The Jerome Levy Economics Institute of Bard College

# Public Policy Brief

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## A Path To Good Jobs?

Unemployment and Low Wages:
The Distribution of Opportunity
for Young Unskilled Workers

*Robert M. Hutchens*

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# Summary

The structure of the U.S. labor force is changing; fewer and fewer jobs are available in occupations that require little or no specialized skills. A partial explanation for this change is that these occupations are being rendered obsolete by either new production processes (that require more advanced skills) or automation. The decline in the number of these jobs has resulted in few employment opportunities for lower-skilled workers, and these workers now must overcome myriad challenges to become enfranchised in the increasingly competitive labor force. An obvious question is manifest for policy makers: Must this population face a life of perpetual unemployment, or are there alternative routes by which at least some will find a degree of financial security?

In this issue of the *Public Policy Brief*, Robert M. Hutchens explores this issue through his examination of the importance of three career paths a young person with limited academic credentials may take to avoid a life of unemployment and low wages: obtaining additional formal schooling, securing a job that provides stable employment at "good" wages, and acquiring a job that provides skills and thereby opens a door to good future jobs. The paper examines whether these are viable paths for academic "underachievers," and whether access to these paths has changed through time.

Hutchens first documents the labor market trends that have resulted in today's problems. He then notes that despite rather significant improvements in educational attainment among U.S. workers (and thus, a decline in the supply of lower-skilled workers), the demand for low-skilled workers has continued to precipitously decline, with no reason to expect this trend to reverse itself in the future. Consequently, young high school dropouts have suffered a large decrease in real wages.

In considering a response to this dilemma, Hutchens then examines—through a longitudinal study—a segment of the population affected by changes in labor market dynamics. Hutchens examines the paths and success rates among these academic underachievers at age 33-34, focusing on men aged 18-19 in 1966 who did not complete 12 years of schooling. The author concludes that:

- Most of these men did not obtain additional formal schooling, and many did not obtain any other form of additional training.
- While additional training in the years 1966 to 1971 appears to be associated with a greater chance of full-year employment and above-poverty earnings by the years 1978 to 1981, the relationship is weak. Failure to pursue training does not carry a large penalty: Many of the young men who did not pursue additional training ended up with full-year employment and above-poverty earnings from 1978 to 1981.
- Although the statistical links are not strong, a connection was registered between industry and occupation of early jobs and later success.

These results convey an image of academic underachievers trying to navigate a maze of ill-marked paths, some leading to above-poverty earnings and some not. Hutchens declares that "success may depend less on the path taken than on the characteristics of the navigator."

Finally, Hutchens examines which government policies could assist in solving the problems faced by lower-skilled young people. He concludes that the most beneficial policy would be to sharply reduce the supply of unskilled labor, as this not only will have the desired effect of increasing the wage paid to unskilled workers, but will also force employers either to eliminate or restructure unskilled jobs. Possible supply-side efforts by the public sector to implement this strategy include enhancing early childhood education programs, disbursing training vouchers to young adults, and restricting the immigration of unskilled workers. Due to the difficulty of identifying jobs, occupations, and industries that would consistently result in financial security for those with limited academic skills, the author concludes that, with few exceptions, demand-side interventions will not work. Even if such jobs could be identified, demand-side interventions frequently have side effects that reduce job opportunities for unskilled workers. Supply-side intervention makes the most sense.

Hutchens concludes that although there are no simple solutions to the problems faced by low-skilled workers, government policy should aim at lessening their dimensions by reducing the size of the unskilled population.

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# Preface

Several fundamental changes took place in the labor market during in the 1980s and 1990s that have affected the ability of those with little educational training to obtain employment. One change was the result of the restructuring of many companies, wherein dismissals took the place of temporary layoffs and led to many workers permanently losing their jobs. A second change was the rise in the importance of cognitive skills in obtaining employment. The number of occupations available to low-skilled workers and those with little education, therefore, dramatically declined, leaving few jobs available for such workers, and resulting in their being either unemployed or employed at below-poverty wages.

As a result, public policy in the area of labor market initiatives has focused on programs that might allow displaced workers to become re-employed. Such programs include job training, retraining, and relocation efforts.

Furthermore, as the likelihood of employment declines for unskilled workers, a widening of the earnings gap between skilled and unskilled workers suggests that even the more fortunate members of this segment will be consigned to the bottom of

the income ladder. Policy initiatives to tackle this dilemma must satisfy a series of tests: Will current labor policies be effective in assisting this population secure employment at a living wage...Should efforts be made to steer these youth toward employment in specific occupations...Should programs be advanced that provide additional training...If so, should such training be job-specific or academic in nature?

These questions are some of those explored by Robert M. Hutchens in this issue of the Levy Institute's *Public Policy Brief.* Specifically, by tracing over time the employment routes taken by individuals who started with less than a high school education, Hutchens examines whether (and to what extent) pursuing certain career paths—obtaining additional formal schooling, obtaining a job that provides secure employment at "good" wages, and obtaining a job that provides skills and thereby opening a door to good future jobs—are viable and successful ones for academic "underachievers," and whether access to these paths has changed over time.

Hutchens finds that while training or the type of job obtained early in one's career is statistically associated with later success, the correspondence is a tenuous one. In addition, the specific occupations that can result in later success may change over time in unpredictable ways. In sum, his results convey "an image of academic underachievers trying to navigate a maze of ill-marked paths, some leading to above-poverty earnings and some not." The results also hint at the possibility that "future success depends less on what you do than who you are."

The challenge for public policy is to ameliorate these circumstances. That is, if neither training, early jobs, nor specific occupations provide straight, unobstructed, paths to employment and above-poverty earnings for this population, then what direction should policy take? Hutchens concludes that there is no simple solution to the problem. At minimum, government policy should focus on supply-side initiatives (that is, those that would lessen the size of the problem by reducing the size of the unskilled population) rather than demand-side policies, which thus far have been ineffective in assisting this population overcome the obstacles that it faces. Moreover, if Hutchens' finding that additional training and formal education have little effect on future success holds true, then current job training programs also should be examined for their degree of long-run effectiveness.

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*March, 1994*

# Unemployment and Low Wages: The Distribution of Opportunity For Young Unskilled Workers

*Robert M. Hutchens*

## I. Introduction

The U.S. occupational structure continues to shift toward jobs that require higher levels of education and cognitive skill. Job opportunities in occupations that require few cognitive skills—occupations like service station attendant or elevator operator—are disappearing. This raises a fundamental labor market policy problem: What will happen to workers who, in an earlier time, would have become service station attendants or elevator operators? After all, not everyone is willing or able to prepare for jobs that require cognitive skills. Each year there emerges from the nation's high schools a cohort of young people with low reading and mathematical test scores. Many are dropouts who will never again step into a classroom. What will happen to these people? Are they consigned to a life of unemployment and low wages, or are there paths by which some fraction will find a degree of financial security?

