	(A) 1 st – 8 th Grade	(B) GED	(C) High School Diploma	(D) GED – 1 st – 8 th Grade	(E) GED – High School Diploma
All	-.098***	.068***	.170***	.166	-.100
Male	-.067***	.031***	.134***	.098	-.104
Female	-.122***	.104***	.198***	.226	-.094
White Male	-.065***	.032***	.122***	.097	-.090
White Female	-.140***	.099***	.189***	.237	-.090
Black Male	-.138***	-.008***	.178***	.130	-.370
Black Female	-.159***	.103***	.224***	.262	.121
Hispanic Male	-.021*	.102***	.147***	.123	-.045
Hispanic Female	-.097***	.124***	.197***	.221	-.073
16 – 24	-.071***	.053***	-.180***	.124	-.127
25 – 34	-.121***	.058***	.136***	.179	-.078
35 – 44	-.108***	.064***	.142***	.172	-.078
45 – 54	-.102***	.073***	.165***	.175	-.092
55 – 64	-.107***	.069***	.115***	.176	-.046
65 – 74	-.038***	.003***	.038	.041	-.035

Notes: *** significant at .01 level; ** significant at .05 level; * significant at .10 level.

Chart 1:
Estimated Impacts of Alternative Educational Variables on the Employment Status of
Native-Born Adults (16-74) Relative to High School Dropouts (in Percentage Points)

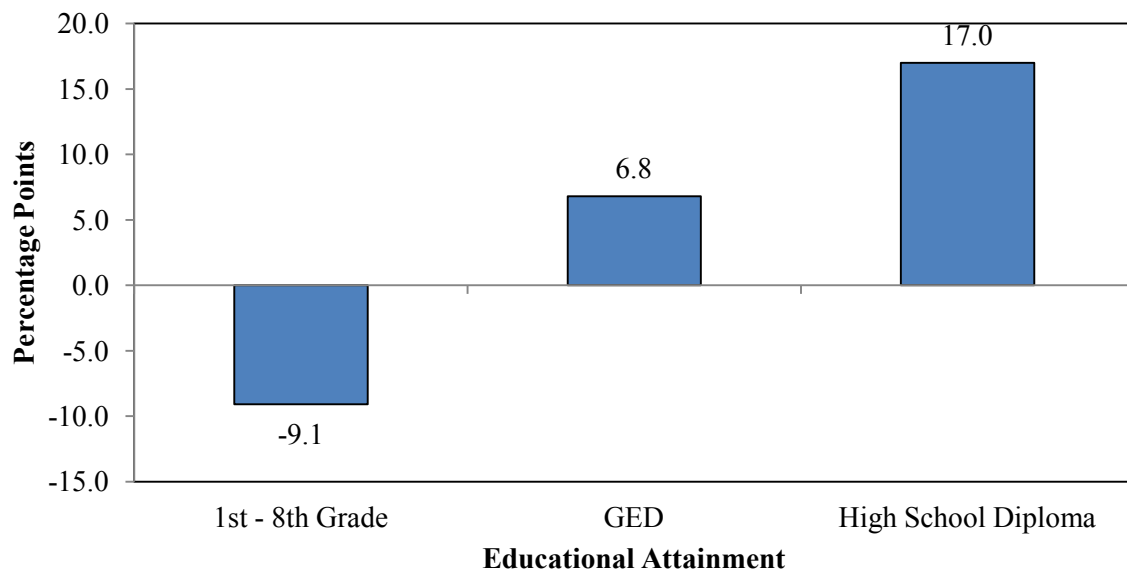
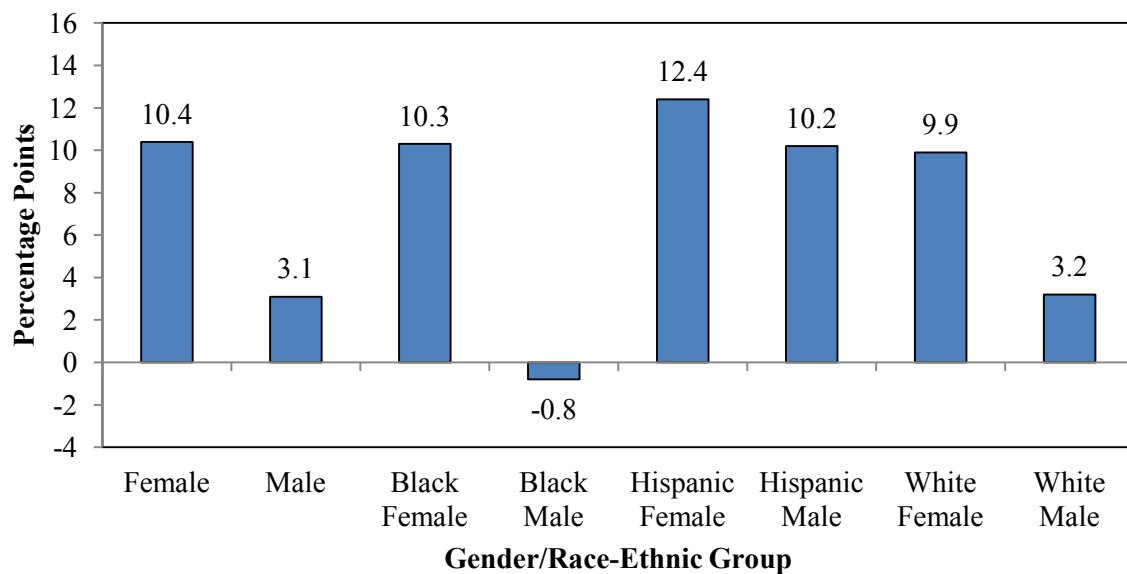


Chart 2:
Estimated Impacts of the GED on the Increased Probability of Employment Among
Gender/Race-Ethnic Groups (16-74) in the U.S., 2000 (in Percentage Points)



While GED holders were significantly more likely to obtain some paid employment than high school dropouts, they did not match the employment rates of regular high school graduates. Being a high school graduate with a regular diploma increased the probability of being employed over a GED holder by slightly more than 10 percentage points. These differences in employment impacts between GED and high school diplomas were quite substantial for most demographic

subgroups, especially Black men (17 percentage points) and younger adults (under 25). In all of these cases, the GED credential was not the equivalent of a high school diploma in promoting employment among native-born adults in 2000.

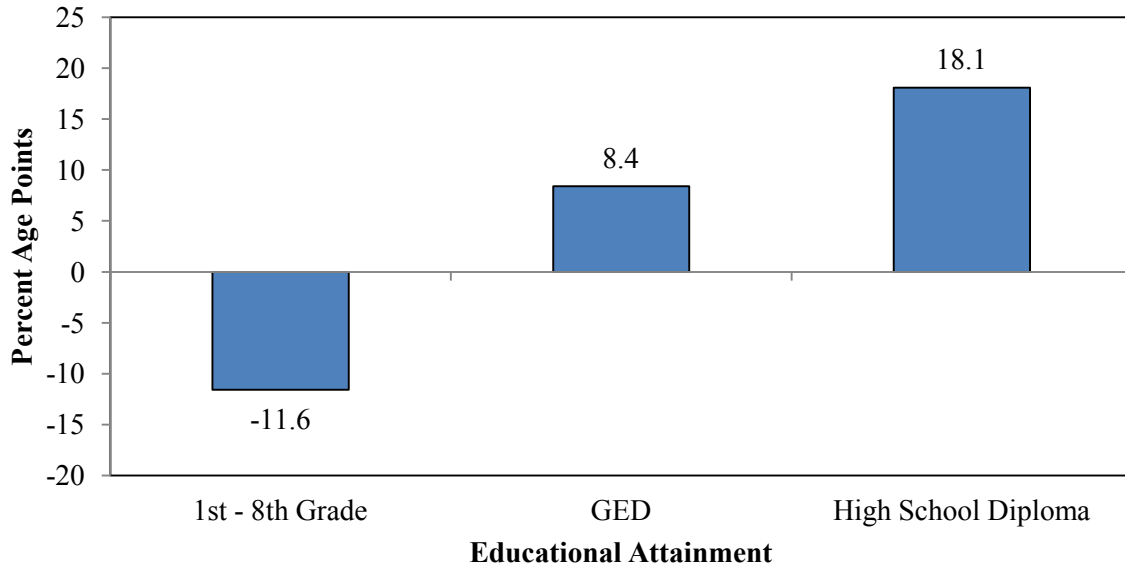
Our second employment measure is the full-time employment status of respondents at the time of the CPS employment surveys in calendar year 2000. A full-time worker is one who was employed for 35 or more hours during the calendar week. For the combined sample of native-born adults and for nearly every demographic subgroup, the probability of being employed full-time rose steadily and strongly with the level of formal schooling. Relative to high school dropouts, those with only a primary school education were nearly 12 percentage points less likely to be full-time employed (Table 7 and Chart 3). GED holders were 8.4 percentage points more likely to be full-time employed than dropouts while those with a regular high school diploma were 18 percentage points more likely to be working full-time than high school dropouts. GED holders had a 20 percentage point advantage over primary school leavers, but they fell 10 percentage points below those of adults with a regular high school diploma.

Table 7:
Estimated Impacts of Alternative Educational Attainment Variables on the Probability of
Full-Time Employment Among Native-Born U.S. Adults (16-74) in March 2000

Demographic Group	(A) 1 st – 8 th Grade	(B) GED	(C) High School Diploma	(D) GED – 1 st – 8 th Grade	(E) GED – High School Diploma
All	-.116***	.084***	.181***	.200	-.097
Male	-.090***	.040***	.159***	.130	-.119
Female	-.120***	.113***	.183***	.233	-.070
White Male	-.095***	.046***	.152***	.141	-.106
White Female	-.149***	.103***	.163***	.252	-.060
Black Male	-.148***	.010	.184***	.158	-.174
Black Female	-.156***	.105***	.241***	.341	-.056
Hispanic Male	-.035***	.064***	.146***	.099	-.082
Hispanic Female	-.058***	.140***	.195***	.198	-.055
16 – 24	-.066***	.089***	.218***	.155	-.129
25 – 34	-.132***	.083***	.164***	.215	-.081
35 – 44	-.152***	.078***	.162***	.230	-.084
45 – 54	-.132***	.081***	.183***	.213	-.102
55 – 64	-.112***	.070***	.095***	.182	-.025
65 – 74	-.015***	.002	.021***	.067	-.019

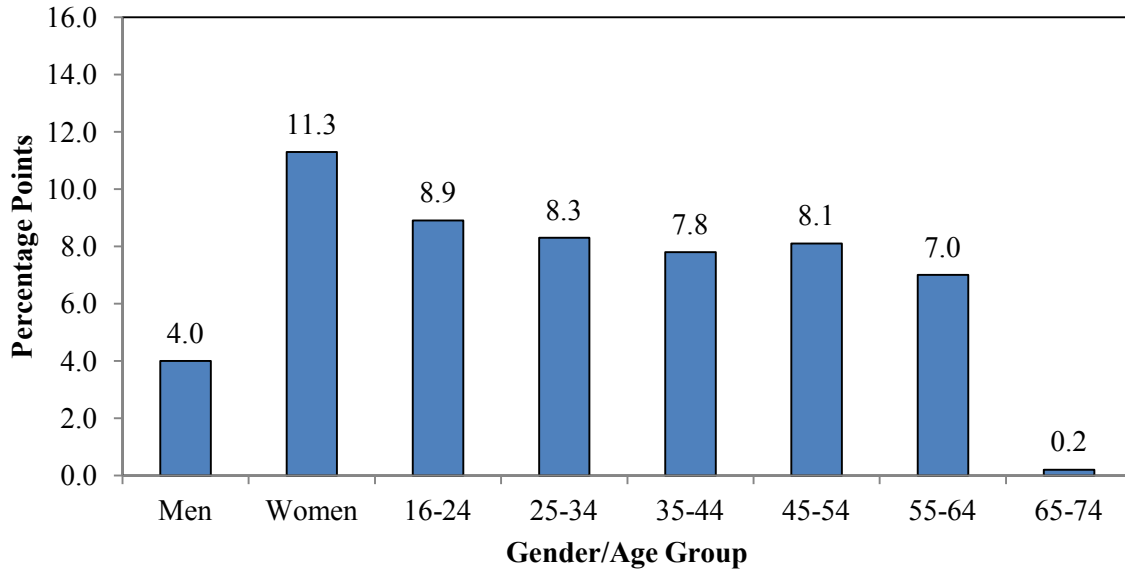
Notes: *** significant at .01 level; ** significant at .05 level; * significant at .10 level.

Chart 3:
Estimated Impacts of the Educational Variables on the Probability of
Full-Time Employment Among Native-Born Adults (16-74) Relative to
High School Dropouts in 2000 (in Percentage Points)



GED holders tended to have significant full-time employment advantages over their high school dropout counterparts except for Black males and the oldest age group (65-74) (See Chart 4). For these latter two groups, there was no significant difference in favor of GED holders. For Black men, the GED had no statistically significant impact on either employment or full-time employment. In contrast, for Black women, the GED had a very powerful effect.

Chart 4:
Estimated Impacts of Being a GED Holder Rather than a High School Dropout on the
Probability of Being Full-Time Employed in 2000 by Gender and Age Group
(in Percentage Points)



Having a regular high school diploma substantially increased the probability (18 percentage points) of full-time employment among all native-born adults. The effects were quite large for each gender, race-ethnic, and non-elderly age group. The estimated impacts were in the 20 percentage point plus range for Black women, Hispanic women, and young adults (16-24). Again, GED holders fell short of the full-time employment success of regular high school graduates both overall and in each demographic group. The gaps were larger for men than for women, especially among Black adults, and among the youngest age group (i.e., those 16-24).

The Estimated Independent Impacts of Being a GED Holder/Regular High School Graduate on the Probability of Unemployment in 2000

In the next set of models, we analyze the impact of educational attainment on the unemployment status of native-born 16-74 year old individuals. We define unemployment in accord with standard U.S. Bureau of Labor Statistics concepts. Overall, we found that being a primary school dropout reduced the likelihood of being unemployed relative to high school dropouts. This is a somewhat surprising result as we have expected high school dropouts to have a lower chance of being unemployed than primary school leavers. Our findings also indicate that GED holders had neither a significant advantage nor disadvantage over high school dropouts when it comes to being unemployed. The coefficient on the GED variable was low and

statistically insignificant. For gender subgroups, we found that both male and female primary school dropouts were less likely to be unemployed their high school dropout peers. The impact of the GED on the unemployment status of men and women was not statistically significant.

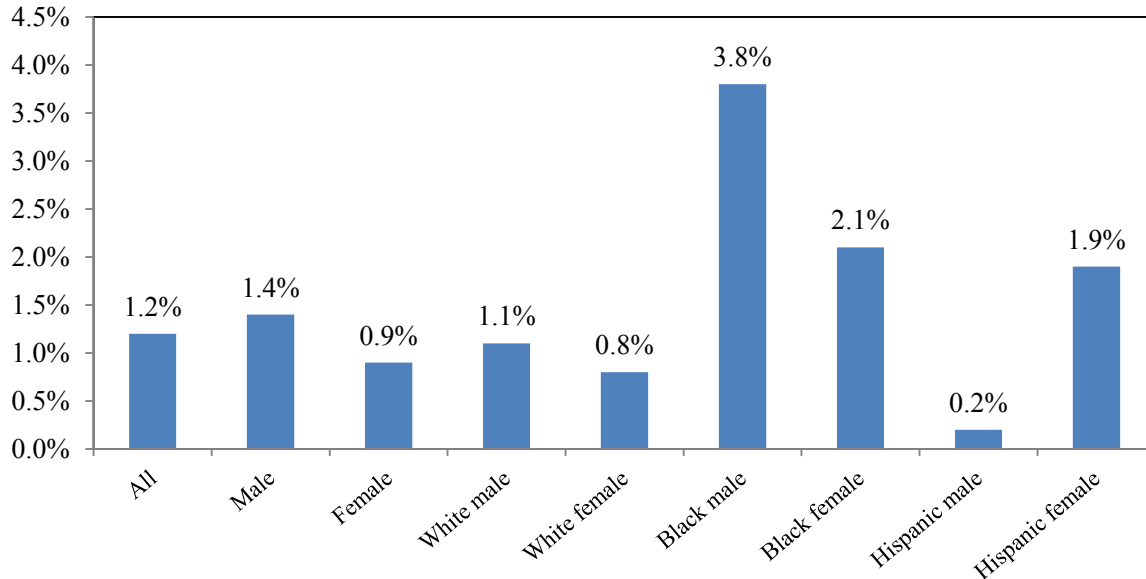
High school graduates were modestly less likely to be unemployed than high school dropouts. This finding held true for both gender groups and each gender/race-ethnic group. The findings also show that as age, the marginal impact of schooling on the likelihood of being unemployed tended to decrease and stayed consistently insignificant for GED holders. The advantage that being a high school graduates enjoyed over GED dropouts was decreasing as well, from -4.1% for 16 to 24 year olds to basically zero for older workers (55 and older).

Table 8:
Estimated Marginal Impact of Educational Attainment Variables on the Probability of Native-
Born Persons Being Unemployed at the Time of the 2000 CPS Survey, All and by Gender, Age,
and Race-Ethnic Group

Demographic Group	(A) 1 st – 8 th Grade	(B) GED	(C) High School Diploma	(D) GED – 1 st – 8 th Grade	(E) GED – High School Diploma
All	-0.008 ***	0.001	-0.011 ***	0.009	-0.012
Male	-0.006 ***	0.002	-0.013 ***	0.008	-0.014
Female	-0.010 ***	0.000	-0.010 ***	0.010	-0.009
White Male	-0.001	0.001	-0.010 ***	0.002	-0.011
White Female	-0.010 ***	0.000	-0.008 ***	0.010	-0.008
Black Male	-0.024 ***	0.018 ***	-0.020 ***	0.041	-0.038
Black Female	-0.024 ***	0.006	-0.015 ***	0.030	-0.021
Hispanic Male	-0.016 ***	-0.017 ***	-0.020 ***	-0.001	-0.002
Hispanic Female	-0.009 ***	-0.006	-0.025 ***	0.003	-0.019
16 – 24	-0.031 ***	0.004	-0.041 ***	0.035	-0.045
25 – 34	-0.014 ***	-0.004	-0.027 ***	0.010	-0.023
35 – 44	-0.013 ***	0.000	-0.015 ***	0.013	-0.015
45 – 54	-0.002	-0.002	-0.007 ***	0.000	-0.005
55 – 64	-0.001	0.005 ***	0.000	0.006	-0.004
65 - 74	-0.001	0.002 ***	0.000	0.003	-0.003

Notes: *** significant at .01 level; ** significant at .05 level; * significant at .10 level.

Chart 5:
Differences in Estimated Marginal Impact Between GED Holders and
High School Graduates Native-Born Persons of the Probability of Being Unemployed at the
Time of the 2000 CPS Survey, All and by Gender, Age, and Race-Ethnic Group



In Table 9 we present findings of our unemployment models for 9 US regions. Results of these models are very similar, with the exception of East North Central and West South Central Regions, GED to high school graduates differentials of which are higher than for other regions, standing at 1.6 and 1.8%% respectively.

