

Educational Attainment of Pennsylvania's Young Workers: What's it Worth?

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December 1999


PUBLISHED BY THE PENNSYLVANIA STATE DATA CENTER (PaSDC),
A UNIT OF THE INSTITUTE OF STATE AND REGIONAL AFFAIRS AT PENN STATE HARRISBURG

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ISBN 158036-138-2



ACKNOWLEDGMENTS

Partial support for this research was provided by the Population Research Institute, The Pennsylvania State University, which has core support from the National Institute of Child Health and Human Development (Grant No. 2-P30 HD/AG28263-08). Dr. Gordon De Jong can be reached at 814-863-2277 or DeJong@pop.psu.edu.

DATA SOURCES AND DEFINITIONS

This report used data from the March 1995, 1996 and 1997 nationwide *Current Population Survey*, collected by the U.S. Bureau of the Census. The annual *Current Population Survey* provides the most accurate updated demographic information available in the United States for years between the decennial censuses. To increase the size of the sample and enhance the validity of the conclusions, data for Pennsylvania residents in the 1995, 1996 and 1997 surveys were pooled, excluding households included in multiple survey years.

This survey included 3009 young Pennsylvania men and women ages 18 to 39 whom the Census Bureau officially defined as in the state's civilian labor force in 1995 to 1997 — that is, they were either working full-time or part-time or were unemployed and looking for work. Adults not defined as in the civilian labor force by the Census Bureau include housewives, disabled persons, full-time students, members of the armed forces, retirees and unemployed persons who have stopped looking for work.

On the assumption that the *Current Population Survey* sampling frame for the state yields a random sample of Pennsylvania workers, the generalized standard error of estimate (at the 5 and 95 percentage points) for this size sample is approximately plus or minus 0.6 percent for basic demographic characteristics such as education and employment.

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EDUCATIONAL ATTAINMENT OF PENNSYLVANIA'S YOUNG WORKERS: WHAT'S IT WORTH?

EXECUTIVE SUMMARY

- Pennsylvania starts the 21st century below (ranked 30th out of 50 states) the national average and considerably behind adjacent Middle Atlantic states in the educational attainment of its total adult population.
- For the young adult labor force (ages 18 to 39), the backbone of future economic productivity, the state starts the 21st century with nearly half (49.8 percent) of its young worker labor force with only a high school education or less and just over one in four (25.6 percent) with a college or graduate degree.
- For the late 1990s period when a robust state economy created strong demand for both white and blue collar workers, the unemployment rate was 6 times higher for young high school dropouts and 2.6 times higher for workers who stopped their education with a high school degree than for college graduates.
- A college education is extremely important for young workers to obtain a good job in the Pennsylvania economy. The high occupational segregation based on educational attainment is shown by the fact that 88 percent of graduate/professional degree holders and 58 percent of baccalaureate degree graduates held professional and managerial positions, while 40 percent of high school dropouts and 28 percent of high school diploma-only workers were operators, fabricators or laborers.
- The largest number of young workers (40.7 percent) in the Pennsylvania labor force stopped their education with only a high school diploma. The workers had a median annual personal income of just over \$18,000 during the 1995-1997 period. By comparison, the median annual personal income for young college graduates in Pennsylvania was 63 percent higher and for graduate and professional degree graduates 120 percent higher. This link between the payoffs of educational attainment and personal income has clear policy implications for economic development policy, human welfare programs and tax revenues in Pennsylvania.
- There is a 12-times difference (24 percent versus 2 percent) between the poverty rate of high school dropouts and college graduates, and a 4.5 times difference (9 percent versus 2 percent) between the poverty rate of high school diploma-only workers and college graduates in Pennsylvania. It is clear that educational attainment is an important strategy for reducing poverty and welfare program use among young adult workers in this state.

INTRODUCTION

In an earlier report, the continuing net loss of college educated young people from Pennsylvania in the mid-1990s¹ was documented. How can the effect of this loss of the human capital of young workers on state economic development be assessed? One way is to document the value of education for the employment status, occupational attainment and personal income of young Pennsylvania workers. Just as attracting new business and industries to Pennsylvania and keeping existing firms in the state is a centerpiece of Pennsylvania's economic development strategy, an equally important public policy goal is developing and retaining highly skilled workers.