This paper examines that issue. In particular, it examines the importance of three career paths by which a young person with limited academic credentials may avoid a life of unemployment and low wages. The three paths are (1) obtain additional formal schooling, (2) obtain a job that provides secure employment at "good" wages, and (3) obtain a job that provides skills and thereby opens a door to good future jobs. The paper examines whether these are viable paths for academic "underachievers," and whether access to these paths has changed through time.

The research begins with an investigation of recent trends in skill requirements. Section II first documents the trend toward a job structure that requires ever greater cognitive skills. It then examines the supply side of the labor market, noting that the past two decades have witnessed a rather significant improvement in educational attainment. Despite this supply-side response, the bottom essentially dropped out of the market for unskilled labor. Young high school dropouts suffered a significant decline in real wages. As indicated in Section II, there is good reason to expect this process to continue into the future.

Section III examines data from the National Longitudinal Survey of Young Men (NLS-Young Men). The analysis focuses on men who were 18-19 years old in 1966, and who had not completed 12 years of education by their nineteenth birthday. Using the NLS-Young Men, it is possible to examine the success of these academic underachievers at age 33-34 and the paths that they followed. Three conclusions come out of this work:

1. The majority of these young men did not obtain additional formal schooling. Indeed, as best as can be determined with these data, many did not obtain any other form of additional training.

2. Although additional training in the years 1966 to 1971 appears to have paid off with a somewhat higher probability of full-year employment and above-poverty earnings in the years 1978 to 1981, the relationship was weak. Failure to pursue additional training did not carry a large penalty; many of the young men who did not pursue additional training ended up with full-year employment and above-poverty earnings in the years 1978 to 1981.

3. There is some evidence of a link between industry and occupation of early jobs and later success. Work in the construction industry and in clerical and kindred occupations in this population tended to associate with a higher probability of later success. Yet the statistical links are not strong.

These conclusions are compared with data from the 1979 National Longitudinal Survey Youth Cohort. The goal is to determine whether a more recent vintage of young men had different experiences than the earlier 1966 vintage. Once again, the analysis focuses on men who were 18-19 years of age at the start of the survey, and who had not completed 12 years of education by their nineteenth birthday. Among the findings of this work are:

1. As in the earlier cohort, the majority of nongraduates in the 1979 cohort do not obtain additional formal schooling or any other form of training.

2. There is some evidence that the more recent cohort was less likely to obtain employer provided training.

3. The more recent cohort was much less successful in attaining full-year employment and above-poverty earnings.

4. As in the earlier cohort, additional training appears to pay off with a somewhat higher probability of full-year employment and above-poverty earnings. With the possible exception of employer provided training, however, the relationships are quite weak. Once again, failure to pursue additional training evidently does not carry a large penalty.

5. As in the earlier cohort, there is weak evidence of a link between industry and occupation of early jobs and later success. Yet, industries and occupations that matter in the early cohort cease to matter in the more recent cohort. There is no evidence of a stable subset of jobs that consistently serves as a pathway to later success.

These results do not convey an image of unobstructed paths to success. Rather, they convey an image of academic underachievers trying to navi-

gate a maze of ill-marked paths, some leading to above-poverty earnings and some not. While training and certain early jobs may be statistically associated with later success, the linkages are weak and uncertain. Moreover, the set of jobs that lead to success may change over time in unpredictable ways.

Academic underachievers confront a difficult labor market. The results hint at the possibility that future success depends less on what you do than who you are. Success may depend less on the path taken than on the characteristics of the navigator.

Section IV considers the issue of government policies that could assist young people with limited academic skills and achievements. It concludes that the most beneficial policy would be to sharply reduce the supply of unskilled labor: Not only will this have the beneficial effect of increasing the wage paid to unskilled workers, but it will also force employers to either eliminate or restructure unskilled jobs. There are several ways to implement this strategy; of particular importance are

- expanded efforts at enhancing early education.
- training vouchers for young adults.
- restrictions on immigration of unskilled workers.

Section IV also considers demand-side interventions, and essentially concludes that, with some exceptions, these should be avoided. The above noted evidence indicates that it will be difficult for governments to identify clusters of jobs that unambiguously lead to financial security for people with limited academic skills. Moreover, even if such jobs could be identified, demand-side interventions frequently have side-effects that reduce job opportunities for unskilled workers. Supply-side intervention makes the most sense.

People with limited academic skills or credentials often have incomes corresponding with the bottom of the earnings distribution. As cognitive skills become more important in securing employment, these people confront a labor market that is increasingly characterized by unemployment and low wages. Neither training nor early jobs provide straight, unobstructed paths to employment and above-poverty earnings for this popu-

lation. There is no simple solution to the problem. Government policy should aim at reducing the size of the problem by reducing the size of the unskilled population.

## II. Recent Trends in Demand and Supply for Unskilled Workers

In recent decades, unskilled workers faced declining job opportunities. Jobs such as servant or gas station attendant declined in number, while jobs such as manager or computer programmer expanded. The structure of jobs essentially shifted toward one requiring greater cognitive skills. According to the Bureau of Labor Statistics (BLS), this shift will continue into the next century.

This shift toward greater skill requirements can be viewed as the product of two forces. First, the skills required within specific jobs increased. For example, over time the job "nursing" has increasingly required knowledge of computers. Second, unskilled jobs contracted and skilled jobs expanded so that the mix of jobs changed. For example, the number of laborers in manufacturing contracted while professional services (such as lawyer or accountant) grew.

This change in skill requirements can be documented with data from the *Occupational Outlook Handbook*. The *Handbook* specifies the educational requirements of almost 300 occupations. For example, a job as an engineer requires at least a bachelor's degree, while a job as a shoe-repairer or a truck driver requires no formal education or training. Because the *Handbook* is published annually, it chronicles changes in the educational requirements of occupations through time.

Using the *Handbook*, it is possible to assess the level of education required by the current stock of jobs. Table 1 presents data from two papers that used the *Handbook* to examine changes in educational requirements. In 1960 only 15.3 percent of the work force held jobs that (according to the 1960 *Handbook*) required a college degree. When a similar number is computed for 1986 using the 1986 *Handbook*, 25.1 percent of all workers are in occupations requiring a bachelor's degree.

These numbers reflect both of the forces noted above; that is, they reflect both changes in the skills required within occupations, and changes in the mix of occupations.