Table 9:
Estimated Marginal Impact of Educational Attainment Variables on the Probability of Native-
Born Persons Being Unemployed at the Time of the 2000 CPS Survey, by Regions

	(A)	(B)	(C)	(D)	(E)
Region	1 st – 8 th Grade	GED Holder	High School Diploma	GED – 1 st – 8 th Grade	GED – High School Diploma
New England	0.004	0.000	-0.006 ***	-0.004	-0.006
Middle Atlantic	-0.006 **	-0.007 ***	-0.011 ***	-0.002	-0.004
East North Central	-0.023 ***	0.005 ***	-0.011 ***	0.028	-0.016
West North Central	-0.016 ***	0.001	-0.011 ***	0.017	-0.012
South Atlantic	-0.008 ***	-0.001	-0.008 ***	0.007	-0.007
East South Central	-0.006 *	0.003	-0.002	0.009	-0.005
West South Central	0.007 ***	0.000	-0.018 ***	-0.007	-0.018
Mountain	-0.007	-0.003	-0.017 ***	0.004	-0.014
Pacific	-0.038 ***	0.004	-0.017 ***	0.042	-0.021

Note: *** significant at .01 level; ** significant at .05 level; * significant at .10 level.

The Impacts of the GED and Regular High School Diplomas on the Weekly Earnings of the Employed in 2000

The monthly CPS household surveys collect information on the weekly earnings of those employed persons holding wage and salary jobs at the time of the survey.¹¹ A set of multiple regression models of the determinants of weekly earnings were estimated with the 2000 CPS data. The dependent variable in these models is the natural log of the weekly earnings of the worker rather than the absolute dollar value of the weekly earnings due to assumptions about the underlying distribution of these weekly earnings.¹² When the coefficient of an explanatory variable in these models is between .01 and .15 it can be interpreted as equivalent to a per cent increase of that magnitude. For example, the coefficient of the GED variable in the weekly earnings model for White males was .149. The antilog of this coefficient indicates that this is equivalent to a 16% higher weekly wage than high school dropouts. As the estimated coefficient gets higher, its antilog value will exceed the coefficient by a higher amount. For example, the coefficient of .251 for the GED variable in the wage model for Hispanic women is equivalent to a near 29% higher weekly wage.

¹¹ Hourly and weekly earnings data are collected only for one-fourth of the employed respondents, i.e., those in the two out-going cohort (4 and 8). The self-employed are not asked to report weekly wages.

¹² In human capital earnings functions, the dependent variable is almost always specified as the natural log of the earnings due to right hand skewness in the distribution of weekly and annual earnings.

The result of the weekly earnings model for all workers show that those workers with only a primary school education earned about 6 percentage points less than high school dropouts. Both male and female primary school leavers earned significantly less than their high school dropout peers with the impact being somewhat more negative for men than for women (-8% versus -5%). For Black and Hispanic women, we do not find primary school leavers earning significantly less than high school dropouts.

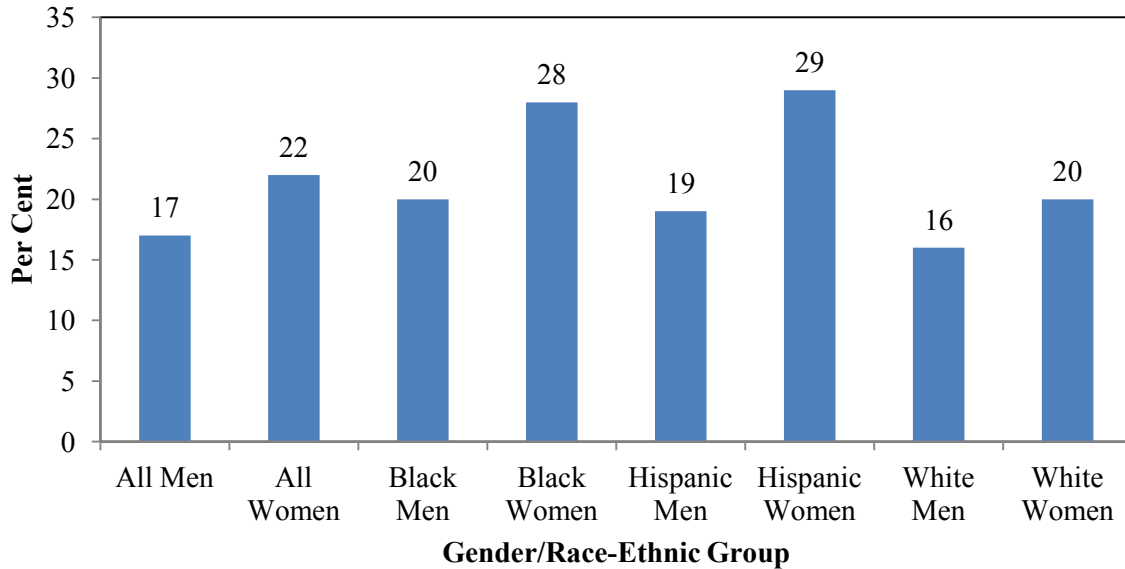
For GED holders, both overall and in each gender, race-ethnic, and age group, weekly earnings were significantly higher than those of high school dropouts and the estimated sizes of these impacts were frequently quite large. The percentage point equivalent of these coefficients was 17 percentage points for men and 22 percentage points for women (See Chart 6). The earnings impacts were in the 28 to 29 percentage point range for Black and Hispanic women but were at or close to 20 per cent for White women and Black and Hispanic males.

Table 10:
Estimated Impacts of Alternative Educational Attainment Variables on the Natural Log of the
Weekly Earnings of Employed Native-Born U.S. Adults (16-74) in Calendar Year 2000

Demographic Group	(A) 1 st – 8 th Grade	(B) GED	(C) High School Diploma	(D) GED – 1 st – 8 th Grade	(E) GED – High School Diploma
All	-.063***	.178***	.242***	.241	-.064
Male	-.084***	.156***	.227***	.249	-.071
Female	-.050***	.201***	.271***	.251	-.070
White Male	-.080***	.149***	.228***	.229	-.079
White Female	-.088***	.179***	.267***	.267	-.088
Black Male	-.051	.182***	.244***	.233	.062
Black Female	.072	.244***	.268***	.316	-.024
Hispanic Male	-.120***	.170***	.216***	.290	-.046
Hispanic Female	.007	.251***	.295***	.258	-.054
16 – 24	-.118***	.176***	.235***	.294	-.059
25 – 34	-.029	.190***	.239***	.219	-.049
35 – 44	-.047	.162***	.259***	.209	-.097
45 – 54	-.105***	.203***	.273***	.308	-.070
55 – 64	-.066**	.139***	.175***	.205	-.036

Notes: *** significant at .01 level; ** significant at .05 level; * significant at .10 level.

Chart 6:
Estimated Independent Impacts of Being a GED Holder Rather than a
High School Dropout on the Expected Weekly Earnings of¹ Employed 16-64 Year Olds in the
U.S. All and by Gender and Gender/Race-Ethnic Group, 2000



Note: The coefficients of the GED variable in the model of the natural log of weekly earnings were converted into their actual percentage point effects via their anti-log values.

While GED holders obtained significantly higher weekly earnings than high school dropouts and primary school leavers, they tended to fall short of the weekly earnings of high school graduates. The size of the weekly earnings gap between these two groups was in the 6 to 7 percentage point range for all workers and for men and women. The gaps tended to be smaller for Black women (only 2 percentage points), Hispanic males (4 percentage points), and for younger workers (under 35) and older workers (55-64). The gap for older workers was under 4 per cent.

The Estimated Independent Impact of Being a GED Holder/Regular High School Graduate on the Probability of Being Employed Full-Time Year-Round in 2000

In the next set of logit regression models, we analyze the impact of educational attainment on the likelihood of a native-born 16 to 74 year olds to be employed full-time (i.e. at least 35 hours per week) for at least 40 weeks during 2000. We call this measure – full-time year-round employment though the U.S. Census Bureau typically reserves this definition for people employed 50 or more weeks.

Our findings indicate a very strong impact of education on the probability of full-time employment. Overall, primary school dropouts were 12 percentage points less likely to be employed full time than high school dropouts, whereas GED holders were about 8 percentage points more likely and high school graduates 19 percentage points more likely to be employed full-time, year-round.

Male GED holders had a smaller advantage over high school dropouts in securing full time employment than female GED holders, 5 vs. 10 percentage points. However, the high school diploma advantage for men and women was quite, 17 vs. 18 percentage points. The impact of the high school diploma for full-time year-round employment was quite high for all race-ethnic groups.

We found that for most groups under analysis, GED holders fared about 20 percentage points better than primary school leavers but about 10 percentage points worse than high school graduates in obtaining full time year around employment. The impact of the high school diploma was also strong and consistent across the nine regions, but the impacts of the GED were much more variable, being statistically significant in only 5 of the 9 region.

Table 11:
Estimated Marginal Impacts of Educational Attainment Variables on the
Probability of Native-Born Persons Being Employed Full-Time
Year-Round in 2000, All and by Gender, Age, and Race-Ethnic Group

	(A)	(B)	(C)	(D)	(E)
Demographic Group	1 st – 8 th Grade	GED	High School Diploma	GED – 1 st – 8 th Grade	GED – High School Diploma
All	-0.123 ***	0.078 ***	0.187 ***	0.201	-0.110
Male	-0.103 ***	0.047 ***	0.167 ***	0.150	-0.120
Female	-0.113 ***	0.101 ***	0.194 ***	0.214	-0.093
White Male	-0.145 ***	0.051 ***	0.157 ***	0.197	-0.105
White Female	-0.115 ***	0.087 ***	0.179 ***	0.202	-0.092
Black Male	-0.136 ***	0.020	0.186 ***	0.156	-0.165
Black Female	-0.128 ***	0.079	0.222 ***	0.207	-0.143
Hispanic Male	0.027	0.069	0.197 ***	0.041	-0.128
Hispanic Female	-0.136 ***	0.143 ***	0.215 ***	0.279	-0.072
16 – 24	-0.056	0.046	0.204 ***	0.101	-0.158
25 – 34	-0.193 ***	0.081 ***	0.182 ***	0.274	-0.101
35 – 44	-0.193 ***	0.061 ***	0.160 ***	0.254	-0.099
45 – 54	-0.106 ***	0.098 ***	0.208 ***	0.204	-0.110
55 – 64	-0.110 ***	0.051	0.096 ***	0.161	-0.045
65 – 74	-0.023 *	0.013	0.034 ***	0.036	-0.021

Notes: *** significant at .01 level; ** significant at .05 level; * significant at .10 level.

Chart 7:
Differences in Estimated Marginal Impact Between GED Degree Holders and High School
Graduates of the Probability of Being Full-Time Year-Round During 2000, All and by Gender,
Age, and Race-Ethnic Group

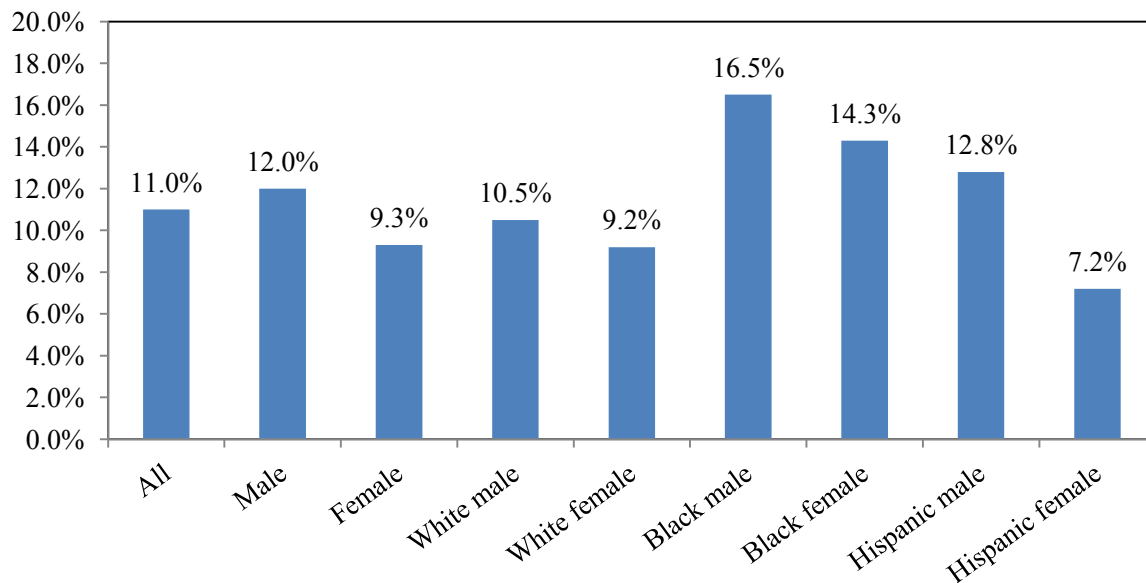


Table 12:
Estimated Marginal Impact of Educational Attainment Variables on the Probability of Native-
Born Persons Being Employed Full-Time Year Around in 2000 as recorded in March 2001 CPS
Survey, All and by Gender, Age, and Race-Ethnic Group

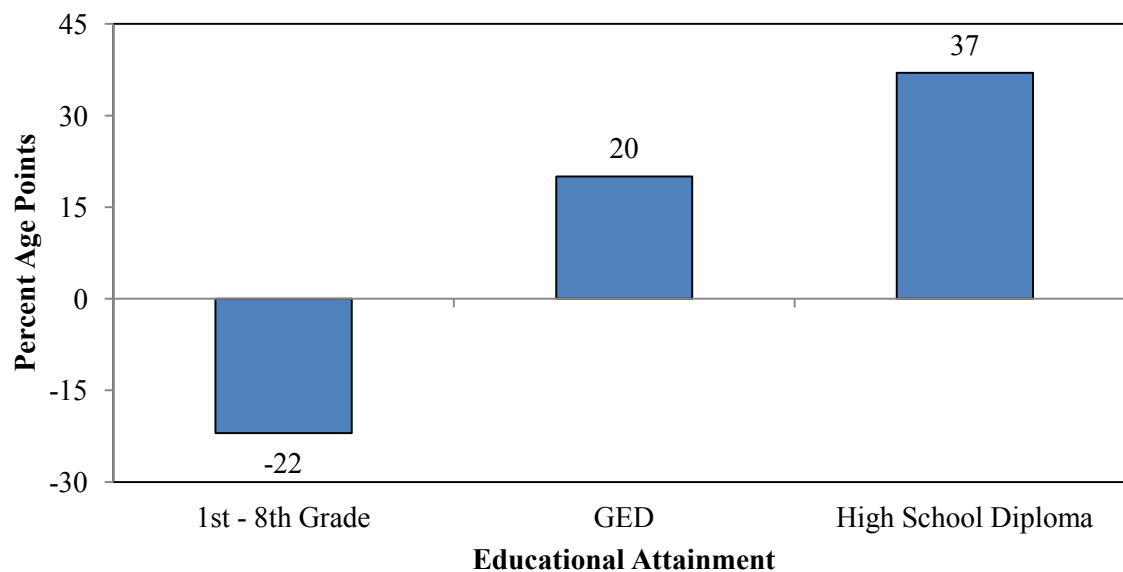
	(A)	(B)	(C)	(D)	(E)
Region	1 st – 8 th Grade	GED Holder	High School Diploma	GED – 1 st – 8 th Grade	GED – High School Diploma
New England	-0.097	0.085	0.201***	0.182	-0.116
Middle Atlantic	-0.192***	0.136***	0.233***	0.328	-0.097
East North Central	-0.18***	0.058*	0.178***	0.241	-0.120
West North Central	-0.003	0.065	0.173***	0.068	-0.107
South Atlantic	-0.140***	0.045	0.157***	0.185	-0.111
East South Central	-0.143***	-0.001	0.166***	0.143	-0.167
West South Central	-0.081*	0.123***	0.204***	0.205	-0.080
Mountain	-0.012	0.129**	0.183***	0.141	-0.055
Pacific	-0.078	0.101***	0.208***	0.179	-0.108

Note: *** significant at .01 level; ** significant at .05 level; * significant at .10 level.

The Estimated Independent Impacts of Being a GED Holder/Regular High School Graduate on Annual Earnings in 2000

Once employed, the economic value of one's educational attainment is heavily reflected in the individual's actual annual earnings. In Table 13, we present results of a set of earnings function models where the dependent variable is the natural log of an individual's annual earnings during year 2000. The findings reveal strong impacts of even limited educational attainment on the annual earnings of workers (Table 13). Overall, our findings indicate that primary school dropouts made 22% less per year than high school dropouts¹³ whereas GED holders made 20% more than dropouts and high school graduates 37% more per year than high school dropouts (Chart 8).

Chart 8:
Estimated Impacts of Alternative Educational Attainment Variables on the Expected Annual Earnings of Employed Native-born Adults Relative to High School Dropouts in 2000 (in %)



¹³ To arrive at these results, we took the anti-log of the original coefficients produced by our regression model of the natural log of the annual earnings.

Table 13:
Estimated Impact of Educational Attainment Variables on the Annual Earnings of Native-Born
Persons in 2000 All and by Gender, and Race-Ethnic/Gender Group (in Per Cent)

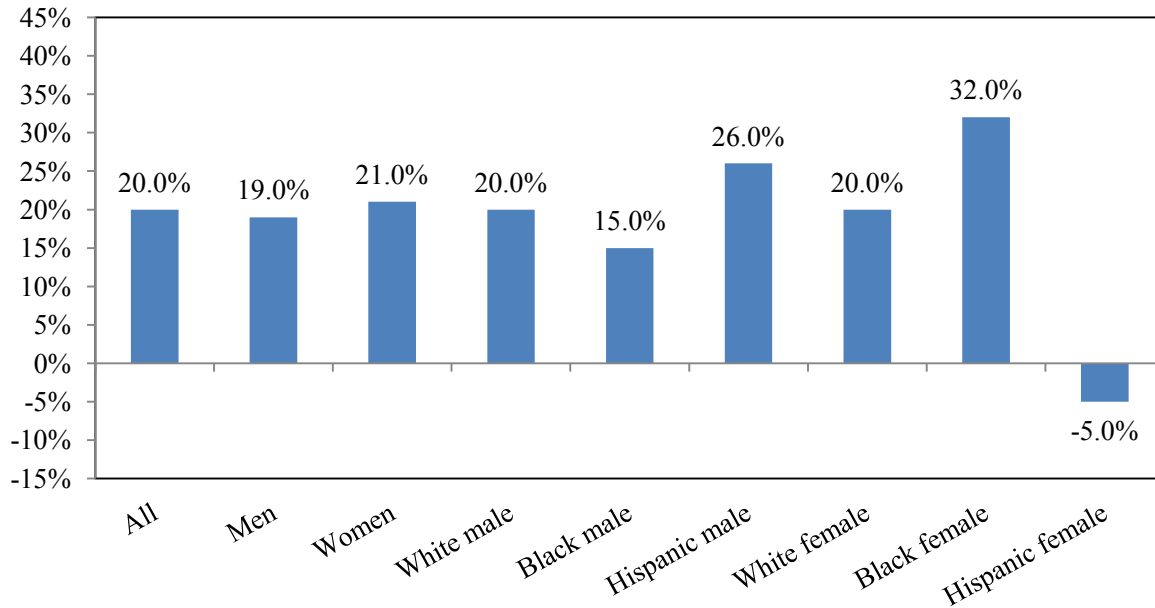
	(A)	(B)	(C)	(D)	(E)
Demographic Group	1 st – 8 th Grade	GED	High School Diploma	GED – 1 st – 8 th Grade	GED – High School Diploma
All	-0.221***	0.202***	0.373***	0.423	-0.171
Men	-0.236***	0.193***	0.310***	0.429	-0.117
Women	-0.164**	0.213***	0.466***	0.377	-0.253
White male	-0.356***	0.195***	0.276***	0.551	-0.081
Black male	-0.133	0.154	0.398***	0.287	-0.244
Hispanic male	-0.110	0.262**	0.426***	0.372	-0.164
White female	-0.214*	0.199***	0.413***	0.413	-0.214
Black female	0.036	0.324***	0.580***	0.288	-0.256
Hispanic female	-0.227	-0.055	0.552***	0.172	-0.607

Note: *** significant at .01 level; ** significant at .05 level; * significant at .10 level.