In the United States and Pennsylvania economy of the 21st century, education and experience, rather than inheritance, political affiliation or family ownership increasingly will be the primary criteria for good jobs and successful employment for most workers. Of these criteria, *educational attainment* is commonly recognized as the major economic development strategy for young workers and for state policy.

This report focuses on the value of educational attainment levels for being employed, getting good jobs and personal income payoffs of young workers in Pennsylvania. The following questions guide the analysis:

- How does Pennsylvania compare with the nation in educational attainment levels of the population?
- What is the payoff of educational attainment for employment and unemployment patterns?
- What is the payoff of educational attainment for type of occupation?
- What is the payoff of educational attainment for personal income?
- What is the payoff of educational attainment for the poverty status of young workers?

We focus on younger workers in this report because they constitute the basis for 21st century economic productivity and for inter-state and global competitions that will shape Pennsylvania's present and future economic transformations.

¹ Gordon F. De Jong and Pamela M. Klein. *Pennsylvania's Brain Drain Migration in the Mid-1990s*. Harrisburg, PA: The Pennsylvania State Data Center, 1999.

HOW DOES PENNSYLVANIA COMPARE WITH THE NATION IN EDUCATIONAL ATTAINMENT LEVELS?

Total Adult Population

Based on 1998 U.S. Bureau of the Census *Current Population Survey* data for all persons 25 years old and over, state-by-state comparisons of the proportion completing a college degree shows that Pennsylvania ranks 30th nationally. As shown in the accompanying graph, just over 22 percent of Pennsylvania's adult population has completed college. When compared to surrounding states, Pennsylvania is similar to Ohio's 21 percent and higher than West Virginia's 16 percent but is low when compared to Delaware, New York, New Jersey and Maryland with adult population college-education percentages of 25, 27, 30 and 32 percent, respectively.

These data show that Pennsylvania is at a competitive disadvantage with key surrounding states and with the nation for business and industry, which demands highly skilled workers. The long-term "brain-drain" net out migration of college educated workers from Pennsylvania has contributed to this competitive disadvantage.