**Table 1**
**Fraction of all Jobs That Require a College Degree**
**1960, 1976, 1986, 2000**

| Year | Require College Degree | Do not Require College Degree |
|---|---|---|
| 1960 | 15.3% | 84.5% |
| 1976 | 21.7 | 80.0 |
| 1986 | 25.1 | 74.8 |
| 2000 | 27.3 | 72.7 |

Source: Rumberger's (1981) and Mishel and Teixeira's (1990) analyses of the *Occupational Outlook Handbook*.

Data from the *Dictionary of Occupational Titles* (DOT) provide a second way to document changing skill requirements (U.S. Department of Labor, 1997). The 1977 DOT measures several dimensions of skill for some 12,000 job titles. These can be gathered into occupational groups and used to assess the extent to which changes in the mix of occupations affect skill requirements. Howell and Wolff (1991) present a particularly insightful version of this exercise. They begin by grouping the DOT data into four variables:

*General educational development*: A DOT index of mathematical, language, and reasoning skills.

*Substantive complexity*: A factor-analytic index based on DOT measures of required verbal and numerical aptitude, specific vocational training time, temperament for non-repetitive activities, and temperament for activities of an abstract and creative nature.

*Interactive skills*: A DOT index of the extent to which a job requires "people" skills. These range from "high" skills of mentoring and negotiating to "low" skills of serving and taking instructions.
*Motor skills*: A factor-analytic index based on DOT measures of required motor coordination, manual dexterity, and ability to set up machines and perform precision manual work.

Howell and Wolff then assign these variables to 267 occupations and calculate averages for the 1960, 1970, 1980, and 1985 work forces. Since they rely on a single DOT (the 1977 DOT), their analysis cannot capture the effect of the changes in the skill requirements within occupations. Rather, the analysis only reflects changes in skill requirements due to changes in the mix of skilled and unskilled occupations.

Table 2 presents the Howell and Wolff data on growth rates for the four skill measures. The positive growth rates in the table indicate that, with the exception of motor skills, skill requirements increased through time. Thus, the economy is moving toward an occupational mix that demands higher cognitive skills and lower motor skills. Interestingly, these data suggest that this process may be slowing down as the growth rates tend to become smaller with time. However, that may be an artifact of data that do not capture *changes* in skill requirements within occupations.

A key factor underlying the trends in Tables 1 and 2 is the expansion and contraction of occupations. Between the years 1979 and 1989, the fastest growing occupation was computer and data processing services, which doubled its employment share (from 0.3 percent in 1979 to 0.7 percent in 1989). Most jobs in this occupation require substantial cognitive skills. The declining occupations are mainly found in manufacturing, such as handlers and laborers in the rubber and plastics industry. Such occupations emphasize motor skills over cognitive skills. One can, however, oversimplify this story. Although job opportunities tend to be growing in sectors that require comparatively high cognitive skills, that is not always the case. The industry adding the most jobs between the years 1979 and 1989 was eating and food establishments, which to a large extent consists of low-skilled jobs such as cook or waiter.

**Table 2**
**Annual Rate of Change in Skills Levels**
**Due to Changing Employment Patterns, 1960-1985[a]**

| | Period | | |
|---|---|---|---|
| **Job Skill** | **1960-70** | **1970-80** | **1980-85** |
| Substantive Complexity | 0.69% | 0.46% | 0.28% |
| General Educational Development | 0.36 | 0.22 | 0.13 |
| Interactive Skills | 0.26 | 0.22 | 0.03 |
| Motor Skills | 0.07 | -0.14 | -0.04 |

[a] From Howell and Wolff (1991), Table 3, p. 491.

**General Educational Development** A DOT index of mathematical, language, and reasoning skills.

**Substantive Complexity** A factor analytic index based on DOT measures of required verbal and numerical aptitude, specific vocational training time, temperament for non-repetitive activities, and temperament for activities of an abstract and creative nature.

**Interactive Skills** A DOT index of the extent to which a job requires "people" skills. These range from "high" skills of mentoring and negotiating to "low" skills of serving and taking instructions.

**Motor Skills** A factor-analytic index based on DOT measures of required motor coordination, manual dexterity, and ability to set up machines and perform precision manual work.

The trend toward higher skill requirements is likely to continue into the future. The last row of Table 1 presents BLS projections of educational requirements in 2000 (Silvestri and Lukasiewicz, 1989). The predicted increase in educational requirements is largely due to predicted changes in the occupational distribution. The BLS predicts rapid growth in professional specialty occupations, which require high levels of education and training, and slow or negative growth in occupations requiring less education and training. For example, the employment share of operators, fabricators, and laborers is expected to decline.

These BLS projections are not, however, without controversy. Mishel and Teixeira (1990) claim that the increase in skill requirements will be less than indicated by the BLS. In part, they argue that the growth in high-skilled occupations will be counterbalanced by a shift toward low-

skilled jobs. They cite as evidence the fact that service occupations are projected to make a large contribution to growth in total employment between the years 1984 and 2000, and that these occupations often require few skills (Mishel and Teixeira, 1990). In contrast, Bishop (1992) claims that future skill requirements will be greater than those projected by the BLS. Bishop evaluates BLS projections during the 1980s, and demonstrates that the BLS prediction methodology underestimated the rapid growth in high-skill jobs and overestimated growth in low-skilled jobs. Given that BLS predictions for the year 2000 are based on the same methodology, Bishop concludes that BLS is underestimating the trend toward higher skills.

At the same time that employers are requiring a more educated work force, employees are acquiring more education. The past two decades witnessed a rather significant improvement in educational attainment, particularly at the lower levels. The first three columns of Table 3 present data on the educational attainment of the work force in 1973, 1979, and 1988. Note the decline in male high school dropouts. In 1973, males without a high school degree constituted almost a fifth of the work force. By 1988 this had been cut in half. A similar phenomenon occurred among women.

One reason for this improved educational attainment is the increased attainment among young workers. The three right-hand columns of Table 3 indicate educational attainment for people with less than ten years of potential experience in the labor force. (Potential experience indicates the number of years a person could have been in the labor force after completing school; it is computed as age minus years of schooling minus six.) Note again the decline in male high school dropouts: Whereas in 1973, eight percent of the young males in the work force were dropouts, by 1988 the number declined to five percent. Over this 15-year period young cohorts were much more likely to both graduate from high school and enroll in college. This was particularly true for women.