GED holders in both gender groups earned considerably more than high school dropouts and primary school leavers. The only gender/race-ethnic group of GED holders that failed to earn more than high school dropouts was Hispanic females whose earnings were not statistically different than those of high school dropouts.

High school graduates substantially out earned dropouts in every gender and race/ethnic subgroup. The gains were especially large for women (47% vs. 31% for men), with even greater gains for Black (58%) and Hispanic women (55%).

Chart 9:
Differences in Estimated Annual Earnings Between GED Holders and High School Dropouts in 2010, All and by Gender and Gender/Race-Ethnic Group



The Estimated Independent Impacts of Being a GED Holder/Regular High School Graduate on the Probability of Not Being Employed During 2000

By construction, the above analysis of annual earnings included only those individuals who found some paid employment during 2000. Therefore, it is important to augment those findings with an analysis of the probability of having no paid work during the year. In Table 14, we present the results of a set of logistic regression models where the dependent outcome is a binary variable that takes the value of “one” when the individual had no work during 2000.

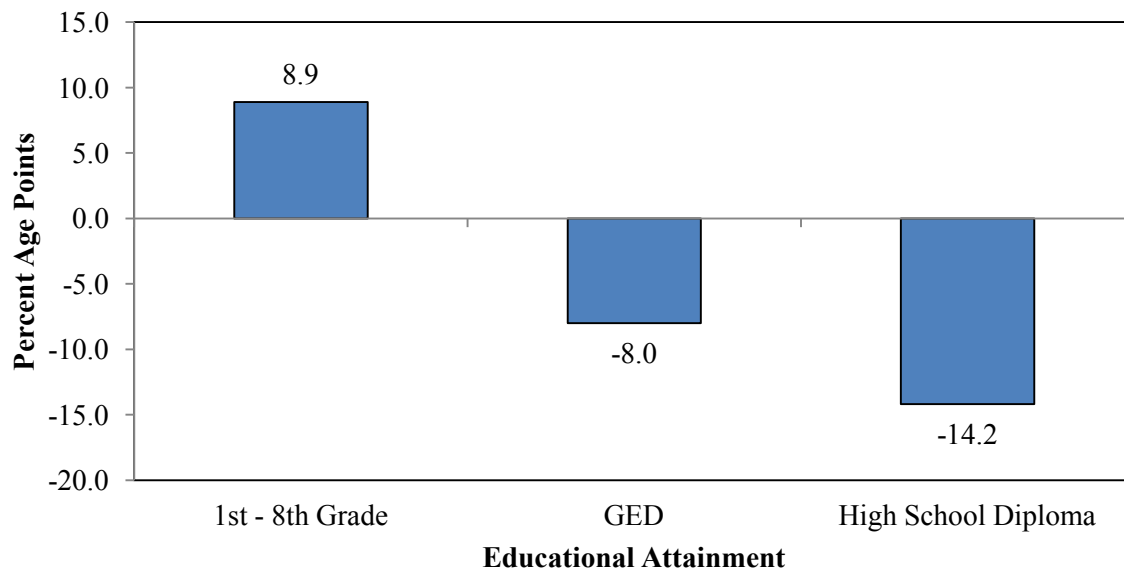
Our findings indicate that primary school dropouts were significantly more likely (+9 percentage points) to be without work than high school dropouts. While GED holders were significantly less likely to be without work during the year, and high school diploma holders were least likely to be jobless all year.

Table 14:
Estimated Marginal Impact of Educational Attainment Variables on the
Probability of Native-Born Persons Being Not Employed in 2000 as Recorded in
March 2001 CPS Survey, All and by Gender, Age, and Race-Ethnic Group

	(A)	(B)	(C)	(D)	(E)
Demographic Group	1 st – 8 th Grade	GED	High School Diploma	GED – 1 st – 8 th Grade	GED – High School Diploma
All	0.089 ***	-0.080 ***	-0.142 ***	-0.168	0.063
Men	0.051 ***	-0.039 ***	-0.105 ***	-0.090	0.067
Women	0.113 ***	-0.124 ***	-0.174 ***	-0.236	0.050
White male	0.061 ***	-0.035 **	-0.093 ***	-0.095	0.058
Black male	0.100 ***	-0.029	-0.133 ***	-0.130	0.103
Hispanic male	-0.047	-0.116 **	-0.144 ***	-0.069	0.028
White female	0.097 ***	-0.122 ***	-0.170 ***	-0.219	0.048
Black female	0.195 ***	-0.070	-0.163 ***	-0.265	0.092
Hispanic female	0.131 ***	-0.118 *	-0.160 ***	-0.249	0.042

Note: *** significant at .01 level; ** significant at .05 level; * significant at .10 level.

Chart 10:
Estimated Impacts of Alternative Educational Attainment Variables on the Probability of Non
Paid Work in 2000 Relative to High School Dropouts (In Percentage Points)



Female GED holders were significantly less likely to be without work year-round as compared to primary school leavers and high school dropouts. The impacts of having a GED

were stronger for women than for men and for Hispanics in both gender groups. Both overall and in each gender/race-ethnic group having a regular high school diploma had the largest impact on avoiding year-round joblessness.

The Estimated Independent Impacts of Being a GED Holder/Regular High School Graduate on the Probability of Being a Head of a Poor/Near Poor Family in 2000

One of the desired goals of educational policy is to enable adults to achieve sufficient earnings to avoid income inadequacy problems. Educational strategies were an important element of the nation's war on poverty since its inception in 1964.¹⁴ In the Table 15 below, we present the results of our multivariate logistic regression analysis where the dependent variable is the income status of a respondent's family. We define income inadequacy in terms of "poverty/near poverty" status. A poor or near poor family is a family with annual money income under 1.25 times the poverty level for a family of its given size and age composition. Our findings indicate that for the entire sample the likelihood of being a head of a poor/near poor family decreased steadily with each additional level of schooling. Families headed by primary school dropouts were about 6% more likely to be in poor/near poor family than high school dropouts, GED holders had about a 4 percentage point advantage over high school dropouts and high school diploma holders were about 12 percentage points less likely to be near poor or near poor.

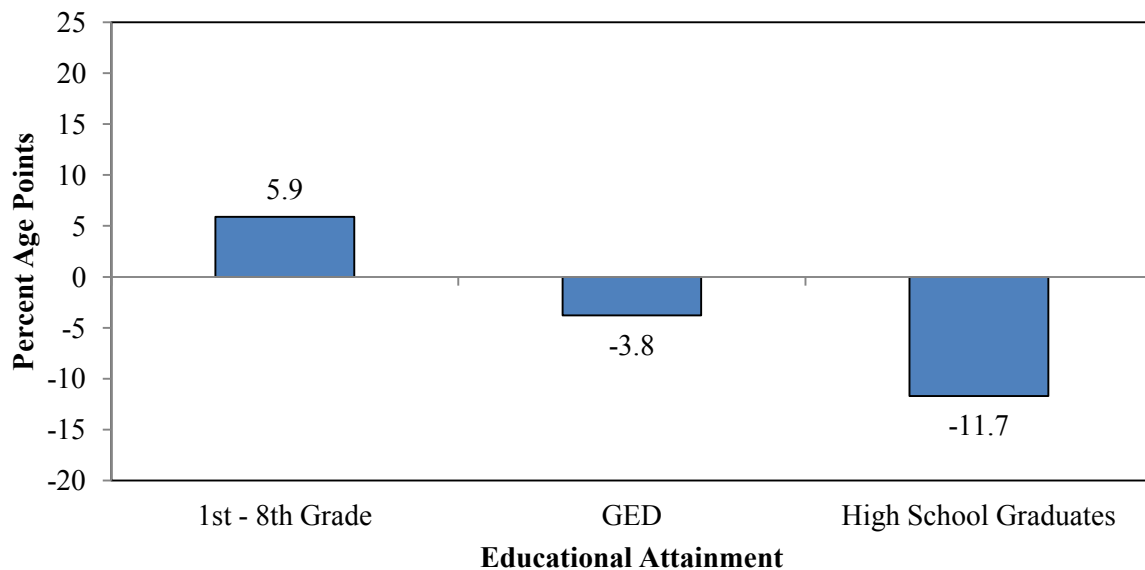
¹⁴ See: Sar Levitan, The Great Society's Poor Law, Johns Hopkins University Press, Baltimore, 1968.

Table 15:
The Estimated Marginal Impacts of Educational Attainment Variables on the Probability of
Families with Native-Born Heads to be Poor or Near Poor as Recorded in March 2001 CPS
Survey, All and by Gender, Age, and Race-Ethnic Group

Demographic Group	(A) 1 st – 8 th Grade	(B) GED	(C) High School Diploma	(D) GED – 1 st – 8 th Grade	(E) GED – High School Diploma
All	0.059***	-0.038***	-0.117***	-0.098	0.079
Male	0.010***	-0.021**	-0.091***	-0.032	0.070
Female	0.047***	-0.057***	-0.140***	-0.105	0.083
White Male	0.063***	-0.017	-0.078***	-0.080	0.061
White Female	0.037***	-0.039***	-0.108***	-0.076	0.069
Black Male	0.047	0.003	-0.119***	-0.044	0.122
Black Female	0.050	-0.136**	-0.249***	-0.185	0.113
Hispanic Male	0.046***	-0.180***	-0.176***	-0.226	-0.004
Hispanic Female	0.088**	-0.105*	-0.258***	-0.193	0.153
16 – 24	-0.142*	-0.025	-0.213***	0.117	0.188
25 – 34	0.091***	-0.085***	-0.170***	-0.176	0.085
35 – 44	0.066***	-0.043***	-0.127***	-0.108	0.085
45 – 54	0.052***	-0.018***	-0.092***	-0.070	0.074
55 – 64	0.071***	-0.023	-0.078***	-0.094	0.055
65 - 74	0.059***	-0.087***	-0.079***	-0.146	-0.008

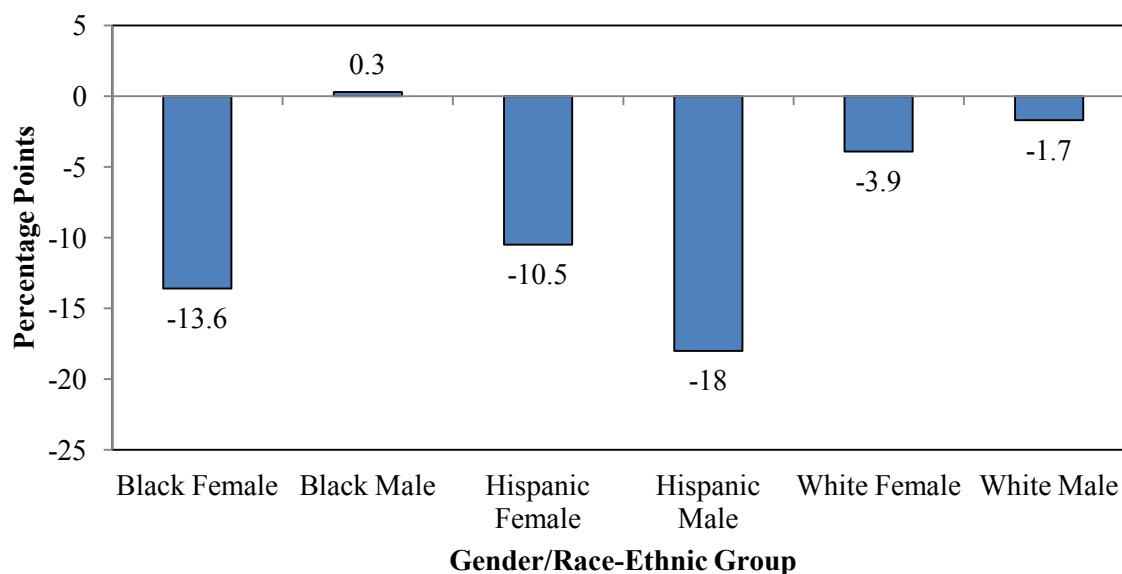
Notes: *** significant at .01 level; ** significant at .05 level; * significant at .10 level.

Chart 11:
The Estimated Impact of Alternative Educational Attainment Variables for the Family Head on
the Probability of A Family Being Poor/Near Poor in 2000 Relative to High School Dropouts
(in Percentage Points)



Both male and female GED holders were significantly less likely to be poor or near poor than their high school dropout counterparts in 2009, but the impact for women was nearly three times as high as that for men (-5.7 percentage points versus -2.1 percentage points). Among Black and White males, the GED had not statistically significant impact on being poor or near poor relative to dropouts, but it had a very large impact on poverty reduction among Hispanic males. Black females also obtained a substantial benefit in poverty reduction from possessing a GED.

Chart 12:
The Estimated Impact of a High School Diploma on the Probability of a Family Being Poor/Near
Poor Relative to High School Dropouts by Gender/Race/Ethnic Group (in Percentage Points)



The marginal impact of a high school education on the poverty status of families was higher for families headed by women than for families headed by men regardless of race/ethnic group. The high school diploma advantage over the GED certificate ranged from a low of under 1 percentage points for Hispanic males to a high of 15.3 percentage points for Hispanic females. GED holders did not fare as well as high school diploma holders on this measure for all age groups with the exception of those families headed by older individuals (65+).

The Estimated Independent Impacts of Being a GED Holder/Regular High School Graduate on the Probability of Being a Recipient of Cash Public Assistance Income in 2000

Problems of limited employment and annual earnings among adults often are accompanied by a greater reliance on cash public assistance income and in-kind assistance such as food stamps, rental assistance/public housing, and Medicaid. To identify whether a given respondent was receiving some form of cash public assistance income in 2000, we combined the following three groups: received TANF benefits, Supplemental Security Income for the aged and disabled, or general relief, using the findings of the March 2001 CPS work experience and income supplement.

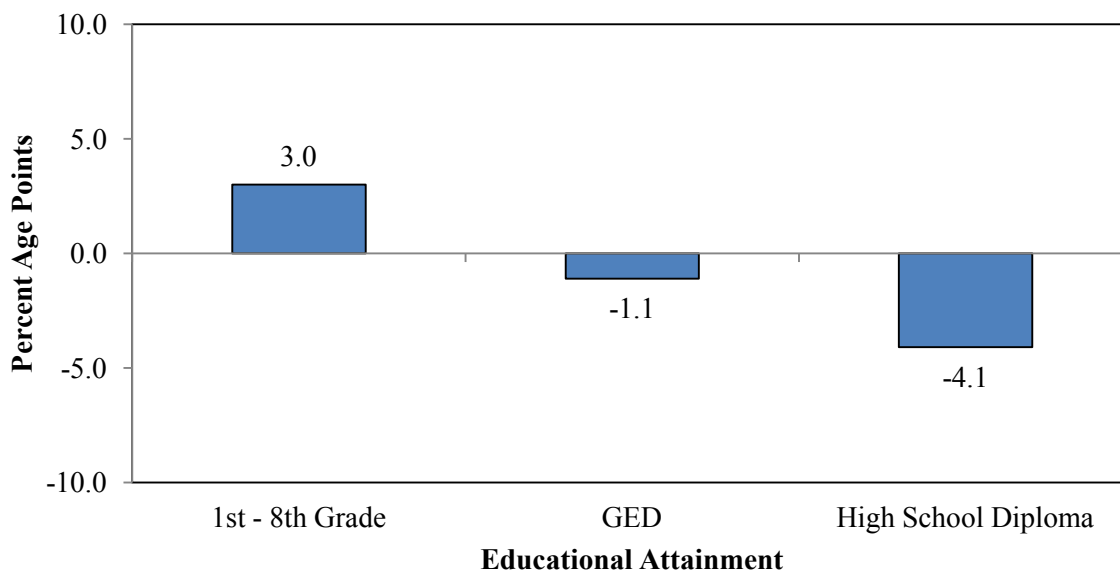
We present the analysis of the likelihood of a native-born person 16-74 years old being a recipient of government welfare. Years of schooling completed have a significant impact on the probability of being a cash welfare recipient. Overall, primary school dropouts had a higher chance of being a recipient of cash public assistance than high school dropouts while GED holders and high school diploma recipients were less likely to receive such assistance. Our findings indicate that estimated impact of the GED was quite small (-1.1 percentage points) but was statistically significant.

Table 16:
Estimated Marginal Impacts of Educational Attainment Variables on the Probability of
Native-Born Persons Being a Cash Public Assistance Recipient in 2000 Relative to High School
Dropouts, All and by Gender, Age, and Race-Ethnic Group

Demographic Group	(A) 1 st – 8 th Grade	(B) GED	(C) High School Diploma	(D) GED – 1 st – 8 th Grade	(E) GED – High School Diploma
All	0.030***	-0.011***	-0.041***	-0.041	0.030
Male	0.025***	-0.015***	-0.030***	-0.040	0.015
Female	0.034***	-0.008	-0.051***	-0.042	0.043
White Male	0.026***	-0.019***	-0.029***	-0.045	0.010
White Female	0.026***	-0.007	-0.040***	-0.033	0.034
Black Male	0.040***	0.011	-0.022**	-0.029	0.033
Black Female	0.043*	-0.006	-0.093***	-0.049	0.087
Hispanic Male	-0.007	-0.027	-0.044***	-0.020	0.018
Hispanic Female	0.061***	-0.023	-0.067***	-0.084	0.045
16 – 24	0.028*	-0.013	-0.034***	-0.041	0.022
25 – 34	0.030***	-0.009	-0.049***	-0.039	0.041
35 – 44	0.034***	-0.025***	-0.045***	-0.059	0.019
45 – 54	0.031***	0.000	-0.046***	-0.032	0.046
55 – 64	0.018**	-0.011	-0.040***	-0.029	0.028
65 - 74	0.015***	-0.016	-0.026***	-0.031	0.009

Notes: *** significant at .01 level; ** significant at .05 level; * significant at .10 level.