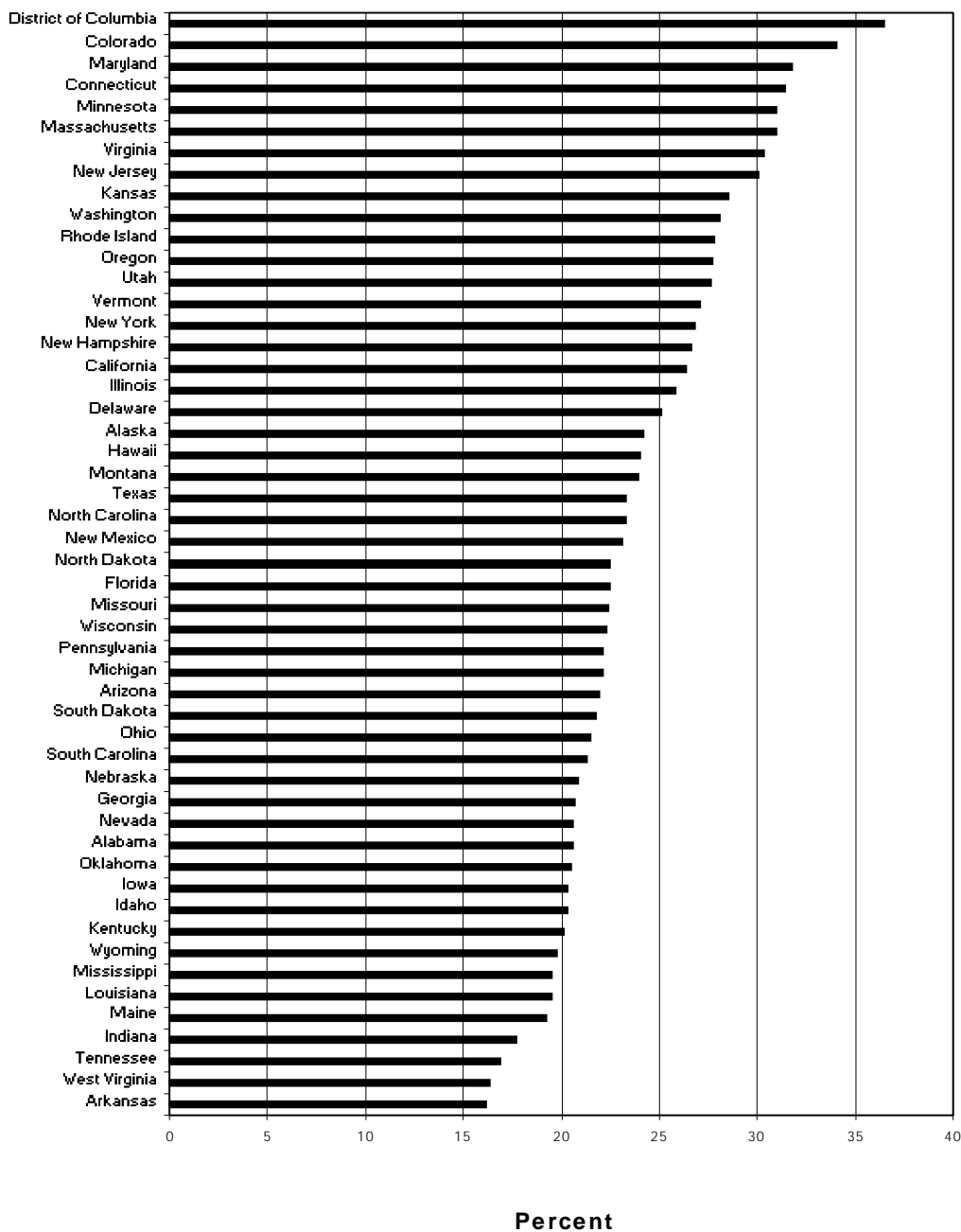
Young Adults Ages 18 to 39

Pennsylvania enters the 21ST century with nearly half (49.8 percent) of its young worker (18 to 39 year old) labor force with only a high school education or less. As shown in the accompanying graph, this compares with 46.4 percent for the entire nation for the 1995 to 1997 period. An earlier report (De Jong and Klein, *PA's Brain Drain Migration in the Mid-1990s*) showed that Pennsylvania had a net migration gain in low educational education young migrants and a net migration loss of high education young migrants during this time period. This trend exacerbates the lower overall educational attainment of Pennsylvania's young adult workers.

Pennsylvania falls 6.3 percentage points below the national average in the proportion of young workers in the labor force who have some college education, which includes associate degrees. This educational attainment category includes important technical support occupational groups.

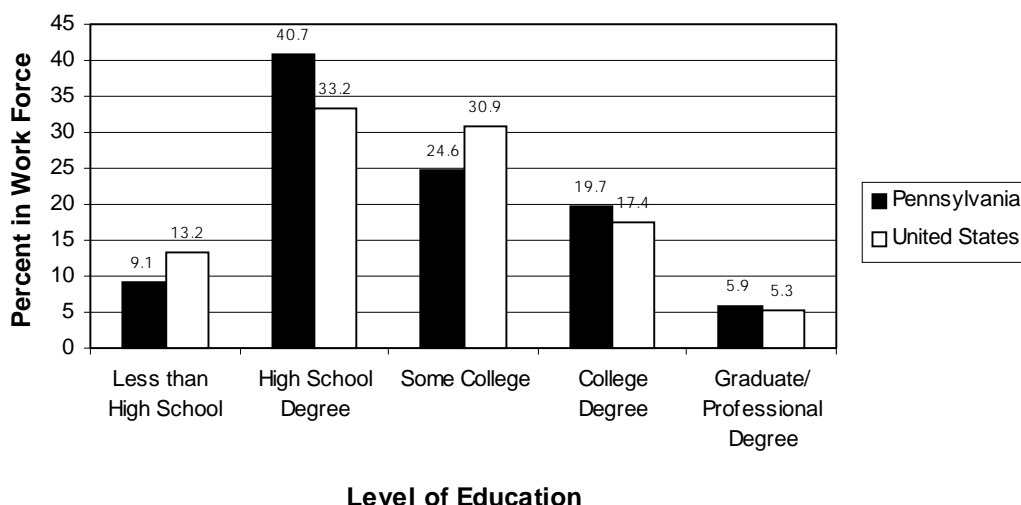
The *Current Population Survey* data for 1995 to 1997 also show that Pennsylvania had a slightly larger proportion of college and graduate/professional degree graduates in the young adult labor force than the national average (25.6 versus 22.7 percent). While above the national level, in absolute terms this means that only one in four Pennsylvania young workers has a college education.