**Table 3**
**Employment Distribution by Experience, Education, and Sex for 1973, 1979, and 1988[a]**

| | All Experience Levels | | | 0 - 9 Years Experience | | |
|---|---|---|---|---|---|---|
| | **1973** | **1979** | **1988** | **1973** | **1979** | **1988** |
| **Men** | | | | | | |
| HS Dropout | 18% | 12% | 8% | 8% | 7% | 5% |
| HS Graduate | 24 | 23 | 21 | 24 | 3 | 21 |
| Some College | 9 | 11 | 11 | 13 | 12 | 2 |
| College Grad | 10 | 12 | 14 | 13 | 14 | 14 |
| **Women** | | | | | | |
| HS Dropout | 9 | 7 | 5 | 4 | 3 | 3 |
| HS Graduate | 19 | 20 | 21 | 20 | 20 | 19 |
| Some College | 6 | 8 | 11 | 9 | 11 | 13 |
| College Grad | 6 | 7 | 10 | 8 | 10 | 14 |
| **Total** | **100%** | **100%** | **100%** | **100%** | **100%** | **100%** |

[a] Derived from Bound and Johnson (1992), Table 1.

Of course, such increases in years of schooling do not necessarily mean improvements in actual skills. One hears enough about illiterate high school graduates to be cautious about the above statistics. However, other data suggest that more schooling has, indeed, translated into improved cognitive abilities. Tables 4 and 5 present data on the reading and math skills of 17-year-old high school students. Consistent with the much discussed trends in the Scholastic Aptitude Test, these data indicate little change in the upper tail of the distribution. There is, however, considerable improvement at the lower end, implying that an increasing share of high school students can read and solve problems at the basic and intermediate level. The improvement is particularly dramatic among blacks, a fact that accords nicely with the decline in black high school dropout rates.[1]

**Table 4**
**Percent of 17-Year-Old High School Students Reading at or Above Selected Levels, by Race, 1970-1988**

| Reading Skill Level | 1970-71 | 1974-75 | 1979-80 | 1983-84 | 1987-88 |
|---|---|---|---|---|---|
| **"Basic"** | | | | | |
| White | 97.7% | 98.6% | 99.1% | 99.1% | 99.5% |
| Black | 82.0 | 81.1 | 84.9 | 95.8 | 97.1 |
| **"Intermediate"** | | | | | |
| White | 83.5 | 86.1 | 87.3 | 98.9 | 89.3 |
| Black | 39.7 | 42.4 | 43.9 | 66.0 | 76.0 |
| **"Adept"** | | | | | |
| White | 43.3 | 44.0 | 44.1 | 46.3 | 46.3 |
| Black | 7.5 | 7.9 | 6.7 | 16.3 | 25.8 |
| **"Advanced"** | | | | | |
| White | 7.5 | 7.0 | 6.3 | 6.5 | 5.7 |
| Black | .3 | .3 | .2 | .9 | 1.9 |

Source: Ina Mullis and Lunn Jenkins, *The Reading Report Card, 1971-88* (Princeton, New Jersey: Educational Testing Service, 1990), pp. 63-64 as reproduced in Jencks (1992), p. 178.

One can, perhaps, make too much of this improvement. Cognitive skills may have improved even more dramatically prior to 1970. Moreover, educational achievement in the U.S. apparently lags behind competitors like Germany and Japan. Finally, the lack of improvement at the high end of the cognitive skill distribution is cause for concern. Still, the point remains: In recent years the cognitive skills of the labor force have, on average, increased.

It also is likely that cognitive skills will continue to improve. There is considerable political pressure for better public schools. Moreover, as discussed below, the labor market imposes heavy economic penalties on people with few cognitive skills. Thus, gradual increases in cognitive skills—particularly at the lower levels—can be expected to continue into the future.

**Table 5**
**Percent of 17-Year-Old High School Students With Math Skills at or Above Selected Levels, by Race, 1970–1988**

| Math Skill Level | 1977–78 | 1981–82 | 1985–86 |
|---|---|---|---|
| "Basic Operations and Beginning Problem Solving" | | | |
| White | 95.8% | 96.3% | 98.3% |
| Black | 70.0 | 75.3 | 86.0 |
| "Moderately Complex Procedures and Reasoning" | | | |
| White | 57.3 | 54.5 | 58.0 |
| Black | 18.0 | 17.3 | 21.7 |
| "Multi-Step Problem Solving and Algebra" | | | |
| White | 8.6 | 6.3 | 7.6 |
| Black | 0.4 | 0.6 | 0.3 |

Source: John Dossey, Ina Mullis, Mary Lindquist, and Donald Chambers, *The Mathematics Report Card* (Princeton: Educational Testing Service, 1988), pp. 141–142 as reproduced in Jencks (1992), p. 178.

To summarize the above discussion, demand-side changes are creating an economy that requires increased levels of cognitive skills. Although supply-side changes are producing a better educated work force, most of the improvement is at the lower end of the cognitive skill distribution. This logically leads to the question of whether the increase in demand is outstripping the increase in supply.

Data on wage trends provide insights into that. Table 6 follows the format of Table 3; it presents data from Bound and Johnson (1992) on real hourly wages for 1973, 1979, and 1988.[2] The principal message in this table is that over the past two decades the bottom dropped out of the market for low-skilled labor. As indicated by the three left-hand columns of Table 6, the real hourly wage for all male high school dropouts dropped from $10.48 to $8.31, a 22 percent decline. The three right-hand columns indicate that the collapse was even more pro-

nounced for young high school dropouts, whose hourly wages dropped from $7.52 to $5.54, a 27 percent decline. Note that college graduates did not meet a similar fate. Although they suffered wage losses during the 1970s (when the baby boom cohort entered the labor market), their wages bounced back in the 1980s. Indeed, Table 6 is consistent with the hypothesis that people with greater cognitive skills were less likely to suffer wage losses over the past two decades. Alternatively stated, the table suggests that the increased demand for cognitive skills did, indeed, outstrip supply.

**Table 6**
**Estimated Average Hourly Wages (in 1988 Dollars)**
**By Experience, Education, and Sex**
**For 1973, 1979, and 1988[a]**

| | All Experience Levels | | | 0 - 9 Years Experience | | |
|---|---|---|---|---|---|---|
| | 1973 | 1979 | 1988 | 1973 | 1979 | 1988 |
| **Men** | | | | | | |
| HS Dropout | $10.48 | $9.78 | $8.31 | $7.52 | $7.20 | $5.54 |
| HS Graduate | 12.16 | 11.34 | 10.15 | 9.69 | 8.96 | 7.31 |
| Some College | 13.08 | 12.29 | 11.60 | 10.61 | 9.89 | 8.51 |
| College Grad | 15.62 | 14.27 | 14.81 | 12.69 | 11.38 | 12.16 |
| **Women** | | | | | | |
| HS Dropout | 6.29 | 6.22 | 5.64 | 5.80 | 5.48 | 4.82 |
| HS Graduate | 7.88 | 7.56 | 7.34 | 7.14 | 6.87 | 6.18 |
| Some College | 9.30 | 8.48 | 8.77 | 8.91 | 7.79 | 7.52 |
| College Grad | 11.18 | 9.94 | 10.81 | 10.42 | 9.29 | 10.00 |

[a] Derived from Bound and Johnson (1992), Table 1. Columns 1—3 are computed using their employment data as weights.