Chart 13:
The Estimated Impact of Alternative Educational Attainment Variables on the Probability of
Native-Born Residents Being a Recipient of Cash Public Assistance Income Relative to High
School Dropouts (in Percentage Points)



Again, we find that the impact of the GED is significantly weaker than the impact of a high school diploma across all gender, race and age groups. The marginal impact of the GED for female individuals was not statistically significant either overall or in any of the three race-ethnic groups. In contrast, the high school diploma had consistently large and negative effects on the receipt of cash public assistance income for both women and men, with sizable results for Black women (-9.3 percentage points) and Hispanic women (-6.7 percentage points).

The Estimated Impacts of Educational Attainment on the Probability of Employment Among 16-74 Year Old Native-Born Adults in 2010

The employment status and full-time employment status of the nation's native-born adults in 2010 were analyzed with a set of logit regression models similar to those used in the analysis of the 2000 monthly CPS data. Estimates of the independent impact of the three educational variables on the employment status of adults are displayed in Table 17 for all native-born adults and for gender, gender/race-ethnic, and age groups.

For the entire sample of native-born adults, the likelihood of employment rose steadily with their educational attainment (See Table 17 and Chart 14). Holding all other predictor variables constant, those adults with only a primary school education were seven percentage

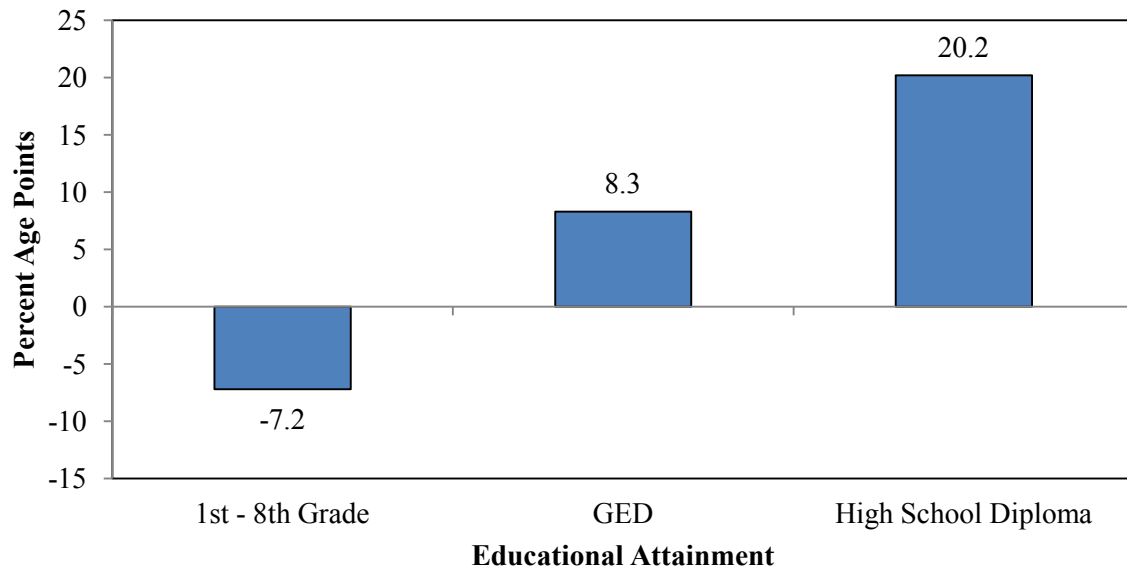
points less likely to be employed than high school dropouts while GED holders were 8.3 percentage points more likely to be employed than high school dropouts and those with a regular high school diploma were 20 percentage points more likely to be at work. Similar patterns held true for nearly each of the demographic subgroups.

Table 17:
The Estimated Impacts of Alternative Educational Attainment Variables on the
Probability of Employment Among 16-74 Year Old Native-Born Adults in the U.S.:
All and by Gender, Race-Ethnic Group, and Age Group, 2010

Demographic Group	(A) 1 st – 8 th Grade	(B) GED	(C) High School Diploma	(D) GED – 1 st – 8 th Grade	(E) GED – High School Diploma
All	-.072***	.083***	.202***	.155	-.119
Male	-.042***	.047***	.192***	.234	-.145
Female	-.107***	.125***	.211***	.318	-.086
White Male	-.026***	.059***	.196***	.222	-.137
White Female	-.130***	.124***	.209***	.339	-.085
Black Male	-.116***	.032***	.204***	.320	-.172
Black Female	-.144***	.130***	.204***	.348	-.074
Hispanic Male	-.066***	.012	.083***	.149	-.071
Hispanic Female	-.051***	.123***	.192***	.243	.069
16 – 24	-.067***	.076***	.214***	.281	-.138
25 – 34	-.043***	.081***	.191***	.234	-.110
35 – 44	-.059***	.080***	.195***	.254	-.115
45 – 54	-.083***	.081***	.218***	.301	-.137
55 – 64	-.148***	.062***	.158***	.306	-.096
65 – 74	-.056***	.052***	.054***	.108	-.002

Notes: *** significant at .01 level; ** significant at .05 level; * significant at .10 level.

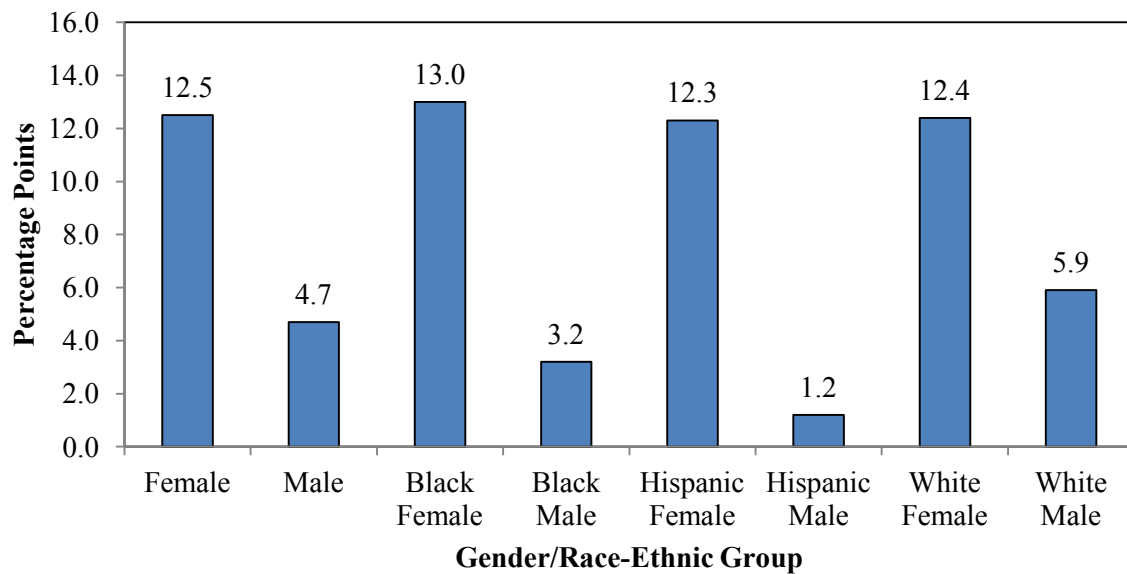
Chart 14:
Estimated Impacts of Alternative Educational Variables on the
Probability of Employment Among 16-74 year Old Native-Born Adults
Relative to that of High School Dropouts, U.S.: 2010 (in Percentage Points)



The impacts of the GED on the employment status of native-born adults varied fairly widely across gender and gender/race-ethnic groups. Similar to findings for 2009, the marginal impact of the GED on employment was considerably higher for women than for men (12.5 versus 4.7 percentage points), and similar results prevailed for each of the three race-ethnic groups. Both Black and Hispanic females benefitted much more from the GED than their male counterparts.¹⁵

¹⁵ Among Hispanic males, the GED certificate did not have any significant impact on the probability of employment. Those with a regular diploma were 8 percentage points more likely to be working than dropouts.

Chart 15:
The Estimated Impacts of a GED Credential on the Probability of Employment Relative to
Comparable High School Dropouts by Gender and Race-Ethnic Group in 2010
(in Percentage Points)



While GED holders were more likely to be employed than dropouts, they did not match the employment rates of their peers with regular high school diplomas. There was a near 12 percentage point gap in the predicted employment rates for the entire sample of adults in these two educational groups. These differences in predicted employment rates held true for each demographic group except for those 65-74 years old for whom there was no statistically significant difference in employment rates.

The Full-Time Employment Status of Native-Born Adults in 2010

Full-time jobs provide an array of economic benefits to jobholders including a considerably higher number of hours of work per week, higher hourly wages, increased receipt of key employee benefits, and more frequent training by employers, especially formal training and offsite training to improve occupational skills. Findings of the logit regression models of the full-time employment status of native-born adults (16-74) in calendar year 2010 are presented in Table 18 and Charts 16 and 17.

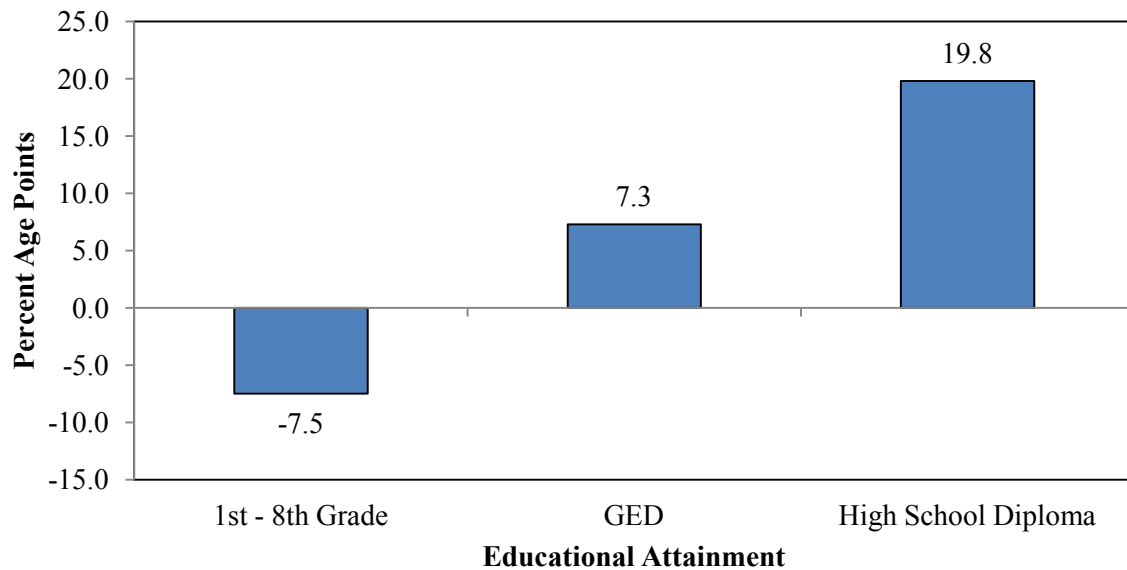
Table 18:
The Estimated Impacts of Alternative Educational Attainment Variables on the
Probability of Full-Time Employment Among 16-74 Year Old Native-Born Adults in the
U.S., All and by Gender, Race-Ethnic Group, and Age Group, 2010

	(A)	(B)	(C)	(D)	(E)
Demographic Group	1 st – 8 th Grade	GED	High School Diploma	GED – 1 st – 8 th Grade	GED – High School Diploma
All	-.075***	.073***	.198***	.148	-.125
Male	-.061***	.053***	.199***	.114	-.146
Female	-.087***	.092***	.190***	.179	-.098
White Male	-.047***	.064***	.209***	.111	-.145
White Female	-.114***	.092***	.184***	.207	-.092
Black Male	-.155***	.042***	.193***	.197	-.151
Black Female	-.112***	.076***	.213***	.188	-.137
Hispanic Male	-.093***	.142***	.064***	.235	.078
Hispanic Female	-.029***	.200***	.188***	.229	.012
16 – 24	-.084***	.086***	.186***	.170	-.100
25 – 34	-.044***	.056***	.191***	.100	-.135
35 – 44	-.070***	.096***	.217***	.166	-.121
45 – 54	-.098***	.090***	.246***	.188	-.156
55 – 64	-.162***	.042***	.147***	.204	-.105
65 – 74	-.021***	.022***	.040***	.013	-.018

Notes: *** significant at .01 level; ** significant at .05 level; * significant at .10 level.

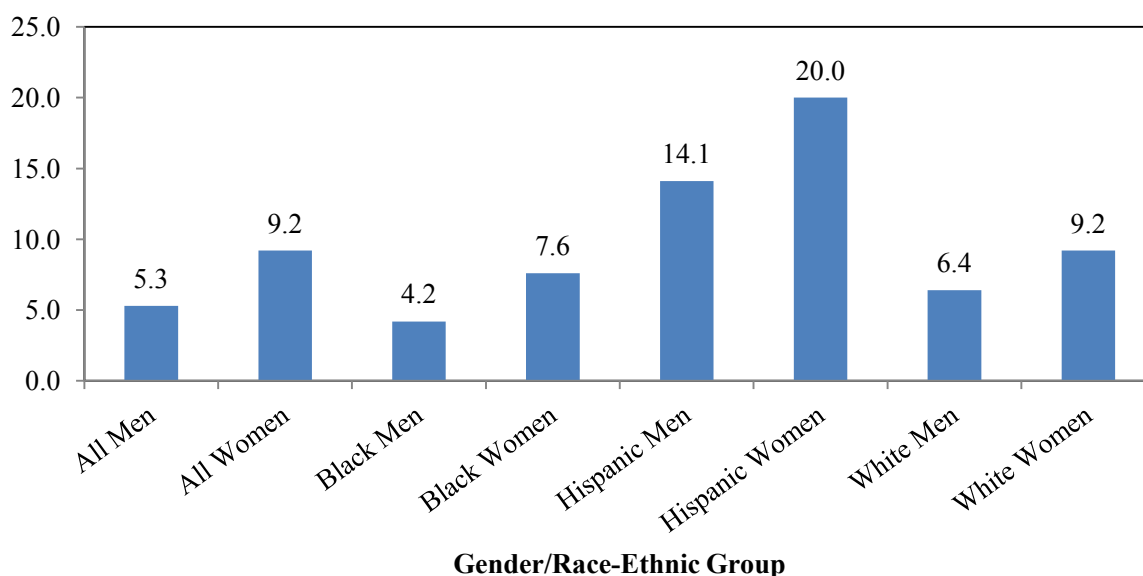
For all native-born adults, the expected probability of being employed full-time rose steadily with their level of educational attainment. Those adults with only a primary school education were 7.5 percentage points less likely than high school dropouts to be employed full-time. In contrast, those adults with a GED certificate were 7.3 percentage points more likely to be working full-time while those with a regular diploma were nearly 20 percentage points more likely to be holding a full-time job than high school dropouts (See Chart 16). All of these differences were statistically significant at the .01 level.

Chart 16:
The Estimated Impacts of Alternative Educational Variables on the Marginal Probability of Full-Time Employment Relative to High School Dropouts in 2010



These patterns of the effects of educational attainment on the probability of full-time employment held across each gender, race-ethnic, and age group. Among GED holders, the full-time employment impacts were bigger for women than for men both overall (9 versus 5 percentage points) and in each race-ethnic group (Chart 17). The marginal impacts of the GED were especially large for Hispanic men (14 percentage points) and Hispanic women (20 percentage points). The impacts were typically larger for those persons under 55 than for older adults (55+).

Chart 17:
The Estimated Impacts of the GED Credential on the Marginal Probability of Full-Time Employment Relative to High School Dropouts by Gender and Race-Ethnic Group, 2010



While GED holders clearly outperformed both primary school leavers and high school dropouts, they consistently fell short of the full-time employment rates of regular high school graduates, both in the aggregate (-12.5 percentage points) and in nearly all demographic groups, with the main exception of Hispanic men and women. The gap between the estimated impacts of the GED and a regular high school diploma on the probability of full-time employment was larger for men than for women (15 vs. 10 percentage points), especially among Whites. Obtaining a regular high school diploma substantially raised the prospects for full-time employment relative to being a dropout. Overall and for men and women separately, the effects were in the 19 to 20 percentage point range. These large favorable impacts on full-time employment were the combined result of three sets of behaviors: a higher degree of labor force attachment, a lower unemployment rate, and a greater tendency to work full-time when employed.

The Estimated Independent Impacts of Being a GED Holder/Regular High School Graduate on the Probability of Unemployment in 2010

We now turn to an analysis of the unemployment experiences of native-born adults in 2010. As mentioned in an earlier section of this paper, this time period was characterized by one of the deepest recessions in decades with a seasonally adjusted monthly unemployment rate

reaching close to 10% in late 2009 and remaining at 95 in calendar year 2010. This provides us with an excellent comparison for the analysis of the 2000 data which was a cyclical peak year in the business cycle with an annual average unemployment rate of only 4.0%. In Table 19, we present the findings of the unemployment models. The unemployment rate of native-born persons in 2010 was significantly influenced by the level of educational attainment. Our findings again indicate somewhat surprisingly that primary school dropouts were less likely to be unemployed than dropouts, GED holders were only slightly less likely (-.8 percentage points) to be unemployed than high school dropouts, while high school graduates were significantly less likely to be unemployed, with the marginal effect standing at a substantial 7.1 percentage points.

Among GED holders, the impacts on the probability of unemployment were significant only for women (-1.9 percentage points). The GED significantly lowered the probability of unemployment for women in each of the three race-ethnic groups, with particularly large impacts on Black (-4.2 percentage points) and Hispanic women (-6.3 percentage points). White males were the only group of men to benefit from the GED in terms of a lower unemployment rate.