PERCENT OF ALL PERSONS 25 YEARS OLD AND OVER COMPLETING A COLLEGE DEGREE OR MORE BY STATES: 1998



In summary, Pennsylvania's young adult labor force has a higher proportion of workers with no more than a high school education, a lower proportion with some college, and a higher proportion with college or graduate education than the national average. However, this mixed pattern is compared to the national average (middle of the distribution) and not against states at the top of the educational attainment distribution (i.e., Massachusetts, New Jersey, Virginia, Maryland, New York) with which Pennsylvania is at a competitive labor force disadvantage for high skilled economic development opportunities.

EDUCATIONAL ATTAINMENT OF PENNSYLVANIA AND UNITED STATES YOUNG WORKERS IN THE LABOR FORCE AGES 18 TO 39: 1995 TO 1997



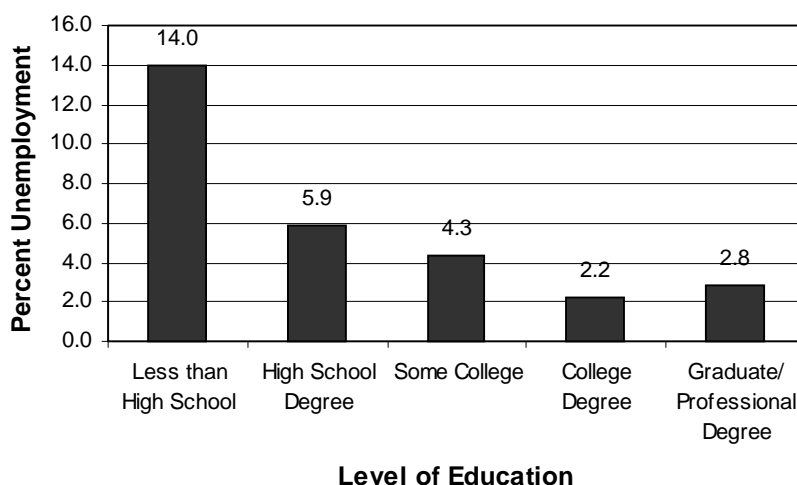
WHAT IS THE PAYOFF OF EDUCATIONAL ATTAINMENT FOR EMPLOYMENT AND UNEMPLOYMENT PATTERNS?

During the 1995 to 1997 period, the unemployment rate in Pennsylvania was at a near historic low rate. Yet the educational attainment level of Pennsylvania's young workers has a dramatic effect on employment and unemployment patterns within the state. While the total average unemployment rate for young workers during this period was 5.3 percent, the graph below shows that the unemployment rate for young high school dropouts was still very high at 14 percent.

By comparison, the unemployment rate for young adult college graduates in the labor force was 2.2 percent and 2.8 percent for graduate and professional degree graduates. Thus, even in a strong state economy period in which both white and blue collar workers are in demand, the unemployment rate was about six times higher for high school dropouts and 2.6 times higher for high school diploma only workers than for college graduates in the Pennsylvania labor force.

These data clearly show that educational attainment is an economic development strategy that reduces unemployment among Pennsylvania young workers.