Will the labor market for unskilled workers continue to deteriorate? Probably. Powerful economic forces lie behind the demand-side shift toward greater cognitive skills, and these forces are likely to continue. Such forces include the microchip revolution and the trend toward greater international trade. Computers and robots can increasingly perform the repetitive work of unskilled labor. Moreover, international

trade will arguably result in less demand for goods produced by American unskilled workers. This is because third world countries, with their abundant supplies of unskilled labor, have a comparative advantage in such goods. Of course, the expanding service sector may provide jobs for workers with weak cognitive skills. If the above logic is correct, however, these jobs may be characterized by declining relative (and perhaps real) wages.

Given this, it is reasonable to speculate that opportunities for upward mobility have declined for lower-skilled workers. Some available evidence does, indeed, lend support to such hypotheses. A recent work by Laura Leete-Guy (Leete-Guy, 1992) uses the 1966 NLS–Young Men and the 1979 NLS–Youth Cohort data to investigate five-year changes in earnings and occupations for young males who had completed their education. She finds that in the 1980s there was less occupational advancement or wage growth than in the 1970s. This was particularly true for people without any college education.

Another study (Moffitt and Gottschalk, 1993) uses different data to come to a similar conclusion. Employing the Panel Study of Income Dynamics, Moffitt and Gottschalk find evidence of a decline in earnings mobility (measured as movement between quintiles of the earnings distribution) over the last twenty years. According to their data, this decline in earnings mobility was particularly severe for the bottom quintile of the earnings distribution. Moreover, the bottom quintile experienced declining mobility in both the 1970s and the 1980s.

Thus, there is good reason to predict that unskilled workers will face an increasingly difficult labor market. Both real wages and opportunities for upward mobility are likely to decline in the future.

## III. Findings

### An Analysis of the NLS–Young Men

As noted in the introduction, a young person with few academic skills and credentials is not without options. There would seem to be three career paths by which a person could avoid a life of unemployment and

low wages. In particular, they could (1) obtain additional formal schooling, (2) obtain a job that provides secure employment at "good" wages, or (3) obtain a job that provides skills and thereby opens a door to good future jobs. The goal of this section is to examine the extent to which an earlier cohort of young, unskilled men went down these several paths and attained a degree of economic success. The analysis is built on the NLS–Young Men. The NLS-Young Men began with a representative sample 5,225 young men between the ages of 14 and 24 in 1966, and followed these young men through a final interview in 1981. One major advantage of the NLS-Young Men is that it tracks a cohort of labor market entrants for 15 years (1966-1981). In contrast, the more recent NLS Youth Cohort is currently limited to 11 years of data (1979-1990).

Tables 7-9 provide the first conclusion from this study; namely, that at least for this cohort of nongraduates, formal training was not critical for full employment and above-poverty earnings. There must have been paths to success that either involved another form of training—a form of training not picked up by the survey—or that had some other feature that produced upward mobility. [See Appendix A for an additional empirical analysis of the NLS-Young Men data.]

**Table 7**
**Training Paths Pursued by Nongraduate Males Who Were 18-19 in 1966 (NLS-Young Men)**

| Training Path in 1966 - 1971 | Number | | Percent | |
|---|---|---|---|---|
| Completed More Years of Schooling | 129,366 | | 30% | |
| And Obtained No Other Training | | 95,316 | | 22% |
| And Obtained Other Training | | | | |
| Provided by Employer | | 18,102 | | 4 |
| Miscellaneous | | 15,948 | | 4 |
| Did Not Complete More Schooling | 296,986 | | 70 | |
| And Obtained No Other Training | | 217,650 | | 51 |
| And Obtained Other Training | | | | |
| Provided by Employer | | 37,227 | | 9 |
| Miscellaneous | | 42,109 | | 10 |
| **Total** | **426,352** | **426,352** | **100%** | **100%** |

Missing—261,557

Further work with linear regression models indicates that even after controlling for demographic variables (such as race, age, region, and disability), training undertaken between the years 1966 and 1971 affected the probability that nongraduates had 1978-1981 earnings above the poverty line. Thus, training mattered.

However, other variables may matter more. In particular, race and the highest grade completed at age 19 were strongly related to the subsequent "success" of these nongraduates. Moreover, linear regressions uncover weak links between early jobs and later success. At least for this cohort, early work in the construction industry and in clerical and kindred occupations tended to be associated with a higher probability of later earnings above the poverty line. Yet the statistical links are not strong.

**Table 8**
**Training Paths Pursued by Nongraduate Males Who Were 18-19 in 1966 and Who, by 1978-1981, Had Attained SUCCESS 2, i.e., Earnings Above the Poverty Line and Full-Time Work (NLS-Young Men)**

| Training Path in 1966 - 1971 | Number | | Percent | |
|---|---|---|---|---|
| Completed More Years of Schooling | 89,095 | | 34% | |
| And Obtained No Other Training | | 56,547 | | 21% |
| And Obtained Other Training | | | | |
| Provided by Employer | | 18,102 | | 7 |
| Miscellaneous | | 14,447 | | 5 |
| Did Not Complete More Schooling | 176,395 | | 66 | |
| And Obtained No Other Training | | 132,164 | | 50 |
| And Obtained Other Training | | | | |
| Provided by Employer | | 18,668 | | 7 |
| Miscellaneous | | 25,562 | | 10 |
| **Total** | **265,490** | **265,490** | **100%** | **100%** |

**Table 9**
**Success Rates for Alternative Training Paths, Nongraduate Males Who Were 18-19 in 1966 (NLS-Young Men)**

| Training Path 1966 - 1971 | Success 2 | Success 1 | Success 3 |
|---|---|---|---|
| Completed More Years of Schooling | 69% | 84% | 29% |
| And Obtained No Other Training | 59 | 80 | 25 |
| And Obtained Other Training | | | |
| Provided by Employer | 100 | 100 | 52 |
| Miscellaneous | 91 | 91 | 21 |
| Did Not Complete More Schooling | 59 | 72 | 10 |
| And Obtained No Other Training | 61 | 70 | 8 |
| And Obtained Other Training | | | |
| Provided by Employer | 50 | 82 | 22 |
| Miscellaneous | 61 | 73 | 12 |
| **Total** | **62%** | **75%** | **16%** |

**Success 1**: Annual earnings in excess of the U.S. government poverty line for a family of four.

**Success 2:** Annual weeks worked greater than or equal to 48 and annual earnings in excess of the U.S. government poverty line for a family of four.