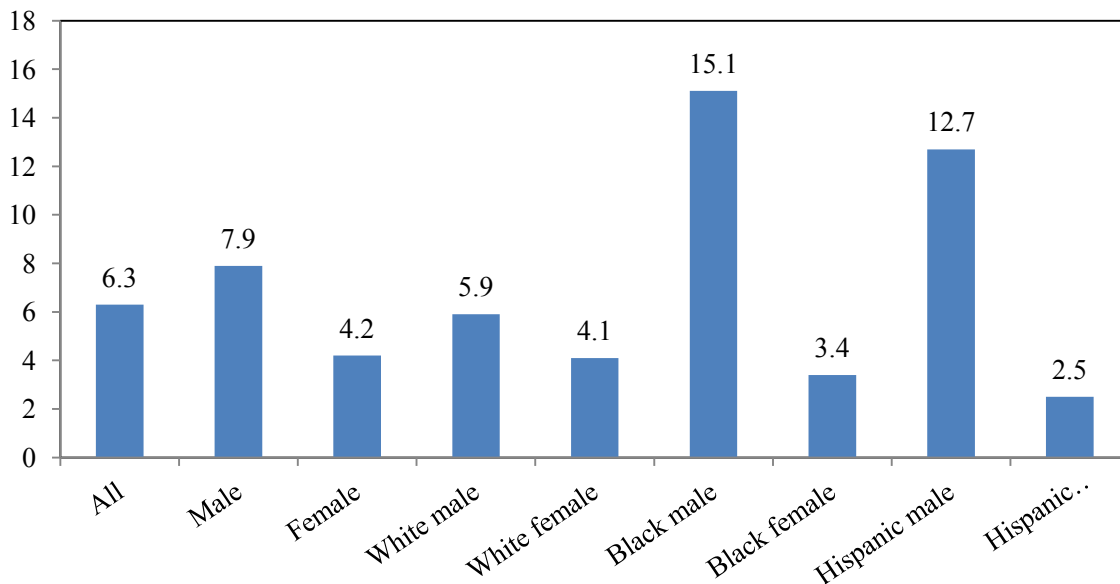
The high school diploma had consistently much greater impacts on reducing unemployment than the GED for all demographic groups. Overall, the high school diploma lowered the likelihood of being unemployed by about 6.3 percentage points. The difference in impacts were larger for men than for women especially Black and Hispanic men.

Table 19:
Estimated Marginal Impact of Educational Attainment Variables on the
Probability of Native-Born Persons Being Unemployed at the Time of the
Monthly 2010 CPS Surveys, All and by Gender, Age, and Race-Ethnic Group

	(A)	(B)	(C)	(D)	(E)
Demographic Group	1 st – 8 th Grade	GED	High School Diploma	GED – 1 st – 8 th Grade	GED – High School Diploma
All	-0.038***	-0.008***	-0.071***	0.030	0.063
Male	-0.053***	-0.001	-0.080***	0.053	0.079
Female	-0.018***	-0.019***	-0.061***	-0.001	0.042
White Male	-0.044***	-0.012***	-0.071***	0.033	0.059
White Female	-0.023***	-0.014***	-0.055***	0.009	0.041
Black Male	-0.105***	0.013	-0.139***	0.117	0.151
Black Female	-0.062**	-0.042***	-0.077***	0.019	0.034
Hispanic Male	-0.080***	0.036***	-0.091***	0.116	0.127
Hispanic Female	0.007	-0.063***	-0.088***	-0.070	0.025
16 – 24	-0.189***	-0.020*	-0.143***	0.169	0.123
25 – 34	-0.054***	-0.022***	-0.108***	0.032	0.086
35 – 44	-0.004	-0.006	-0.068***	-0.001	0.063
45 – 54	-0.039***	-0.011**	-0.058***	0.028	0.047
55 – 64	0.017**	0.017**	-0.009**	0.001	0.026
65 - 74	0.015	0.030***	-0.011	0.015	0.040

Notes: *** significant at .01 level; ** significant at .05 level; * significant at .10 level.

Chart 18:
Differences in Estimated Marginal Impacts Between GED Holders and
High School Graduates on the Probability of Being Unemployed at the Time of the 2010 CPS
Survey, All and by Gender, Age and Race-Ethnic Group (in Percentage Points)



The Weekly Earnings of the Employed in 2010: The Estimated Impacts of Educational Attainment

While adults with a GED or a regular high school diploma clearly do outperform their less educated peers in obtaining employment and full-time jobs, did they also obtain higher weekly earnings when they worked in 2010? Higher human capital may improve weekly earnings through both hours of work effects and through hourly wage effects by improving their access to more highly skilled jobs or by directly raising their productivity. Earlier reports in this series had revealed that GED holders and high school graduates were more likely than high school dropouts to obtain employment in higher level professional, technical, managerial, and administrative support occupations.

Similar to our analysis of the 2000 weekly earnings data, a series of multiple regression models of the weekly earnings of employed wage and salary workers were estimated. The dependent variable in these models is the natural log of the weekly earnings of the employed at the time of the survey. The estimated coefficients for the three educational variables were converted into their antilog values to allow us to obtain estimates of the per cent increase (decrease) in expected weekly earnings from having a GED, a regular diploma, or only a primary school education. The base group consists of employed high school dropouts.

Overall, the expected level of weekly earnings increased with the amount of schooling possessed by the respondent (Table 20 and Chart 19). Those native-born adults with only a primary school education earned 10 per cent less than otherwise comparable high school dropouts while GED holders earned 18 per cent more and those with a regular high school diploma earned 28 per cent more than employed dropouts. All of these estimated differences in weekly earnings were statistically significant at the .01 level.

Similar though not identical patterns in the wage impacts of education held true for most of the demographic groups. The one major exception was the impact of a primary school education. For several of the race/ethnic groups (Black men and women) and for the younger workers (those under 35), there was no statistically significant difference between the weekly wages of those with only a primary school education and high school dropouts. The GED credential consistently increased the expected weekly earnings of each demographic group. The estimated impacts were quite high for both men and women and for both male and female Black and White workers. The GED increased the weekly earnings of Black men and women by 22 to 23 percentage points.

Table 20:
The Estimated Impacts of Alternative Educational Attainment Variables on the
Expected Weekly Earnings of Employed 16-64 Year Old Adults in the U.S.,
All and by Gender, Race-Ethnic, and Age Group, 2010

Demographic Group	(A) 1 st – 8 th Grade	(B) GED	(C) High School Diploma	(D) GED – 1 st – 8 th Grade	(E) GED – High School Diploma
All	-.10***	.18*** ⁽¹⁾	.28***	.28	-.10
Male	-.13***	.16***	.26***	.29	-.10
Female	-.05*	.18***	.31***	.23	-.13
White Male	-.12***	.17***	.27***	.29	-.10
White Female	-.07*	.18***	.31***	.25	-.13
Black Male	-.08	.22***	.26***	.30	-.04
Black Female	-.10	.23***	.34***	.33	-.11
Hispanic Male	-.18***	.11***	.23***	.29	-.12
Hispanic Female	-.07	.11***	.27***	.18	-.16
16 – 24	.01	.17***	.23***	.16	-.06
25 – 34	-.06	.12***	.27***	.18	-.15
35 – 44	-.12***	.20***	.32***	.32	-.12
45 – 54	-.06	.20***	.34***	.26	-.14
55 – 64	-.20***	.13***	.21***	.33	-.08

Notes: *** significant at .01 level; ** significant at .05 level; * significant at .10 level.

Note: A +.18 implies an 18% increase in expected weekly wages of a GED holder relative to those of a high dropout.

Chart 19:
Estimated Impacts of Alternative Educational Variables on the Weekly Earnings of
Employed Native-Born Adults Relative to High School Dropouts in 2010 (in Per Cent)

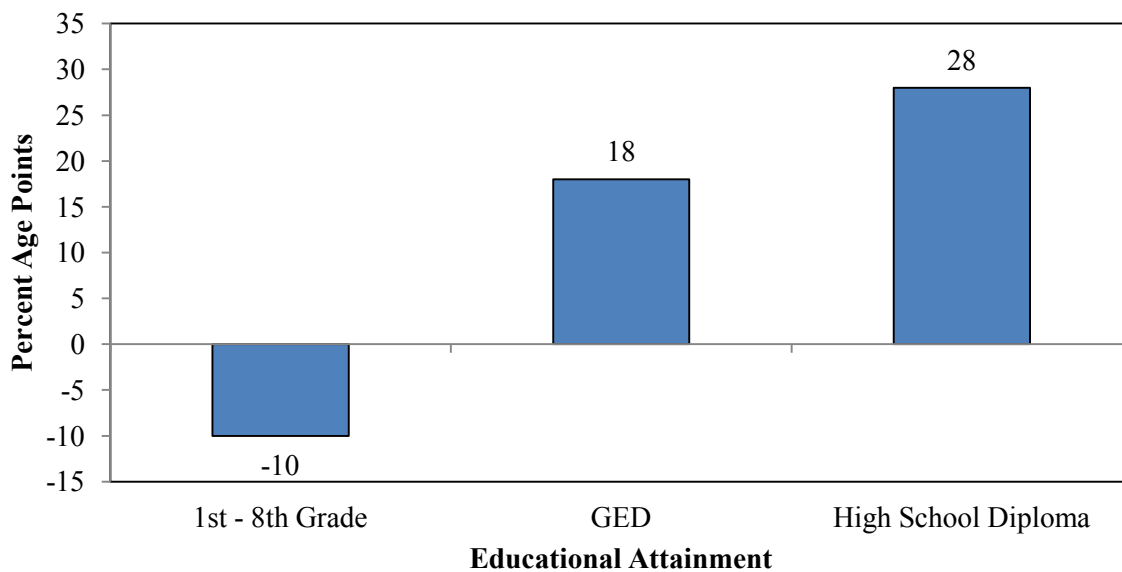
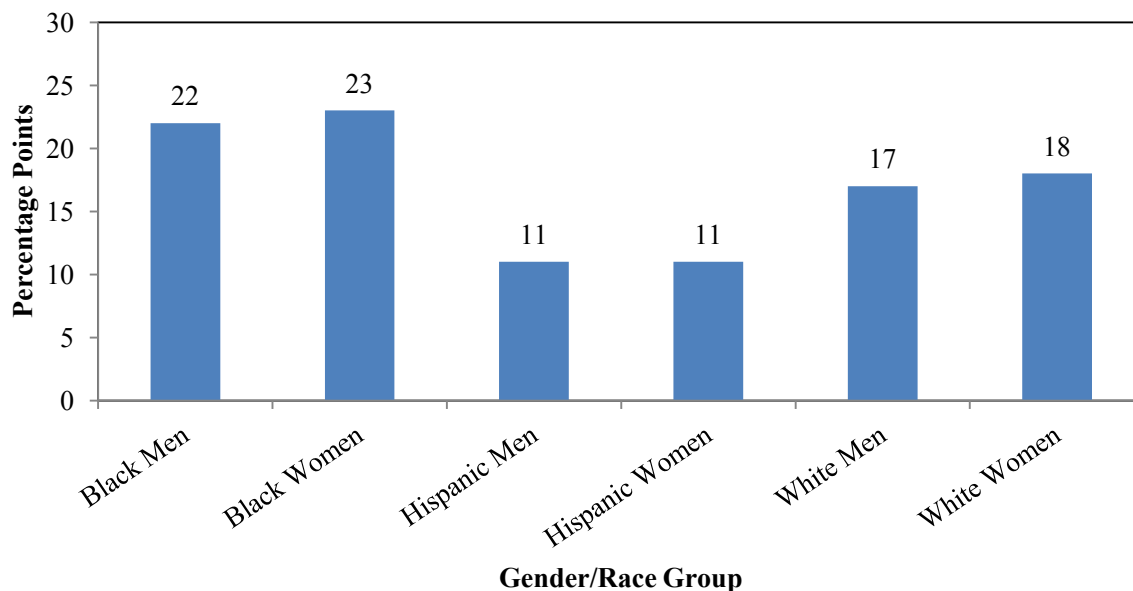


Chart 20:
Estimated Impacts of A GED on the Weekly Earnings of Employed Native-Born
Adults Relative to Employed High School Dropouts by Gender/Race Group: 2010



Obtaining a regular high school diploma had consistently large effects on the weekly earnings of the employed in every gender, race-ethnic, and age group, with the estimated sizes of these effects ranging from 21 to 34 per cent. For every demographic group, the weekly earnings impact of a regular high school diploma was higher than that of GED holders, with the percentage point sizes of these differences ranging from 4 to 16 percentage points.

The combination of favorable point-in-time employment and weekly earnings effects from possessing a GED or high school diploma would be expected to have positive impacts on their year-round employment and annual earnings experiences. Following sections will address these issues using both the March 2010 CPS work experience data for 2009 and the findings of the 2010 American Community Surveys.

The Estimated Independent Impacts of Being a GED Holder/Regular High School Graduate on the Probability of Being Employed Full-Time Year-Round in 2009

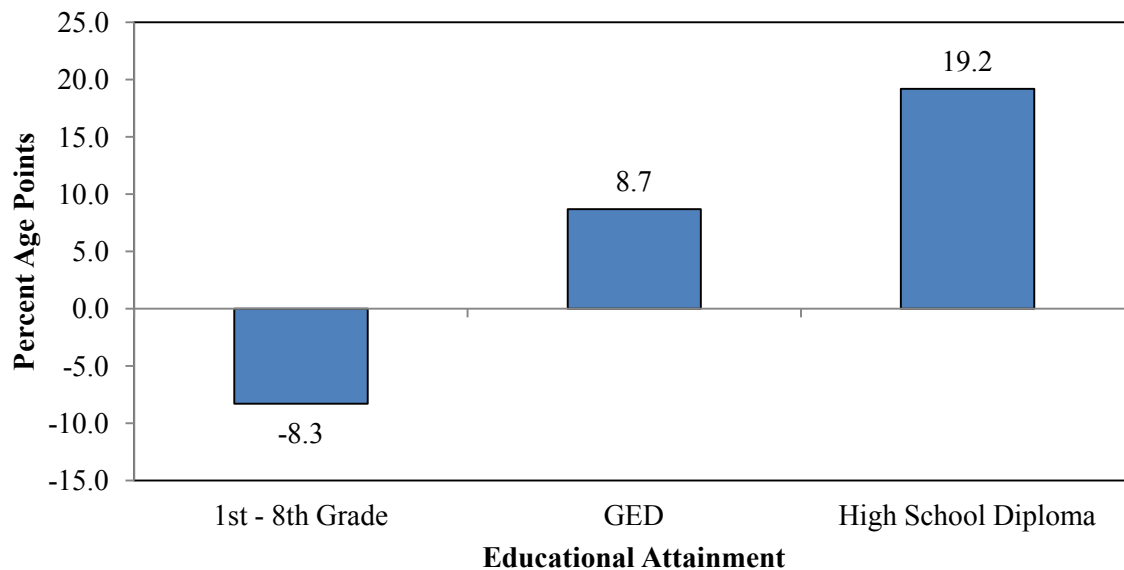
The findings of the March 2010 work experience survey also can be used to identify the employment behavior of respondents throughout calendar year 2009, including weeks worked and average hours per week. We identified all persons who worked forty or more weeks on a full-time basis during that year. The regression findings for 2009 are consistent with our previous findings for 2000. We found that additional educational attainment significantly increased the individual's chances of working full-time, year-round. Primary school dropouts were about 8.3 percentage points less likely to be employed full-time than high school dropouts, while GED holders were 8.7 percentage points more likely and high school diploma holders 19.2 percentage points more likely to be a full-time, year-round worker.

Table 21:
Estimated Marginal Impact of Educational Attainment Variables on the
Probability of Native-Born Persons Being Employed Full-Time, Year-Round in
2009, All and by Gender, Age, and Race-Ethnic Group

	(A)	(B)	(C)	(D)	(E)
Demographic Group	1 st – 8 th Grade	GED	High School Diploma	GED – 1 st – 8 th Grade	GED – High School Diploma
All	-0.083***	0.087***	0.192***	0.171	-0.104
Male	-0.080***	0.065***	0.189***	0.145	-0.124
Female	-0.087***	0.108***	0.189***	0.195	-0.081
White Male	-0.050	0.058**	0.209***	0.108	-0.151
White Female	-0.087**	0.114***	0.182***	0.201	-0.069
Black Male	-0.159**	0.058	0.152***	0.217	-0.093
Black Female	-0.102	0.144***	0.209***	0.246	-0.064
Hispanic Male	-0.094	0.166***	0.146***	0.260	0.020
Hispanic Female	-0.117*	0.074	0.180***	0.191	-0.106
16 – 24	0.047	0.078**	0.197***	0.030	-0.120
25 – 34	-0.034	0.106***	0.195***	0.139	-0.090
35 – 44	-0.070	0.116***	0.221***	0.186	-0.105
45 – 54	-0.118***	0.093***	0.222***	0.212	-0.129
55 – 64	-0.146***	0.059	0.155***	0.205	-0.096
65 – 74	-0.036*	0.011	0.025**	0.047	-0.014

Notes: *** significant at .01 level; ** significant at .05 level; * significant at .10 level.

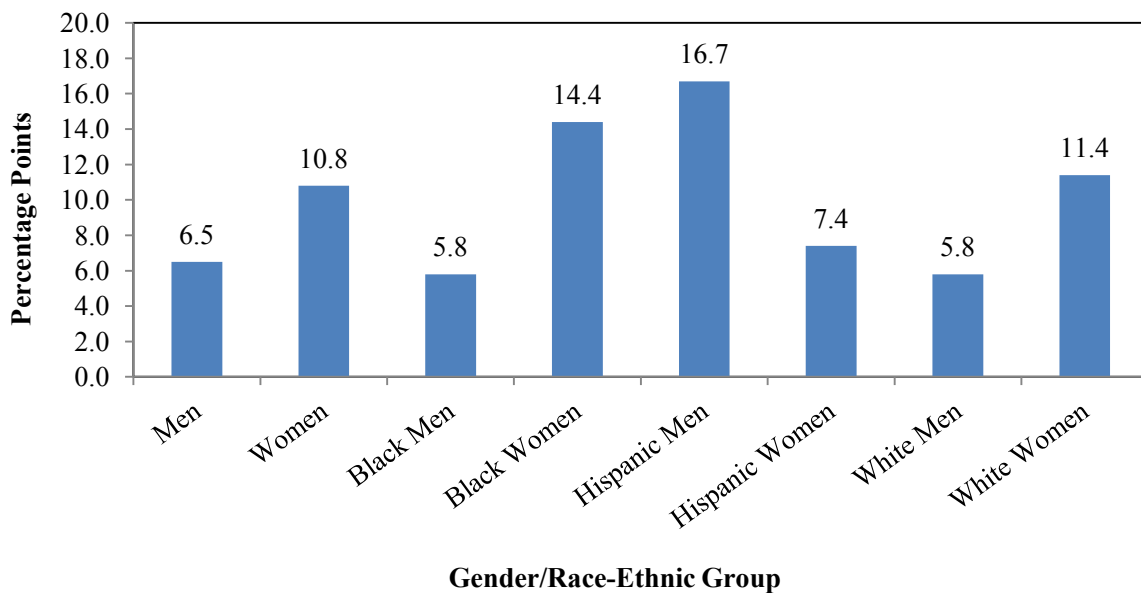
Chart 21:
Estimated Impacts of Alternative Educational Attainment Variables on the
Probability of Full-Time, Year-Round Employment Among Native-Born
Adults (16-74) Relative to High School Dropouts in 2009 (in Percentage Points)



GED holders were significantly more likely to work full-time, year-round than high school dropouts for both men and women overall and in each race-ethnic group.¹⁶ The size of these impacts were larger for women than for men, both overall and among Blacks and Whites. The impacts of the GED also were significant for all age groups under 55 and were fairly large (8 to 12 percentage points).

¹⁶ The estimated impact for Black males was not quite statistically significant at the .10 level. The estimated size of the coefficient (+5.8 percentage points) was quite close to that for all males.