UNEMPLOYMENT RATE OF PENNSYLVANIA YOUNG WORKERS IN THE LABOR FORCE BY EDUCATIONAL ATTAINMENT: 1995 TO 1997

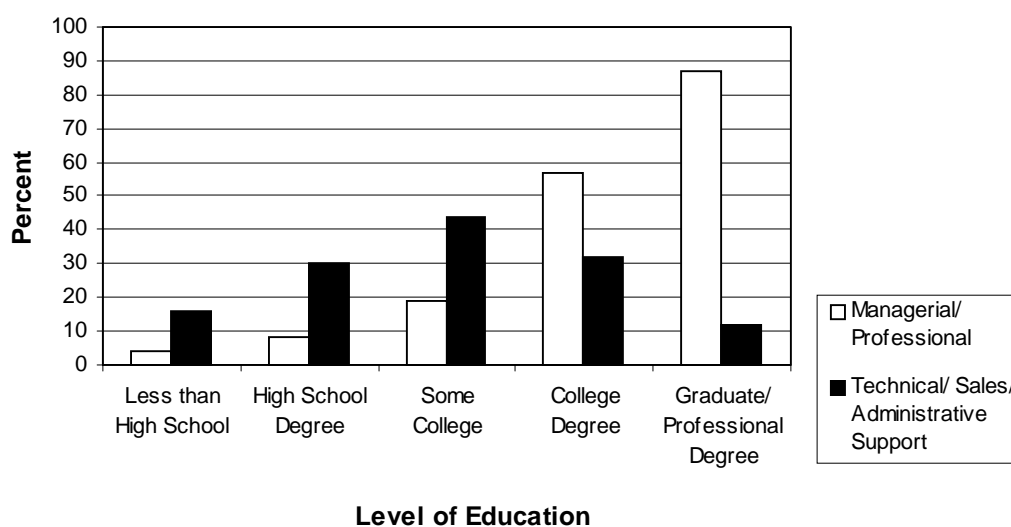


WHAT IS THE PAYOFF OF EDUCATIONAL ATTAINMENT FOR TYPE OF OCCUPATIONS?

Educational attainment has a major impact on the kind of jobs young Pennsylvania workers obtain. As shown in the graph below, in the 1995 to 1997 period 88 percent of young Pennsylvania graduate/professional degree graduates and 58 percent of baccalaureate degree graduates held professional or managerial positions. These occupations define 21st century leaders of high technology industries for the Commonwealth. By contrast, only 2 percent of high school dropouts and 8 percent of workers who have only a high school educational attainment hold professional or managerial positions.

Furthermore, in Pennsylvania's current economy, relatively few managerial and professional positions are filled by young workers with 1 to 3 years of college training — only 19 percent held these occupations. The largest proportion (42 percent) of young workers with some college education were employed in technical, sales and administrative support positions. Technical and administrative support positions also are critical for high technology business and industrial productivity of the next century.