**Success 3**: Annual earnings in excess of $20,000 in 1980.

One way to think about these results is to ask the following question: Is there a set of jobs so fundamental to the upward mobility of nongraduates that they should be subsidized or in some other way encouraged? The findings provide no grounds for answering "yes" to that question. Rather, it would seem to suggest an alternative interpretation. Academic underachievers find paths to success in many different industries and occupations. While some industries and occupations may be more likely to lead to success than others, the linkages are weak and statistically insignificant.

**Comparing the NLS–Young Men with the NLS–Youth Cohort**

The previous section focused on a cohort that entered the labor market in the late 1960s. In light of the economic changes that occurred in the ensuing decades, it is natural to wonder whether more recent vintages of young workers have had similar experiences. The 1979 NLS–Youth Cohort can be used to examine this. The NLS–Youth Cohort is a panel survey of 12,686 young men and women who were ages 14 to 21 at the beginning of 1979. One can select 18 to 19 year-old nongraduate males from these data and compare them to similar young males in the 1966 NLS–Young Men data. In order to make the comparison over the same time interval, the analysis focuses on a nine to ten year period. Tables 10-12 present the comparison. [See Appendix B for additional empirical analysis of these tables.]

In summary, three conclusions can be drawn from Tables 10-12. First, in both cohorts the majority of nongraduates tend to not pursue further training: They do not report completion of additional formal schooling or any other form of training. Second, there is some evidence that the more recent cohort was less likely to obtain employer provided training. Finally, the 1979 cohort of nongraduates was much less successful in terms of earnings and employment than the 1966 cohort.

Work with linear regression models indicates that, as in the earlier cohort, additional training paid off with a somewhat higher probability of later success. In addition, early jobs were weakly related to later success. Yet, industries and occupations associated with upward mobility at a point in time cease to play that role at a later point in time. As such, there is no reason to believe that government will, at a given moment, be able to predict which set of jobs will lead to later success.

**Table 10**
**Training Paths Pursued by Nongraduate Males Who Were Age 18-19 in 1966 and 1979**

| | 1966-1971 | 1979-1984 |
|---|---|---|
| **Training Path** | **Young Men Data** | **Youth Cohort Data** |
| Completed More Years of Schooling | 31% | 26% |
| And Obtained No Other Training | 25 | 17 |
| And Obtained Other Training | | |
| Provided by Employer | 3 | 1 |
| Miscellaneous | 3 | 8 |
| Did Not Complete More Schooling | 69 | 74 |
| And Obtained No Other Training | 57 | 66 |
| And Obtained Other Training | | |
| Provided by Employer | 5 | 1 |
| Miscellaneous | 7 | 7 |
| **Total** | **100%** | **100%** |
| Total Observations (weighted) | 419,789 | 1,138,426 |
| Total Observations (unweighted) | 252` | 585 |
| Attrition rate (weighted) | 39 | 10 |

**Table 11**
**Success Rates Based on SUCCESS 1 for Alternative Training Paths; Nongraduate Males Who Were 18–19 in 1966 and 1979**

| | Fraction that Attain Success 1 1966 | 1979 |
|---|---|---|
| **Training Path** | **Young Men Data** | **Youth Cohort Data** |
| Completed More Years of Schooling | 88% | 54% |
| And Obtained No Other Training | 85 | 52 |
| And Obtained Other Training | | |
| Provided by Employer | 100 | 65 |
| Miscellaneous | 100 | 58 |
| Did Not Complete More Schooling | 70 | 57 |
| And Obtained No Other Training | 73 | 56 |
| And Obtained Other Training | | |
| Provided by Employer | 76 | 81 |
| Miscellaneous | 41 | 59 |
| **Total** | **75%** | **56%** |

**Table 12**
**Success Rates Based on SUCCESS 2 for Alternative Training Paths; Nongraduate Males Who Were 18–19 in 1966 and 1979**

| Fraction that Attain Success 2 | 1966 | 1979 |
|---|---|---|
| **Training Path** | **Young Men Data** | **Youth Cohort Data** |
| Completed More Years of Schooling | 61% | 44% |
| And Obtained No Other Training | 56 | 42 |
| And Obtained Other Training | | |
| Provided by Employer | 74 | 57 |
| Miscellaneous | 100 | 48 |
| Did Not Complete More Schooling | 53 | 44 |
| And Obtained No Other Training | 57 | 44 |
| And Obtained Other Training | | |
| Provided by Employer | 69 | 59 |
| Miscellaneous | 4 | 43 |
| **Total** | **56%** | **44 %** |

## IV. Policy

Are there public policies that would help academic underachievers move toward greater economic security? In trying to answer this question, it is important to realize that governments are already heavily involved in this area. Young people enter the labor market with skills that are in large part shaped by the public school system. Moreover, there is considerable government involvement in adult training through subsidies to community colleges and public universities, and through training programs like the Job Training Partnership Act. Finally, the types of jobs available in the economy are shaped by government tax and expenditure policy. For example, recent reductions in defense expenditures have eliminated many "good" blue collar jobs. The issue is less one of whether governments should be involved, but rather what form of government intervention is most effective.

Government policy in this area can be thought of in terms of interventions on the supply and demand sides of the labor market. Supply-side interventions—such as education, training, and immigration policy—affect the level and mix of skills that workers bring to the labor market. Demand-side interventions—such as technology and trade policy—affect employers and thereby the types of jobs offered in the economy.

This section examines possible demand- and supply-side policies. It concludes that, from the perspective of promoting opportunities for academic underachievers, supply-side interventions make the most sense. Demand-side interventions often raise more problems than they solve. As indicated by the above evidence, it is not easy to identify early jobs that serve as paths to economic security for this population. Moreover, even if such jobs could be identified, demand-side intervention may have side effects that adversely affect low-skilled workers.

Rather, federal, state, and local governments should intervene on the supply side. They should pursue a policy of sharply reducing the supply of unskilled labor while expanding the supply of skilled labor. Not only will this have the beneficial effect of increasing the wage paid to unskilled workers, but it will also force employers to either eliminate or restructure unskilled jobs. As argued below, there are several ways in which governments in the U.S. could implement a supply-side strategy. In particular, they might

- expand efforts at enhancing early education,
- introduce training vouchers for adults, and/or
- sharply restrict immigration of unskilled workers into the country.