Chart 22:
Estimated Impacts of the GED on the Probability of Full-Time, Year-Round
Employment Among 16-74 Year Olds by Gender/Race-Ethnic Group, 2009



While GED holders were more likely to work year-round, full-time than their high school dropout counterparts, they almost always failed to match the performance of regular high school graduates. The gaps were typically larger for men than for women (12.4 percentage points versus 8.1 percentage points), especially among Blacks and Whites. The gaps were fairly large for each age group except those 65-74 years old.

The Estimated Independent Impacts of Being a GED Holder/Regular High School Graduate on the Probability of Being a Head of a Poor/Near Poor Family in 2009

The more limited rates of employment, weeks of work, and weekly earnings of the less educated would be expected to increase their risks of various income inadequacy problems. Findings of our regression analysis of the poor/near poor status of families bears this out. Educational attainment was a strong predictor of the likelihood of an individual family being poor or near poor in 2009. The results were similar to those we found for 2000. A family headed by a primary school dropout was nearly 7 percentage points more likely to be poor/near poor than high school dropouts in 2009 while those families headed by GED holders (-6 percentage

points) and those with regular high school diplomas (-14 percentage points) were significantly less likely to be poor or near poor.¹⁷

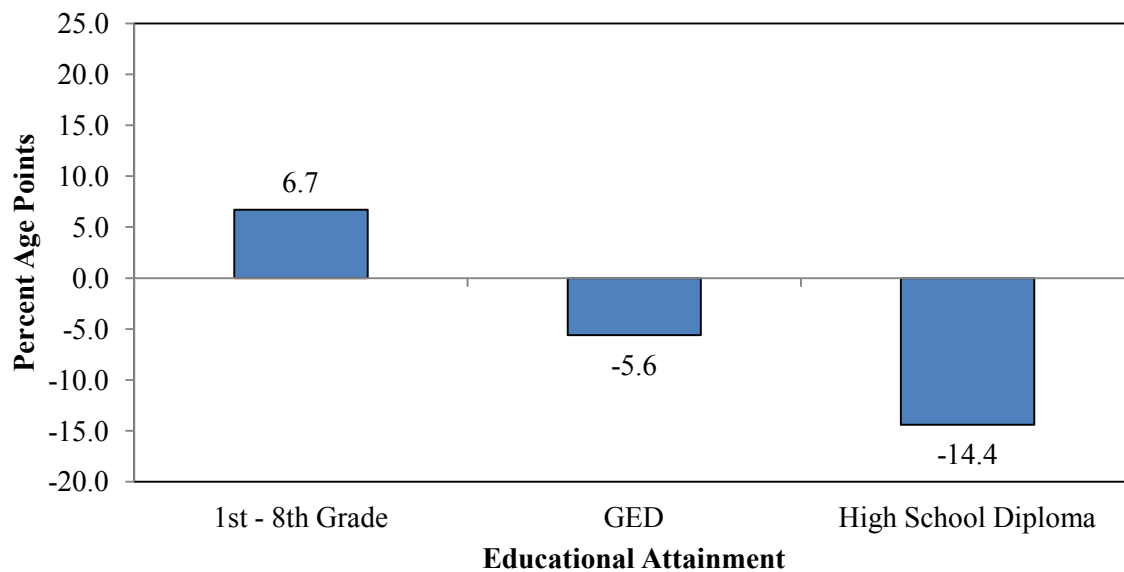
Table 22:
Estimated Marginal Impact of Educational Attainment Variables on the
Probability of Households with Native-Born Heads Being Poor or Near Poor in 2009,
All and by Gender, Age, and Race-Ethnic Group

Demographic Group	(A) 1 st – 8 th Grade	(B) GED	(C) High School Diploma	(D) GED – 1 st – 8 th Grade	(E) GED – High School Diploma
All	0.067***	-0.056***	-0.144***	-0.123	0.088
Male	0.043***	-0.052***	-0.115***	-0.095	0.063
Female	0.096***	-0.057***	-0.173***	-0.153	0.116
White Male	0.030**	-0.058***	-0.104***	-0.088	0.046
White Female	0.095***	-0.041***	-0.144**	-0.136	0.103
Black Male	0.012	0.054	-0.117***	0.042	0.171
Black Female	0.089	-0.190***	-0.244***	-0.279	0.053
Hispanic Male	0.098**	-0.079*	-0.180***	-0.178	0.100
Hispanic Female	0.060	-0.067	-0.203***	-0.127	0.136
16 – 24	0.292	-0.096*	-0.298***	-0.388	0.201
25 – 34	0.065	-0.085**	-0.230***	-0.150	0.145
35 – 44	-0.014	-0.084***	-0.171***	-0.070	0.087
45 – 54	0.055***	-0.039**	-0.126***	-0.093	0.087
55 – 64	0.063***	-0.043**	-0.115***	-0.105	0.073
65 – 74	0.088***	-0.073**	-0.061***	-0.162	-0.013

Notes: *** significant at .01 level; ** significant at .05 level; * significant at .10 level.

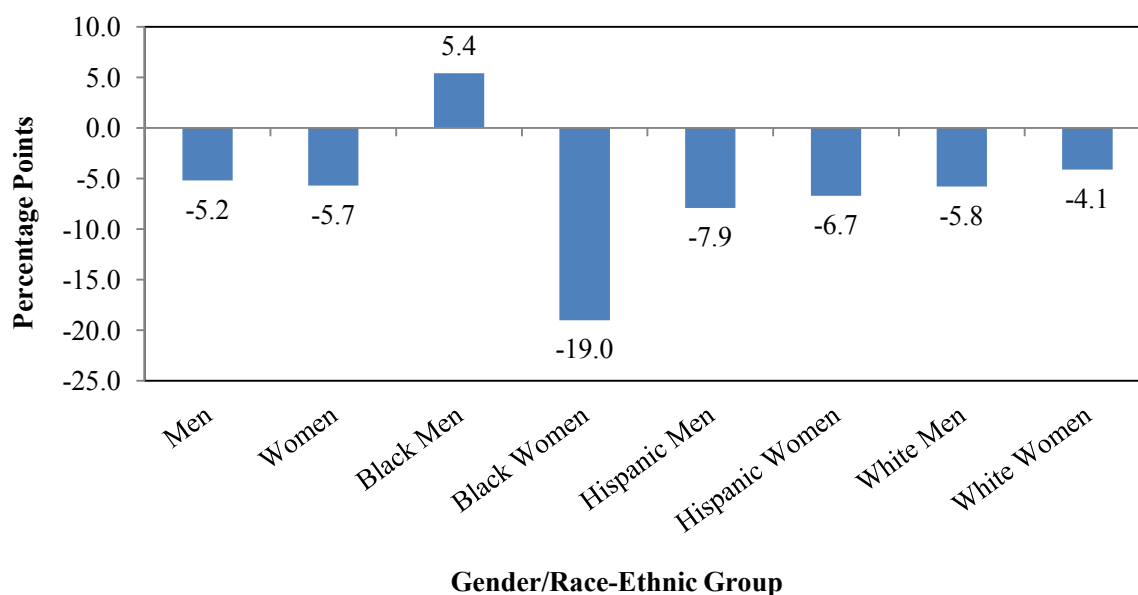
¹⁷ Persons living alone or with others to whom they were not related were treated as a family of one in determining their poverty status.

Chart 23:
Estimated Impact of Alternative Educational Attainment Variables on the
Probability of a Family Being Poor or Near Poor in 2009 (in Percentage Points)



The GED certificate had nearly identical results in reducing the incidence of poverty/near poverty problems among families headed by men and women. Similar gender results prevailed among Whites as well (-5.8 percentage points for men and -4.1 percentage points for women). However, among Blacks, all of the impact was felt among women (a large -19 percentage points) while the GED had a positive but statistically insignificant effect upon men. The GED significantly reduced poverty/near poverty problems among each age group with the size of the estimated impacts ranging from approximately 4 to 10 percentage points.

Chart 24:
Estimated Impact of the GED on the Probability of a Family Being Poor or
Near Poor by Gender/Race-Ethnic Characteristics of Family Head (in Percentage Points)



While the GED clearly helped reduce poverty/near poverty problems of nearly all major demographic groups in the nation in 2009, it was not as effective in doing so as the regular high school diploma. This was true for both men and women, each gender/race-ethnic group (especially Black men and Hispanic men and women), and each age group, except those 65-74 where the GED and the regular high school diploma had statistically identical effects on poverty reduction.

The Estimated Independent Impacts of Being a GED Holder/Regular High School Graduate on the Probability of Being a Recipient of Cash Public Assistance Income or Worker's Compensation in 2009

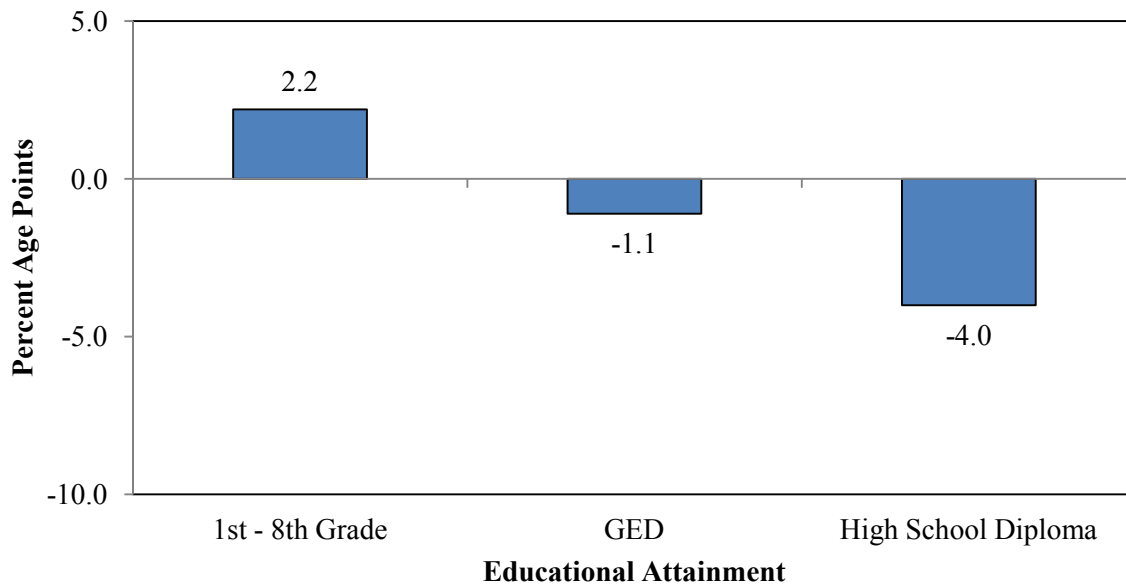
In our next set of models, the dependent variable is a dichotomous variable that represents the individual's status as a recipient of cash public assistance income or worker's compensation. Any person receiving TANF benefits, SSI benefits, general relief or comparable public assistance income, or worker's compensation payments is considered a "public assistance recipient". Findings for 2009 are very similar to those for the year 2000 (See Table 23). Overall, the marginal impact of being a primary school leaver was a positive 2 percentage points, as compared to a -1 percentage point for GED holders and -4 percentage points for high school graduates. All of these coefficients were statistically significant at the .01 level.

Table 23:
Estimated Marginal Impacts of Educational Attainment Variables on the Probability of
Native-Born Persons Being a Recipient of Cash Public Assistance Income or Worker's
Compensation in 2009, All and by Gender, Age, and Race-Ethnic Group

	(A)	(B)	(C)	(D)	(E)
Demographic Group	1 st – 8 th Grade	GED	High School Diploma	GED – 1 st – 8 th Grade	GED – High School Diploma
All	0.022***	-0.011 ***	-0.040***	-0.033	0.028
Male	0.022***	-0.008	-0.027***	-0.030	0.018
Female	0.021***	-0.013**	-0.053***	-0.034	0.039
White Male	0.014**	-0.007	-0.028***	-0.021	0.021
White Female	0.053***	-0.001	-0.019*	-0.054	0.017
Black Male	0.015*	-0.022	-0.021***	-0.038	-0.001
Black Female	0.023***	-0.008	-0.039***	-0.031	0.031
Hispanic Male	0.051*	-0.086***	-0.114***	-0.136	0.029
Hispanic Female	-0.023	0.010	-0.062***	0.033	0.072
16 – 24	0.022	-0.010	-0.025***	-0.032	0.015
25 – 34	-0.004	-0.004	-0.039***	0.001	0.035
35 – 44	0.034***	-0.027***	-0.044***	-0.061	0.016
45 – 54	0.021**	-0.011	-0.042***	-0.032	0.031
55 – 64	0.018*	0.000	-0.042***	-0.018	0.042
65 - 74	0.009**	-0.019**	-0.033***	-0.029	0.014

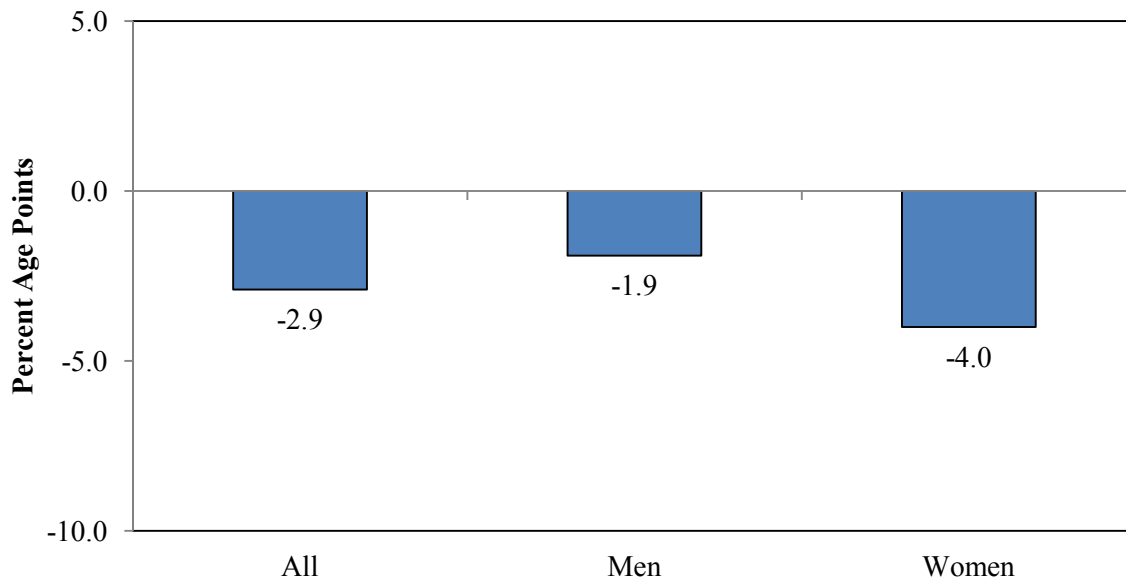
Notes: *** significant at .01 level; ** significant at .05 level; * significant at .10 level.

Chart 25:
Estimated Impacts of Alternative Educational Attainment Variables on the
Probability of A Native-Born Adult Receiving Cash Public Assistance Income or
Worker's Compensation Relative to High School Dropouts in 2009 (in Percentage Points)



The impacts of the GED certificate on the dependency variable were highly disparate across demographic groups. They were significant only for women (-1.3 percentage points), especially Black women (-8.6 percentage points), and for only 2 of the 6 age groups. Impacts on public assistance dependency were larger and consistently significant for high school diploma holders. Again, the GED is not found to be the equivalent of the regular high school diploma in achieving another desirable economic and social outcome.

Chart 26:
Percentage Point Differences in the Impacts of a GED and a Regular
High School Diploma on Reducing the Incidence of Receipt of Cash Public
Assistance Income Among 16-64 Year Olds in 2009, All and by Gender



The Employment, Annual Earnings, and Income Inadequacy Experiences of Native-Born Adults in 2009-2010: Findings of the 2010 American Community Surveys

Another national data source on the labor market, annual earnings, and income experiences of U.S. adults is that of the American Community Surveys. This U.S. Census Bureau survey has collected data from nearly 1.6 million households in recent years, obtaining information on their labor force status (employed, unemployed, not in the labor force) at the time of the survey, their weeks and weekly hours of employment in the previous 52 weeks, their annual earnings from paid employment, and their personal and household income in the prior 52 week period. The findings of the 2010 American Community Surveys were used to estimate a series of multivariate statistical models of the employment, earnings, and income experiences of U.S. adults (16-64) with no completed years of formal schooling beyond high school.¹⁸ Very large sample sizes allowed us to estimate these models for an extensive array of demographic subgroups, including age by gender subgroups, and each of the nine geographic divisions of the

¹⁸ The models for the two employment variables and the two income status variables were linear probability models estimated with ordinary least squares regression techniques.

nation.¹⁹ A listing and definitions of the dependent and independent variables appearing in these models is presented in the table on the following three pages.

¹⁹ The regional classifications of states are those of the U.S. Census Bureau.

Table 24:
Definitions of the Dependent and the Independent Variables Appearing in the
Multiple Regression Models Predicting the Employment Status, Full-Time/
Year-Round Employment Status, the Annual Earnings, Poverty/Near Poverty and Low Income
Status of 16 to 64 Year Old Native-Born Civilians with Completed Education
No More than A High School Diploma, U.S., 2010

Definition of Variable	
Dependent Variables	
Employed	A dichotomous variable representing the employment status of a person at the time of the 2010 American Community Survey (ACS) 1 = if a person was employed 0 = if else
Ft40+	A dichotomous variable representing the full-time/year-round employment status of a person in the 52 week period preceding the 2010 American Community Survey (ACS) 1 = if a person was employed full-time/year-round (40 or more weeks) 0 = if else
Lnearn	The natural log of the annual earnings of workers in the 52 week period prior to the 2010 American Community Survey (ACS)
Poor/near poor	A dichotomous variable representing the poverty/near poverty status of a person at the time of the 2010 American Community Survey (ACS) 1 = if a person's family income was below 1.25 times the Federal poverty threshold 0 = if else
Lowincome	A dichotomous variable representing the low income status of a person at the time of the 2010 American Community Survey (ACS) 1 = if a person's family income was below 2.0 times the Federal poverty threshold 0 = if else
Independent Variables:	
male	A dichotomous gender variable 1 = Male 0 = Female
black	A dichotomous race/ethnic variable 1 = if Black, non-Hispanic 0 = if else
asian	A dichotomous race/ethnic variable 1 = if Asian, non-Hispanic 0 = if else

Definition of Variable	
hispanic	A dichotomous race/ethnic variable 1 = if Hispanic 0 = if else
other_race	A dichotomous race/ethnic variable 1 = if “Other” race 0 = if else
age_16_24	A dichotomous age variable 1 = if a person was 16-to-24 years old 0 = if else
age_25_34	A dichotomous age variable 1 = if a person was 25-to-34 years old 0 = if else
age_35_44	A dichotomous age variable 1 = if a person was 35-to-44 years old 0 = if else
age_45_54	A dichotomous age variable 1 = if a person was 45-to-54 years old 0 = if else
age_55_64	A dichotomous age variable 1 = if a person was 55-to-64 years old 0 = if else
educ_1_8_grade	A dichotomous educational attainment variable 1 = if a person’s educational attainment level was 1 st -8 th grade only 0 = if else
educ_GED	A dichotomous educational attainment variable 1 = if a person had a GED but no post-secondary schooling 0 = if else
educ_reg_hs_diploma	A dichotomous educational attainment variable 1 = if a person had a regular high school diploma only 0 = if else
new_england	A dichotomous place of residence variable of a person 1 = if a person’s place of residence was the New England region 0 = if else
middle_atlantic	A dichotomous place of residence variable of a worker 1 = if a person’s place of residence was the Middle Atlantic region 0 = if else

Definition of Variable	
east_north_central	A dichotomous place of residence variable of a worker 1 = if a person's place of residence was the East North Central region 0 = if else
west_north_central	A dichotomous place of residence variable of a worker 1 = if a person's place of residence was the West North Central region 0 = if else
south_atlantic	A dichotomous place of residence variable of a worker 1 = if a person's place of residence was the South Atlantic region 0 = if else
east_south_central	A dichotomous place of residence variable of a worker 1 = if a person's place of residence was the East South Central region 0 = if else
west_south_central	A dichotomous place of residence variable of a worker 1 = if a person's place of residence was the West South Central region 0 = if else
mountain_region	A dichotomous place of residence variable of a worker 1 = if a person's place of residence was the Mountain region 0 = if else
pacific_region	A dichotomous place of residence variable of a worker 1 = if a person's place of residence was the Pacific region 0 = if else
experience	Years of potential work experience
experiencesq	Years of potential work experience squared

The Estimated Independent Impact of Being a GED Holder/Regular High School Graduate on the Probability of Employment in 2010

A set of linear probability models of the employment status of native-born adults 16 to 64 years of age in 2010 was constructed with the use of the American Community Survey data for that year. Huge sample sizes from the national ACS survey allowed us to estimate these models for a wide array of demographic groups and for individual geographic regions. Findings for the demographic groups (gender, race-ethnic, age by gender) are displayed in Table 25. The estimated coefficients represent the expected increase/decrease in the marginal probability of employment from possessing each of the three educational statuses. As was true for the earlier analysis of the 2000 and 2010 CPS data, the educational base group for the regression models consists of those adults who completed some high school but did not obtain a GED or a regular high school diploma.