WHITE COLLAR OCCUPATIONS OF PENNSYLVANIA YOUNG WORKERS IN THE LABOR FORCE BY EDUCATIONAL ATTAINMENT: 1995 TO 1997

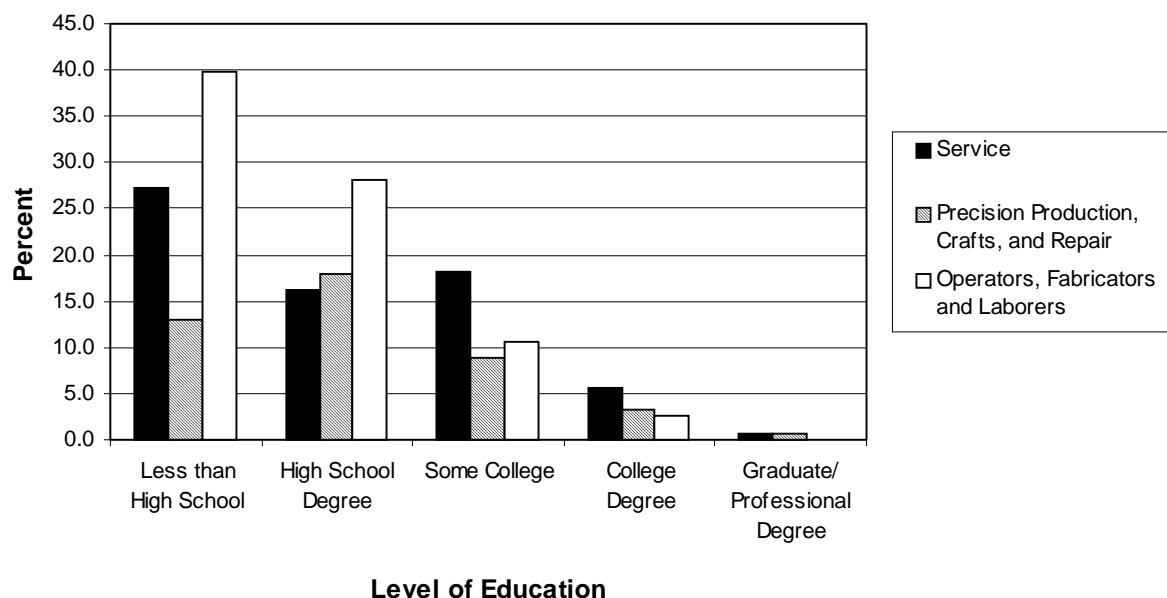


By comparison, the second graph shows that 40 percent of high school dropouts and 28 percent of workers who finished their education with a high school diploma held semi-skilled and unskilled positions as operators, fabricators and laborers. For high school only graduates, the second most frequent occupation category is precision production, crafts and repairs. The next most frequent occupation category for high school dropouts is low-skilled service jobs, which typically have low pay and few employee benefits. Only a very small percentage of college graduates work in these occupational groups.

This evidence from the *Current Population Survey* leads to two important conclusions about the payoffs of education for young workers in Pennsylvania:

- Advanced educational attainment is extremely important for obtaining a good job in this state.
- There is very high occupational segregation based on educational attainment, with very few low educated young workers in managerial and professional jobs, and very few high educated young workers employed as operators, fabricators or laborers.

BLUE COLLAR OCCUPATIONS OF PENNSYLVANIA YOUNG WORKERS IN THE LABOR FORCE BY EDUCATIONAL ATTAINMENT: 1995 TO 1997



WHAT IS THE PAYOFF OF EDUCATIONAL ATTAINMENT FOR PERSONAL INCOME?

Current Population Survey data for 1995 to 1997 show that educational attainment has a very large payoff for personal income levels of young workers in the Pennsylvania labor force. As has already been shown, educational attainment affects the employment chances and occupation of young workers, which in turn helps determine earning patterns.

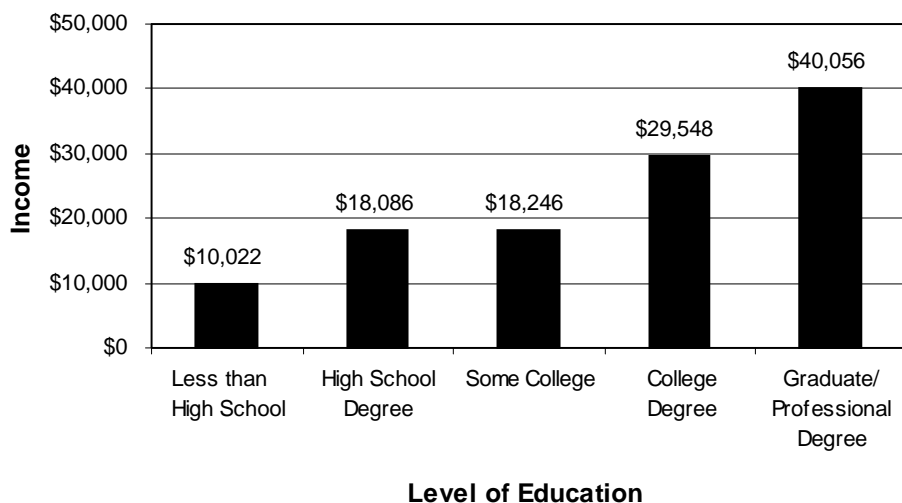
The median personal income of college graduates at nearly \$30,000 and graduate and professional degree graduates of \$40,000 per year are three and four times higher, respectively, than that of high school dropouts in the Pennsylvania labor force.

As presented earlier, however, the largest number of Pennsylvania young stopped their schooling with a high school diploma. How do they do? These workers had a median annual income of just over \$18,000 during the 1995 to 1997 period. By comparison, the annual personal income of college graduates is 63 percent higher and graduate and professional degree graduates 120 percent higher. Clearly, educational attainment has a dramatic impact on earnings patterns of young workers in the Pennsylvania economy.