While supply-side interventions should be emphasized, some demand-side policies could be beneficial. In particular, unemployment insurance (UI) deserves attention. At present, UI often effectively subsidizes volatile and temporary jobs. By changing the UI tax system and eliminating this subsidy, governments could encourage the development of more stable jobs.

**A. The Supply Side**

Perhaps the least controversial way for governments to promote economic mobility is through policies that raise worker skill levels. At its simplest, the theory behind such policies is to help workers realize a higher skill level and thereby permit them to realize a higher standard of living. A more elaborate version of the theory contends that policies that move workers out of unskilled markets and into skilled markets have the beneficial effect of causing the wages of the unskilled to rise, ceteris paribus. Not only does this (a) improve the standard of living of those who remain in the unskilled labor market, but (b) it forces employers to either stop using unskilled labor or restructure jobs in ways that can make the unskilled more productive. This could involve providing additional capital, additional training, or an alternative organization of work.

Of course, such policies also have costs. In order to raise skill levels, human and material resources must be allocated to the training process. Moreover, since an increase in the supply of skilled workers may reduce the wages in markets for skilled workers, some high-wage workers may suffer a decline in well-being. Obviously, society must decide whether the benefits of such policies are worth the costs.

In a sense, however, that decision has already been made. Federal, state, and local governments are deeply involved in training programs that seek to raise the skill levels of adult academic underachievers. Examples are vocational education programs, training programs that help dropouts gain a high school degree, and job training programs. A rather extensive body of research indicates that these programs are frequently ineffective.[3] This is especially true for school dropouts. One project that provided intensive training to dropouts and used an experimental design to evaluate the effect of that training, found that trainees often did no better than the control group.[4] Thus, the issue is not one of whether the government should train academic underachievers; that decision has already been made. Rather, the issue is how to do this most effectively.

Two proposals deserve serious consideration. First, the best way to minimize the number of unskilled young adults in the population is to enhance early education. In comparison to adult education, early education is both effective and inexpensive. Second, instead of targeting training services at academically unskilled young adults, the U.S. should move toward universal vouchers for post-high school education.

**Enhanced Early Education**

It is inefficient to allocate scarce resources to programs that provide adults with basic reading and mathematics skills. The same skills can be taught with equal or greater effect at younger ages when the opportunity cost of student time is lower.[5] At younger ages it is often possible to identify and deal with problems in ways that do not stigmatize or isolate. Indeed, compensatory education programs seem to be most effective at young ages (Glazer, 1987). In addition, basic reading and mathematics knowledge opens the door to other skills (for example, science or algebra), that are part of the portfolio of skills needed in an increasingly technological workplace. It is inefficient for elementary school students to be in a position where, because of weak reading and mathematics skills, they cannot open those doors. Finally, students who master basic reading and mathematics when young may be more likely to remain motivated and in school.

Of course, improved early education cannot eliminate the problem of people who reach adulthood without adequate academic skills. There will always be some ineffective schools or teachers; some teenagers will drop out of school because of pregnancy or adolescent rebellion; some people will graduate from high school without basic skills. Adult high schools provide a potential way to address this problem.

Adult high schools can help dropouts complete their high school education. These should be financed by governments, be tuition-free, and should offer a curriculum similar to that available in a conventional high school. They should be demanding—not simply help students pass a test like the GED.[6] In order to insure access, these adult high schools could

be organized as night schools. Yet, no matter how well adapted to the circumstances of adult students, such schools may not be very effective in the sense that benefits exceed costs. Some students may simply refuse to enroll, while other students may enroll and fail. There probably would be a stigma associated with graduation from such schools. To repeat, the way to minimize the number of people who reach adulthood without academic skills is to enhance early education.

**Vouchers for Post-High School Training**

For those who complete high school, the government should offer universal vouchers for post-high school education. Citing James Tobin, Robert Haveman has proposed a "universal personal capital account for youth." This would involve a "grant of, say, $20,000 to be given to all youth at age eighteen, to be used for human capital investments of their choice," (Haveman, 1988, p. 169). The monies could be spent at universities or colleges as well government certified training and apprenticeship programs. Monies not spent on human capital investments would earn interest and become available at a normal age of retirement.

This idea has merit. It has the virtue of letting individuals decide how they can best benefit from post-high school training. Unlike proposals for vouchers at the elementary or high school level, there is nothing revolutionary about individual choice over post-high school training. In the U.S., most decisions about human capital investment after high school are made by young adults and their families. While they may make mistakes, it is not clear that governments can do any better. Indeed, one could argue that we already have a form of education voucher for young adults. Veterans benefits can be used to finance education in a university, community college, or apprenticeship.

Another virtue of this idea is that it is universal. All young people would have an opportunity to use these monies, regardless of their high school academic performance or family background. Of course, young people from poor families with limited access to loans and savings would reap a particular benefit from this voucher. The voucher would open up opportunities that might not be otherwise available to them. However, unlike present training programs that are targeted on the disadvantaged, there

would be no stigma associated with using this voucher as everyone would have an opportunity to use the voucher. If a young person approached an employer about an apprenticeship that was financed out of such a capital account, the employer would have no reason to view this person as somehow disadvantaged.

Furthermore, this voucher plan would force a market test upon providers of training. This contrasts with the current situation where governments paternalistically choose the quality and quantity of training offered to what is essentially a captive population of trainees. With a voucher, organizations that provide training would have to provide effective training in the sense that some fraction of the trainees actually obtain good jobs. One can imagine a government or *Consumer Reports* type organization collecting and disseminating information on program success rates.

Of course, these vouchers are no panacea. Since there would be a potential for fraud and abuse by providers of training, the federal government may have to regulate the market for providers through some form of certification program. Moreover, as pointed out by Haveman, assignment of the account to private creditors would have to be prohibited. Finally, there is a risk that the vouchers would encourage people to drop out of high school and substitute alternative forms of training for high school training. In a world where basic academic skills are increasingly important, that would be undesirable. In order to maintain incentives, the vouchers should only be available to high school graduates.

**Restrict Immigration of Unskilled Workers**

Finally, as part of a strategy for reducing the supply of unskilled workers, governments should move to sharply restrict immigration of the unskilled. Between the years 1981 and 1987 more than four million legal immigrants entered the United States. Rates of legal immigration and the ratio of immigrants to native births have been equal to or above those that existed at the turn of the century (Borjas, 1990). Moreover, this legal flow is increasingly one of unskilled workers. All indications are that the flow of illegal immigrants is both substantial and even less

skilled than the legal flow (Borjas, 1990). Thus, current immigration policy tends to expand the supply of unskilled workers.