For the entire group of 16 to 64 year olds, each gender and race-ethnic subgroup, and each age/gender subgroup, the probability of employment rose significantly with each additional level of schooling.²⁰ Primary school leavers were significantly less likely to work than high school dropouts, and the gaps between GED holders and those with only a primary school education were quite large. For all native-born persons, the marginal difference in the expected rate of employment between GED holders and primary school leavers was just under 20 percentage points. The estimated impacts were in the double-digit range for all but one subgroup and were frequently close to or above 20 percentage points (Table 25).

GED holders also were significantly more likely to be employed than their high school dropout peers. Holding all other variables constant, the estimated marginal probability impact of having a GED certificate was 10 percentage points for all adults and close to that impact for most groups. The estimated impacts were typically much higher for women than for men both overall and in each age subgroup. In each group, however, GED holders fared significantly less well in obtaining employment than their peers with regular high school diplomas. The estimated impact for the entire group was close to 11 percentage points and fell in that general range for nearly all other demographic subgroups (Table 25).

²⁰ The sole exception to this pattern of findings is Asian/other races who had only a primary school education.

Table 25:
Estimated Impact of Educational Attainment Variables on the Probability of Native-Born
Persons 16-64 Years Olds Being Employed at the Time of the 2010 American Community
Survey, All and Gender, Race-Ethnic, and Age/Gender Groups

Demographic Group	(A) 1 st – 8 th Grade	(B) GED Holder	(C) High School Diploma	(D) GED – 1 st – 8 th Grade	(E) GED – High School Diploma
All	-0.093***	0.101***	0.208***	+0.194	-0.107
Men	-0.100***	0.067***	0.185***	+0.167	-0.118
Women	-0.079***	0.141***	0.238***	+0.220	-0.097
White	-0.101***	0.105***	0.215***	+0.206	-0.110
Black	-0.083***	0.105***	0.203***	+0.188	-0.098
Asian	0.000	0.094**	0.168***	+0.094	-0.074
Hispanic	-0.093***	0.087***	0.170***	+0.177	-0.083
16-24	-0.071***	0.102***	0.230***	+0.173	-0.128
• Men	-0.078***	0.082***	0.217***	+0.160	-0.135
• Women	-0.059***	0.130***	0.245***	+0.189	-0.115
25-34	-0.112***	0.092***	0.200***	+0.204	-0.108
• Men	-0.127***	0.063***	0.173***	+0.190	-0.110
• Women	-0.090***	0.131***	0.243***	+0.221	-0.112
35-44	-0.125***	0.093***	0.207***	+0.218	-0.114
• Men	-0.146***	0.059***	0.183***	+0.205	-0.124
• Women	-0.093***	0.140***	0.243***	+0.233	-0.103
45-54	-0.108***	0.112***	0.225***	+0.220	-0.113
• Men	-0.117***	0.076***	0.196***	+0.193	-0.120
• Women	-0.092***	0.156***	0.163***	+0.248	-0.007
55-64	-0.059***	0.100***	0.182***	+0.159	-0.082
• Men	-0.052***	0.057***	0.160***	+0.109	-0.103
• Women	-0.059***	0.142***	0.207***	+0.201	-0.065

Note: * implies significance at .01 level. ** implies significance at .05 level.

Estimates of the independent impact of the three educational variables on the probability of employment in 2010 among the nation's 16 to 64 years old, native-born persons in each of the nine geographic divisions are displayed in Table 26. In each of these nine divisions, GED holders were considerably more likely than their peers with only a primary school education to

obtain employment. The estimated sizes of these differences in employment probabilities were in the range of 16 to 25 percentage points.

GED holders also were significantly more likely than high school dropouts in each region to have been employed in 2010. The estimated size of these marginal probability effects ranged from lows of 8 to 9 percentage points in the Pacific, New England, and West South Central regions to a high of 13 percentage points in the East South Central region. However, GED holders never matched the impacts on the employment rate of being a regular high school graduate. In each of the nine geographic divisions, GED holders were significantly less likely to be employed than their peers with a regular high school diploma. The estimated sizes of these marginal probability effects were in the 8 to 12 percentage points range. Increasing one's formal educational attainment at each stage from primary school to being a high school graduates was associated with a significant rise in the expected probability of employment in 2010 in each region of the country.

Table 26:
Estimated Impact of Educational Attainment Variables on the
Probability of Native-Born Persons 16-74 Years Olds Being Employed at the
Time of the 2010 American Community Survey by Geographic Regions

	(A)	(B)	(C)	(D)	(E)
Region	1 st – 8 th Grade	GED Holder	High School Diploma	GED – 1 st – 8 th Grade	GED – High School Diploma
New England	-0.158***	0.093***	0.217***	+0.251	-0.124
Middle Atlantic	-0.119***	0.100***	0.215***	+0.219	-0.115
East North Central	-0.093***	0.099***	0.223***	+0.192	-0.124
West North Central	-0.056***	0.105***	0.213***	+0.161	-0.108
South Atlantic	-0.087***	0.105***	0.203***	+0.192	-0.098
East South Central	-0.073***	0.128***	0.232***	+0.201	-0.104
West South Central	-0.092***	0.091***	0.189***	+0.183	-0.098
Mountain	-0.125***	0.110***	0.192***	+0.235	-0.082
Pacific	-0.091***	0.082***	0.182***	+0.173	-0.100

Note: * implies significance at .01 level. ** implies significance at .05 level.

The Estimated Independent Impact of Being a GED Holder/Regular High School Graduate on the Probability of Full-Time/Year-Round Employment in 2010

We also constructed a set of linear probability models of the full-time/year-round employment status of native-born adults 16 to 64 years of age in 2010 using 2010 American Community Survey data. Given the large sample size of the survey, linear probability models for a wide number of demographic and place of residence groups (gender, race-ethnic, age by gender, nine geographic regions) were constructed. Selected findings of the linear probability models for these groups are displayed in Tables 27 and 28. The estimated coefficients represent the expected increase/decrease in the marginal probability of full-time/year-round employment for possessing each of the three educational statuses. Similar to the previous linear probability employment models, the educational base group for the regression models consists of those adults who completed some high school but did not obtain a GED or a regular high school diploma.

As was true in the employment probability regression models for all 16 to 64 years old, and each gender and race-ethnic subgroup, the probability of full-time/year-round employment rose significantly with each additional level of schooling. Findings reveal that primary school leavers were significantly less likely to work full-time/year-round than high school dropouts, and the gaps between GED holders and those with only a primary school education were quite large. For all native-born persons, the marginal difference in the expected probability of full-time/year-round employment between GED holders and primary school leavers was 16.2 percentage points. For each group in our analysis, the estimated impacts were in the double-digit range, ranging from just under 10 percentage points to 22.6 percentage points (Table 27).

GED holders were also significantly more likely to be employed full-time/year-round than their high school dropout peers. Holding all other variables constant, the estimated marginal probability impact was 8 percentage points for all adults. In each demographic group, the estimated marginal probability impact was in the range of 5 to 14 percentage points. The size of the estimated impact on year-round, full-time employment was two times larger for women than men (11.2 percentage points versus 5.5 percentage points). These findings for women who were GED holders held true in all of the five age groups in our analysis. At the other end of the educational spectrum, GED holders in each demographic group were significantly less likely to

be full-time/year-round employed than their peers with a regular high school diploma. The estimated impact for the entire group was 11 percentage points. The estimated impacts for all other groups ranged from 6 to 14 percentage points (Table 27).

Table 27:
Estimated Impact of Educational Attainment Variables on the
Probability of Native-Born Persons Working Full Time for 40 or Weeks and
35 Hours or More Per Week in the 52 Week Period Prior to the 2010
American Community Survey, All and by Gender, Age, and Race-Ethnic Group

Demographic Group	(A) 1 st – 8 th Grade	(B) GED Holder	(C) High School Diploma	(D) GED – 1 st – 8 th Grade	(E) GED – High School Diploma
All	-0.082***	0.081***	0.195***	+0.162	-0.114
Men	-0.095***	0.055***	0.187***	+0.149	-0.133
Women	-0.058***	0.112***	0.207***	+0.171	-0.095
White	-0.094***	0.087***	0.203***	+0.181	-0.116
Black	-0.068***	0.074***	0.188***	+0.142	-0.113
Asian	-0.025	0.086**	0.147***	+0.111	-0.061
Hispanic	-0.066***	0.074***	0.159***	+0.141	-0.085
16-24	-0.047***	0.051***	0.155***	+0.098	-0.103
• Men	-0.069***	0.031***	0.157***	+0.101	-0.125
• Women	-0.013	0.079***	0.150***	+0.092	-0.071
25-34	-0.066***	0.068***	0.200***	+0.134	-0.131
• Men	-0.079***	0.054***	0.192***	+0.133	-0.138
• Women	-0.046**	0.089***	0.215***	+0.136	-0.126
35-44	-0.101***	0.088***	0.218***	+0.190	-0.129
• Men	-0.119***	0.066***	0.215***	+0.185	-0.150
• Women	-0.073***	0.120***	0.227***	+0.193	-0.106
45-54	-0.113***	0.100***	0.225***	+0.214	-0.125
• Men	-0.128***	0.068***	0.212***	+0.196	-0.143
• Women	-0.088***	0.138***	0.247***	+0.226	-0.109
55-64	-0.061***	0.089***	0.166***	+0.150	-0.077
• Men	-0.070***	0.054***	0.155***	+0.124	-0.101
• Women	-0.041***	0.123***	0.180***	+0.164	-0.057

Note: *** implies significance at .01 level. ** implies significance at .05 level

Estimates of the independent impact of the three educational variables on the probability of full-time/year-round employment in 2010 among the nation's 16-to-74 year old native-born persons in each of the nine geographic divisions are displayed in Table 28. In each of these nine divisions, GED holders were considerably more likely than their peers with only a primary school education to obtain full-time/year-round employment. The estimated size of these differences in employment probabilities were in the range of 13 to 20 percentage points.

In each of the nine geographic regions, GED holders also were significantly more likely to be full-time/year-round employed than their peers who were high school dropouts. The estimated sizes of these marginal probability effects ranged from a low of 6 percentage points in the Pacific region to a high of 10.6 percentage points in the East South Central region. However, GED holders never matched the impacts on the full-time/year-round employment rate of being a regular high school graduate. The estimated sizes of these differences in marginal probability effects were in the 9 to 12 percentage points range. Increasing one's formal educational attainment at each stage from primary school to being a high school graduate was associated with a significant rise in the expected probability of full-time/year-round employment in 2010 in each region of the country.

Table 28:
Estimated Impact of Educational Attainment Variables on the Probability of Native-Born
Persons Working Full Time for 40 or Weeks and 35 Hours or More Per Week in the 52 Week
Period Prior to the 2010 American Community Survey by Geographic Regions

	(A)	(B)	(C)	(D)	(E)
Region	1 st – 8 th Grade	GED Holder	High School Diploma	GED – 1 st – 8 th Grade	GED – High School Diploma
New England	-0.119***	0.088***	0.196***	+0.206	-0.108
Middle Atlantic	-0.118***	0.076***	0.200***	+0.194	-0.124
East North Central	-0.085***	0.075***	0.198***	+0.160	-0.123
West North Central	-0.081***	0.083***	0.203***	+0.163	-0.120
South Atlantic	-0.072***	0.085***	0.196***	+0.157	-0.111
East South Central	-0.059***	0.106***	0.216***	+0.165	-0.110
West South Central	-0.078***	0.078***	0.190***	+0.155	-0.113
Mountain	-0.084***	0.088***	0.181***	+0.173	-0.093
Pacific	-0.073***	0.060***	0.161***	+0.133	-0.101

Note: *** implies significance at .01 level. ** implies significance at .05 level

The Estimated Independent Impact of Holding a GED or Regular High School Diploma on the Annual Earnings of the Employed in 2010

Using 2010 American Community Survey data set, we also constructed a set of earnings functions to estimate the influence of educational attainment, demographic, and geographic variables on the level of annual earnings of native-born workers in 2010. In each earnings model, the natural log of the annual earnings of worker is regressed against a set of demographic variables, educational attainment variables, and geographic variables. Tables 29 and 30 display the results of the earnings function regression models used in estimating the impact of educational attainment on the annual earnings of native-born workers, 16-74 years old in 2010 in each of the gender, race-ethnic, and age by gender group and the nine geographic regions. In the earnings function regression models for each group, the educational base group consists of those adults who completed some high school but did not obtain a GED or a regular high school diploma. The estimated coefficients represent the expected increase/decrease in the natural log of the annual earnings of native-born workers for possessing each of the three educational statuses. As discussed earlier, the coefficients on these variables can in most cases be interpreted as a percentage point impact on earnings. When the coefficients exceed 15, the percentage point impacts will be higher than the coefficients.

Findings of the earnings function regression models for the entire group of workers and each gender, race, age by gender, and nine geographic regions reveal that the expected annual earnings of native-born workers increased significantly with each additional level of schooling. Primary school leavers' annual earnings were significantly lower than the annual earnings of high school dropouts, and the earnings gaps between GED holders and those with only a primary school education were quite large. For all native-born persons, the marginal difference in the expected annual earnings between GED holders and primary school leavers was more than 27 percentage points. For each group in our analysis, except 25-34 years old men, the estimated impacts were in the range of 15 to 37 per cent (Table 29).

GED holders also earned significantly more than their high school dropout peers. Holding all other variables constant, GED holders in the entire sample earned 14 per cent more than their peers who were high school dropouts. In each group, except 16-to-24 year old men, GED holders obtained significantly higher earnings (7 to 27 per cent more) than high school dropouts. The size of the expected gains in annual earnings was larger for women than for men.

At the other end, GED holders in each group earned significantly less than their peers with a regular high school diploma. The expected annual earnings impact for the entire group was 24 percentage points higher. The expected annual earnings differences for all other groups ranged from 8 to 37 percentage points (Table 29).

Table 29:
Estimated Impact of Educational Attainment Variables on the
Natural Log of the Annual Earnings of Employed Native-Born Persons
(16-64 Years Olds), All, All and by Gender, Age, and Race-Ethnic Group

	(A)	(B)	(C)	(D)	(E)
Demographic Group	1 st – 8 th Grade	GED Holder	High School Diploma	GED – 1 st – 8 th Grade	GED – High School Diploma
All	-0.128***	0.142***	0.380***	+0.270	-0.238
Men	-0.137***	0.097***	0.356***	+0.234	-0.259
Women	-0.098***	0.218***	0.433***	+0.316	-0.215
White	-0.170***	0.143***	0.383***	+0.313	-0.240
Black	-0.051	0.181***	0.409***	+0.232	-0.228
Asian	-0.215	0.272***	0.358***	+0.487	-0.086
Hispanic	-0.067***	0.129***	0.337***	+0.196	-0.208
16-24	-0.122**	0.047**	0.376***	+0.169	-0.329
• Men	-0.196***	-0.027	0.348***	+0.169	-0.375
• Women	.001	0.173***	0.424***	+0.172	-0.251
25-34	-0.065**	0.090***	0.398***	+0.155	-0.308
• Men	0.003	0.066***	0.373***	+0.063	-0.307
• Women	-0.158**	0.141***	0.460***	+0.299	-0.319
35-44	-0.072**	0.179***	0.419***	+0.251	-0.240
• Men	-0.070	0.133***	0.407***	+0.203	-0.274
• Women	-0.070	0.256***	0.454***	+0.326	-0.198
45-54	-0.195***	0.170***	0.386***	+0.365	-0.216
• Men	-0.224***	0.130***	0.368***	+0.354	-0.238
• Women	-0.137***	0.233***	0.429***	+0.370	-0.196
55-64	-0.169***	0.165***	0.301***	+0.334	-0.136
• Men	-0.201***	0.117***	0.243***	+0.318	-0.126
• Women	-0.084***	0.229***	0.379***	+0.313	-0.150

Note: *** implies significance at .01 level. ** implies significance at .05 level.

Estimates of the independent impact of the three educational variables on the natural log of the expected annual earnings in 2010 among the nation's 16 to 64 year old native-born workers in each of the nine geographic divisions are displayed in Table 30. In each of these nine divisions, the expected annual earnings of GED holders were significantly higher than their peers with only a primary school education. The estimated sizes of these differences in the expected annual earnings were in the range of 17 to 41 per cent.

In each of the nine geographic regions, GED holders had significantly higher expected annual earnings than their peers who were high school dropouts. The estimated size of these expected annual earnings ranged from a low of 7 per cent in the Mountain region to a high of 17 percentage points in the East South Central region. However, workers with a GED certificate never matched the annual earnings of workers who were regular high school graduates. The estimated sizes of these expected annual earnings gaps between GED holders and those with regular high school diplomas were in the 19 to 26 per cent range in favor of workers with a regular high school diploma. Increasing one's formal educational attainment at each stage from primary school to being a high school graduate was associated with a significant increase in the expected annual earnings of workers in 2010 in each region of the country. These higher earnings help GED holders and those with regular high school diplomas to avoid income inadequacy problems and public assistance dependency to a greater degree than their peers who were high school dropouts and primary school leavers.