A surprising finding is that workers with an associate degree or some college completed had nearly the same median annual income as young workers who stopped their education with just a high school diploma. This evidence suggests that the real income payoffs to higher education for young workers in the Pennsylvania economy is in completing four or more years of college.

The link between the payoffs of educational attainment and personal income has salient implications for economic development policy and tax revenues for the state. A more educated work force markedly enhances both worker earnings and tax revenues in Pennsylvania.

MEDIAN PERSONAL INCOME OF PENNSYLVANIA YOUNG WORKERS IN THE LABOR FORCE BY EDUCATIONAL ATTAINMENT: 1995 TO 1997



WHAT IS THE PAYOFF OF EDUCATIONAL ATTAINMENT FOR THE POVERTY STATUS OF YOUNG WORKERS?

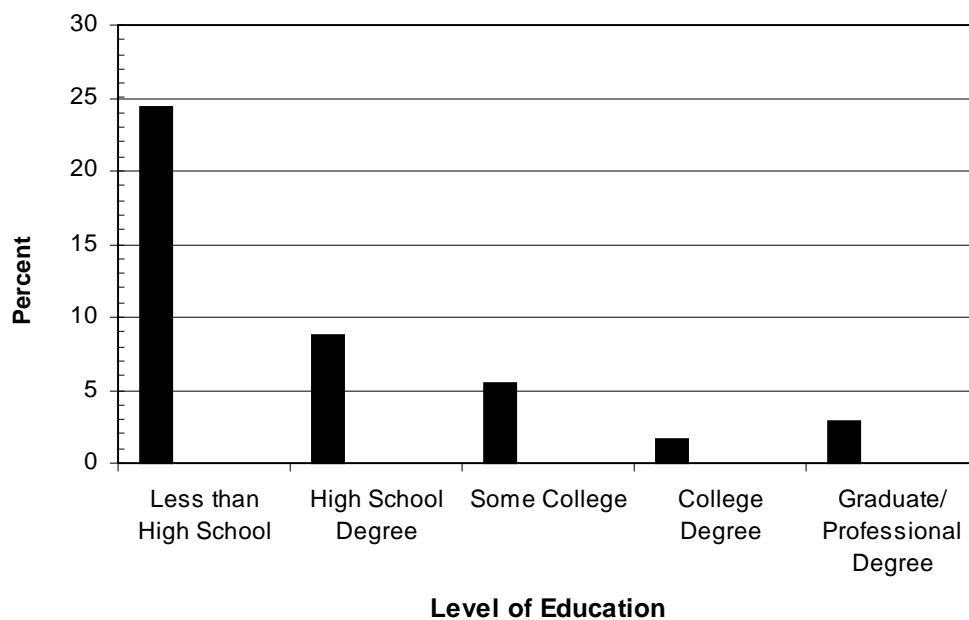
Low educational attainment clearly determines the likelihood of young state workers having earnings below the official poverty level. As shown in the graph on the next page, 24 percent or nearly one in four Pennsylvania high school dropouts earned less than the official U.S. government 1997 poverty threshold of \$8,350 for a working age individual worker. While young workers who had completed a high school degree before stopping their education earned more money, still 9 percent earned less than the official individual poverty threshold.

By comparison, just over 5 percent of young Pennsylvania workers who had completed some post-high school work and only 2 percent of those who had completed a college degree earned incomes below the official individual poverty threshold in the 1995 to 1997 period.

With this 12-times difference (24 percent versus 2 percent) between the poverty rate of high school dropouts and college graduates in Pennsylvania, it is clear that educational attainment is an important strategy for reducing poverty among young Pennsylvania workers.

Furthermore, as poverty is one of the major causes of crime, poor health, family breakups, poor housing, and other social problems that confront state and local government officials, enhancing the educational attainment of the state's future workers is surely one of the key policy solutions.

BELOW POVERTY STATUS OF PENNSYLVANIA YOUNG WORKERS IN THE LABOR FORCE BY EDUCATIONAL ATTAINMENT: 1995 TO 1997



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