Table 30:
Estimated Impact of Educational Attainment Variables on the Natural Log of the Annual
Earnings of Employed Native-Born Persons (16-64 Years Olds) by Geographic Region

	(A)	(B)	(C)	(D)	(E)
Region	1 st – 8 th Grade	GED Holder	High School Diploma	GED – 1 st – 8 th Grade	GED – High School Diploma
New England	-0.161**	0.151***	0.365***	+0.312	-0.214
Middle Atlantic	-0.268***	0.143***	0.358***	+0.411	-0.215
East North Central	-0.254***	0.100***	0.360***	+0.354	-0.260
West North Central	-0.133**	0.170***	0.369***	+0.303	-0.199
South Atlantic	-0.018	0.161***	0.416***	+0.179	-0.255
East South Central	-0.066	0.172***	0.412***	+0.238	-0.240
West South Central	-0.126**	0.149***	0.362***	+0.275	-0.213
Mountain	-0.178**	0.073***	0.333***	+0.251	-0.260
Pacific	-0.044	0.140***	0.399***	+0.184	-0.259

Note: *** implies significance at .01 level. ** implies significance at .05 level

The Impacts of Educational Attainment on the Poverty/Near Poverty Status and Low Income Status of Native-Born Adults in 2010

The 2010 ACS data also were used to estimate a set of linear probability models of the poverty/near poverty and low income status of native-born adults (16-64). Being a primary school leaver had a small impact on the probability of being poor/near poor for the entire sample, but the effects tended to vary considerably across the demographic groups (Table 31). For the combined sample, those with only a primary school education were about two percentage points more likely than high school dropouts to be poor/near poor. The impact, however, was only significant for men (+4 percentage points) and for Whites (+3.5 percentage points). Across the five age groups, being a primary school dropout only tended to raise the probability of being poor or near poor for the two older age groups (45-54 and 55-64).²¹

²¹ Among women in the 25-34 and 35-44 age groups, primary school leavers were actually significantly less likely to be poor or near poor than high school dropouts. This finding does not automatically imply that their own earnings from employment allowed them to avoid problems of poverty or near poverty.

Table 31:
Estimated Impact of Educational Attainment Variables on the Probability of Native-Born
Persons Being Poor or Near Poor, All and by Gender, Age, and Race-Ethnic Group

	(A)	(B)	(C)	(D)	(E)
Demographic Group	1 st – 8 th Grade	GED Holder	High School Diploma	GED – 1 st – 8 th Grade	GED – High School Diploma
All	0.017***	-0.084***	-0.161***	-0.101	+0.077
Men	0.040***	-0.075***	-0.149***	-0.115	+0.074
Women	-0.009	-0.094***	-0.173***	-0.085	+0.079
White	0.035***	-0.083***	-0.158***	-0.118	+0.075
Black	-0.021**	-0.087***	-0.169***	-0.066	+0.082
Asian	-0.033	-0.074**	-0.097***	-0.041	+0.023
Hispanic	0.018	-0.082***	-0.164***	-0.100	+0.082
16-24	0.006	-0.062***	-0.142***	-0.068	+0.080
• Men	0.022	-0.074***	-0.151***	-0.096	+0.077
• Women	-0.013	-0.044***	-0.129***	-0.031	+0.085
25-34	-0.036***	-0.083***	-0.184***	-0.047	+0.101
• Men	0.004	-0.076***	-0.165***	-0.080	+0.089
• Women	-0.083***	-0.090***	-0.205***	-0.007	+0.115
35-44	-0.008	-0.106***	-0.180***	-0.098	+0.074
• Men	0.014	-0.094***	-0.166***	-0.108	+0.072
• Women	-0.034**	-0.120***	-0.192***	-0.086	+0.072
45-54	0.037***	-0.080***	-0.156***	-0.117	+0.076
• Men	0.065***	-0.065***	-0.139***	-0.130	+0.074
• Women	0.004	-0.099***	-0.174***	-0.103	+0.075
55-64	0.037***	-0.083***	-0.142***	-0.120	+0.059
• Men	0.046***	-0.068***	-0.124***	-0.114	+0.056
• Women	0.029***	-0.098***	-0.158***	-0.127	+0.060

Note: *** implies significance at .01 level. ** implies significance at .05 level.

Being a GED holder was associated with a significantly lower probability of being poor or near poor than for high school dropouts. For the entire sample, the estimated marginal probability impact of being a GED holder was a -8.4 percentage points. Holding a GED significantly lowered the probability of being poor or near poor for every demographic group. The impacts were slightly bigger for women than for men (-9.4 vs. -7.5 percentages point) and for those over 25-54 than for the youngest age group.

GED holders did not, however, fare as well as their peers with a regular high school diploma in avoiding poverty or near poverty problems. Holding all other predictor variables constant, being a GED holder was associated with about an 8 percentage point higher probability of being poor or near poor in comparison to those adults with a high school diploma. These results held true for each of the gender, race-ethnic, and age/gender subgroups of the native-born population.

Regression models of the poverty/near poverty status of native-born adults were run for each of the nine geographic divisions (Table 32). In each region, GED holders were significantly less likely to be poor/near poor than high school dropouts. The estimated size of these marginal impacts ranged from a low of slightly under 5 percentage points in New England to 6-7 percentage points in the Mountain and Pacific regions to highs of 10-11 percentage points in the Middle Atlantic, South Atlantic, and East South Central regions. In each region, however, GED holders were not as successful as regular high school diploma holders in avoiding problems of poverty/near poverty. In each division, GED holders, ceteris paribus, were anywhere from 7 to 9 percentage points more likely than their peers with a regular high school diploma to be poor/near poor in 2010. All of these estimated impacts were statistically significant.

Table 32:
Estimated Impact of Educational Attainment Variables on the Probability of
Native-Born Persons (16-74) Being Poor or Near Poor by Geographic Region

	(A)	(B)	(C)	(D)	(E)
Demographic Group	1 st – 8 th Grade	GED Holder	High School Diploma	GED – 1 st – 8 th Grade	GED – High School Diploma
New England	0.062***	-0.046***	-0.138***	-0.108	+0.092
Middle Atlantic	0.032***	-0.097***	-0.173***	-0.129	+0.076
East North Central	0.016***	-0.071***	-0.164***	-0.087	+0.093
West North Central	-0.003	-0.084***	-0.165***	-0.081	+0.081
South Atlantic	0.023**	-0.097***	-0.165***	-0.120	+0.068
East South Central	-0.012	-0.111***	-0.192***	-0.099	+0.081
West South Central	0.021**	-0.081***	-0.152***	-0.102	+0.071
Mountain	0.009	-0.065***	-0.135***	-0.074	+0.070
Pacific	0.010	-0.068***	-0.138***	-0.078	+0.070

Note: *** implies significance at .01 level. ** implies significance at .05 level.

The estimated impacts of educational attainment on the probability of native-born adults (16-64) being members of low income families (under 200 per cent of the poverty income threshold) in 2010 are displayed in Table 33. For the entire sample of adults, having only a primary level of schooling modestly increased the probability of being poor or near poor in comparison to high school dropouts by slightly under two percentage points. Again, these low income impacts varied widely across demographic groups, being significant only for men, for White, non-Hispanics, and for members of the two older age groups, i.e., those 45-54 and 55-64 years old.²²

GED holders were significantly less likely than high school dropouts to be members of low income households. Holding all other predictor variables constant, being a GED holder was associated with a near 10 percentage point lower probability of being low income. These statistically significant, favorable impacts held true for each of the gender, race-ethnic, and age/gender subgroups of the population. The estimated sizes of these impacts were quite similar for men and women (9.5 to 9.7 percentage points).

Again, we find that GED holders do not perform as well as regular high school dropouts in avoiding low income problems. For the entire group of native-born adults, being a GED holder, *ceteris paribus*, was associated with a 10 percentage point higher probability of being low income than a regular high school graduate. Similar sized impacts held true for the vast majority of demographic subgroups by gender, race-ethnic group, and age group. The estimated differences in low income problems between regular high school graduates and dropouts were quite high – near 20 percentage point gaps for the entire sample and for men and women separately.

²² For women in the 25-34 and 35-44 age groups, primary school leavers were significantly less likely to be low income than high school dropouts.

Table 33:
Estimated Impact of Educational Attainment Variables on the Probability of Native-Born
Persons Being Low Income, All and by Gender, Age, and Race-Ethnic Group

	(A)	(B)	(C)	(D)	(E)
Demographic Group	1 st – 8 th Grade	GED Holder	High School Diploma	GED – 1 st – 8 th Grade	GED – High School Diploma
All	0.019***	-0.096***	-0.197***	-0.116	+0.100
Men	0.040***	-0.095***	-0.195***	-0.135	+0.100
Women	-0.005	-0.097***	-0.195***	-0.092	+0.098
White	0.034***	-0.100***	-0.206***	-0.135	+0.106
Black	-0.004	-0.085***	-0.160***	-0.081	+0.075
Asian	-0.035	-0.130***	-0.132***	-0.095	+0.002
Hispanic	0.017	-0.102***	-0.190***	-0.119	+0.088
16-24	-0.001	-0.070***	-0.147***	-0.069	+0.077
• Men	0.008	-0.093***	-0.175***	-0.101	+0.082
• Women	-0.011	-0.038***	-0.110***	-0.027	+0.072
25-34	-0.041***	-0.080***	-0.199***	-0.039	+0.119
• Men	-0.011	-0.090***	-0.207***	-0.078	+0.117
• Women	-0.074***	-0.067***	-0.186***	+0.007	+0.119
35-44	-0.019	-0.118***	-0.210***	-0.098	+0.092
• Men	-0.004	-0.116***	-0.212***	-0.111	+0.096
• Women	-0.036**	-0.120***	-0.204***	-0.084	+0.084
45-54	0.044***	-0.095***	-0.201***	-0.139	+0.106
• Men	0.075***	-0.080***	-0.189***	-0.156	+0.108
• Women	0.009	-0.114***	-0.215***	-0.123	+0.101
55-64	0.034***	-0.105***	-0.196***	-0.140	+0.091
• Men	0.051***	-0.097***	-0.181***	-0.148	+0.084
• Women	0.019	-0.114***	-0.211***	-0.133	+0.096

Note: *** implies significance at .01 level. ** implies significance at .05 level.

Regression models of the low income status of native-born adults in 2010 were run for each of the nine geographic divisions. In each region, being a GED holder was associated with a significantly lower probability of being low income than high school dropouts. The estimated sizes of these differences ranged from lows of 7 to 8 percentage points in New England, the Mountain, and Pacific regions to highs of 12 percentage points in the Middle Atlantic and East South Central regions. GED holders did not, however, match the success rates of regular high

school graduates in avoiding low income problems in 2010. These gaps ranged in size from 9 to 12 percentage points across the nine regions. The differences in the incidence of low income problems between high school graduates and high school dropouts were even considerably larger, ranging in size from 16 to 22 percentage points. Preventing young adults from dropping out of high school is, thus, an effective way to help lower longer term poverty, near poverty, and low income problems in the U.S.

Table 34:
Estimated Impact of Educational Attainment Variables on the Probability of
Native-Born Persons Being Low Income, by Geographic Region

	(A)	(B)	(C)	(D)	(E)
Demographic Group	1 st – 8 th Grade	GED Holder	High School Diploma	GED – 1 st – 8 th Grade	GED – High School Diploma
New England	0.055**	-0.070***	-0.183***	-0.125	+0.113
Middle Atlantic	0.057***	-0.118***	-0.214***	-0.174	+0.096
East North Central	-0.019*	-0.080***	-0.204***	-0.061	+0.124
West North Central	0.028	-0.102***	-0.212***	-0.130	+0.110
South Atlantic	0.028***	-0.107***	-0.198***	-0.136	+0.090
East South Central	0.016	-0.120***	-0.225***	-0.136	+0.105
West South Central	0.018	-0.091***	-0.187***	-0.109	+0.095
Mountain	0.001	-0.072***	-0.158***	-0.073	+0.086
Pacific	-0.001	-0.076***	-0.166***	-0.075	+0.090

Note: *** implies significance at .01 level. ** implies significance at .05 level.

Overview of Key Findings and Future Research Issues

To illustrate the main findings of our analyses of the impacts of the GED credential and a regular high school diploma on the labor market experiences, earnings, and incomes of native-born adults, we have constructed a set of summary score cards. The first table identifies the statistical significance of the estimated impacts of these two educational credentials on 12 separate labor market outcomes in calendar years 2000, 2009, and 2010. These twelve measures include several employment outcomes (employed at time of survey, being full-time employed, working 40 or more weeks during the year), two point-in-time unemployment measures, weekly earnings, and annual earnings (See Table 35).

Table 35:
A Summary Score Card of the Impacts¹ of the GED and a Regular High School Diploma on the Labor Market and Earnings of Native-Born Adults in 2000 and 2010 (16-74 Years Old)

	(A)	(B)
Labor Market Outcome Measure	GED	High School Diploma
Employed in 2000	*	*
Employed Full-Time in 2000	*	*
Unemployed in 2000	0 ²	*
Weekly earnings in 2000 ³	*	*
Worked 40 or more weeks full-time in 2000	*	*
Annual earnings in 2000	*	*
Employed in 2010	*	*
Employed full-time in 2010	*	*
Unemployed in 2010	*	*
Weekly earnings of the employed ²	*	*
Worked 40 weeks or more full-time in 2010	*	*
Annual Earnings in 2010 ³	*	*

Note: (1) An * in the row for that variable implies that the estimated impact was statistically significant at the .01 level.

(2) A 0 in the row implies the impact was not statistically significant at the .05 or .10 level.

(3) Analysis confined to those adults 16-64 years old.

For each of these 12 measures, with but one exception (the unemployment measure for GED holders in 2000), GED holders and regular high school graduates obtained labor market outcomes that were significantly different from the outcomes achieved by both high school dropouts and adults with only a primary school education. The estimated sizes of these impacts varied from one measure to another, but were typically highest for the weekly and annual

earnings measures. For example, in 2000, the entire sample of native-born GED holders had about an 8 percentage point employment advantage over dropouts, but their weekly earnings when employed were about 18% higher. The impacts of a regular high school diploma on these same two labor market outcomes were even higher (about 22 percentage points and 28%, respectively). The high school diploma consistently outperformed the GED on each of these twelve labor market measures. Very similar findings prevailed for men and women separately.

Both GED holders and regular high school graduates were significantly more likely than either high school dropouts or those with only a primary school education to be employed at some time during the year, they also were more likely to work more weeks and hours, and they earned higher weekly wages while employed. These combined employment, hours of work, and weekly wage effects operate to increase the annual earnings of these two groups (GED holders and regular high school graduates) above those of dropouts. The annual earnings impacts including both employment and wage effects were close to 30% for GED holders. These favorable employment and annual earnings effects tended to prevail for each major age group. Over the working life, these cumulative differences in annual earnings should be quite sizable for both GED holders and regular high school graduates.

Further research on the lifetime earnings advantages of GED holders over and above those of high school dropouts is clearly warranted.²³ These lifetime earnings differences should be calculated for both men and women, adults in each major race-ethnic group, and those in gender/race groups. These lifetime earnings estimates also should be calculated at different points in time (e.g., 2000, 2010) to identify secular trends in their aggregate value. A more detailed analysis of the roles of differences in employment rates, annual hours of work, and hourly earnings per hour of work should be conducted to obtain insight into the main forces contributing to these lifetime earnings differences. Knowledge of the size of these lifetime earnings differences is critical to efforts to estimate the private and social benefits of a GED.

In addition to the analyses of the employment, unemployment, weekly earnings, and annual earnings of native-born adults, we also used a diverse array of multivariate statistical models to estimate the independent influence of the GED and regular high school diploma on the income inadequacy status of the households in which they resided, their personal receipt of cash

²³ Previous studies including several by the authors, have shown the substantial lifetime earnings advantages of a high school diploma but not for a GED.

public assistance income, and their household's receipt of food stamps (SNAP benefits in today's acronyms).

Our score card in Table 36 on the independent impacts of the GED and regular high school diploma on these various income inadequacy measures and public assistance dependency measures in 2000 and 2010 shows statistically significant impacts across the board for both educational measures. Obtaining either a GED certificate or a regular high school diploma consistently reduced the prospects of being poor/near poor (family income under 125% of the poverty line) or low income in 2000 and 2010. Both educational credentials also significantly reduced the probability that an individual would be the recipient of some form of cash or in-kind public assistance income (TANF benefits, Supplemental Security Income for the disabled and the aged) or food stamps. Holding a regular high school diploma was associated with a larger impact than the GED certificate for both sets of variables.

Table 36:
A Summary Score Card on the Impacts¹ of the GED Certificate and Regular High School Diploma on the Household Income Status and Personal Public Assistance Income Dependency Status of Native-Born Adults in the U.S., 2000 and 2010

	(A)	(B)
Outcome Variable	GED	High School Diploma
Member of Poor/Near Poor Household in 2000	*	*
Received Some Cash Public Assistance Income in 2000	*	*
Member of Poor/Near Poor Household in 2010 ²	*	*
Member of Low Income Household in 2010 ³	*	*
Received Some Cash Public Assistance Income in 2010	*	*
Received Food Stamps in 2010 ³	*	*

Note: (1) A * implies the impact was statistically significant at the .01 level.

(2) Estimates based on both March 2010 CPS work experience and 2010 ACS.

(3) Estimates based only on 2010 ACS survey.

Across the board for all employment, unemployment, weekly and annual earnings, incomes, and public assistance measures, obtaining a GED or regular diploma significantly improved outcomes over both high school dropouts and primary school leavers. The higher personal earnings of better educated adults, their higher family incomes, and reduced dependence

on cash public assistance income increases their net fiscal contributions to state and national government budgets. GED holders and high school graduates (and their employers) will pay more in Social Security payroll taxes, higher state and federal income taxes, more in state sales taxes, and higher property taxes at the local level due to increased rates of home ownership and higher valued homes. Their higher family incomes reduce their dependence on both cash and in-kind public assistance income, including food stamps, rental assistance, and Medicaid, thus holding down the growth of public expenditures and fiscal deficits. A comprehensive fiscal analysis of the impacts of GED credentials is warranted to help determine the economic case for further public support of such programs.²⁴

²⁴ For a review of the evidence on the fiscal consequences of graduating from high school or college in the U.S. and the state of Massachusetts in recent years, See: (i) Joseph McLaughlin and Ishwar Khatiwada, The Fiscal Economic Consequences of Dropping Out of High School in Massachusetts: Tax Payments and Transfers Received by Adults in Selected Educational Attainment Groups, Center for Labor Market Studies, Northeastern University, Boston, 2011; (ii) Russell Rumberger, Dropping Out: Why Students Drop Out of High School and What Can Be Done About It, Harvard University Press, Cambridge, 2011.