Policies that restrict this influx of unskilled workers should be implemented. In evaluating legal entrants, greater emphasis should be placed on immigrant skill and education and less on family ties. In addition, greater efforts should be made to reduce illegal entry. "To do this, it will be necessary to adopt a counterfeit-proof identification system; to tighten restrictions on the use of fraudulent documents; to enhance border patrol activities; to devote more funds and manpower to the enforcement of employer sanctions; and to place fines on illegal immigrants who are apprehended and found to be employed," (Briggs, 1993). In the long run, such policies would have the beneficial effect of reducing the supply of unskilled adults.

**B. The Demand Side**

For purposes of increasing job opportunities among academic underachievers, one can reasonably question whether supply-side interventions are sufficient. Suppose, for example, that all members of an age cohort increased their skill level. There would still be a group with comparatively low skills who would end up in the lesser-skilled jobs. Unless those lesser jobs improve in quality, nothing is gained. Alternatively, increases in the supply of skilled workers may simply drive down wages and not greatly increase well-being. If a nation increases its stock of trained human capital, is it plausible to assume that a new and better mix of jobs will suddenly appear?

From this perspective, government intervention on the demand (employer) side of the labor market makes sense. Governments can formulate trade, tax, and expenditure policies so as to encourage stable jobs with high wages.[7] A range of policies are possible.

Unemployment insurance provides a good example of a demand-side policy intervention that could discourage temporary, high-turnover jobs. The present U.S. unemployment insurance system arguably subsidizes such jobs. Unemployment insurance is financed through an "experience rated" tax on employers, whereby employers that produce more layoffs

(and associated unemployment insurance expenditures) are supposed to pay higher taxes. A large body of evidence indicates that the tax is imperfect in the sense that employers bear less than the full cost of an additional layoff—in other words, the unemployment insurance received by a laid off worker exceeds the extra taxes paid by the employer. For example, over 70 percent of the workers in South Carolina are employed by firms that bear less than the full cost of an additional layoff, and most of these workers are in firms that pay nothing for an additional layoff (Anderson and Meyer, 1993). Such policies result in more layoffs and a subsidy to firms and industries with high-turnover jobs. Indeed, recent evidence suggests that state UI policies influence the industrial composition of states, causing a shift of employment away from more stable jobs in the service industry and into more volatile jobs in the construction industry (Deere, 1991). A reasonable demand-side intervention would be to move toward better experience rating.

One can, of course, go further. America's trading partners often pursue policies that amount to demand-side interventions aimed at increasing the availability of "good" jobs. Japan, for example, uses trade and industrial policy to encourage growth of capital intensive manufacturing firms, which in turn provide long-term jobs with extensive training and comparatively high wages. The German government sharply constrains the conditions under which employers can dismiss workers, while essentially subsidizing alternatives to layoffs (for example, early retirement or payment of unemployment insurance for a shortened work week) (Abraham and Houseman, 1993). In France, the government not only sets high minimum wages, but also frequently imposes nationally bargained wage settlements on non-union firms.

Would adoption of such policies in the U.S. have a positive effect on academic underachievers? There would seem to be good grounds for skepticism. First, while such policies may lead to better jobs for the average worker, they may harm the least skilled. For example, high minimum wages can lead to reduced job opportunities and unemployment for unskilled workers. Similarly, job protection policies like Germany's can cause employers to be particularly cautious about hiring unskilled and inexperienced workers.

> ...Given uncertainty, dismissal protection may likewise act as a disincentive toward hiring unskilled labor even in the absence of structural change. If firing costs are considerable, firms will prefer hiring such job applicants whose higher marginal value product permits a longer-term employment perspective even through bad times, thereby avoiding the incidence of dismissal costs altogether (Buechtemann, 1993, p. 11).

Second, there is reason to worry that job protection policies would lead to less flexible labor markets. Such policies cause employers to react more slowly to changes in demand, and thereby contribute to more serious recessions. Although this theoretical argument does not enjoy solid empirical support, it makes one cautious about government imposed job protection policies.

Third, for purposes of helping academic underachievers, a Japanese-style industrial and technology policy is not particularly attractive. In a world where industries must quickly respond to an ever-changing international marketplace, such policies run the risk of creating long-run allocative inefficiencies. Moreover, even if the U.S. government could operate an effective industrial policy, it is not clear that this would help academic underachievers. The above empirical work casts doubt on the idea of government encouraging specific industries in order to provide academic underachievers with a path to economic security. A policy that creates good jobs by promoting industry "winners" and culling industry "losers" may not create jobs for unskilled workers. Indeed, consider the 1980s' defense build-up as an example of a government policy that created "good" jobs. Expansion of firms like Grumman or Boeing, or the development of high-technology weapons, tends to involve skilled workers and create high-wage jobs. Although the defense build up may have had an indirect effect on academic underachievers during the 1980s, there is no reason to believe that the effect was significant. It certainly was not sufficient to check the declining fortunes of unskilled workers.

To conclude, if governments are to help academic underachievers cope with a world of limited employment opportunities, then the principal place to intervene is on the supply side. Governments should actively pursue a policy of sharply reducing the supply of unskilled workers. This

can be done through training vouchers, enhanced early education, and immigration reform. The primary beneficiaries of such policies will be academic underachievers who are willing and able to obtain skills. Such policies will, however, also indirectly benefit those who are unable or unwilling to obtain skills. By reducing the surplus of unskilled workers, such a policy will enhance unskilled wage and employment opportunities.

## V. Conclusion

This paper began by asking what will happen to young people with low reading and mathematics test scores. Are such people consigned to a life of unemployment and low wages, or are there paths by which some fraction will find a degree of financial security? The empirical work sought to determine whether such paths exist. The results were not very encouraging. Although some academic underachievers did attain a degree of financial security, they evidently took many different paths to that end. One cannot point to a set of early jobs or early training experiences that provide an "elevator" to higher wages and full employment.

Although government should help academic underachievers, the evidence presented here does not provide a strong basis for intervention on the demand side of the labor market. Rather, the best way to help these young unskilled workers is through supply-side interventions. Initiatives that target enhanced early education, universal training vouchers for adults, and limitations on immigration of unskilled workers can promote an environment where academic underachievers have at least some opportunity for upward mobility.

## Appendix A

### Statistical Analysis of the NLS-Young Men

A. Early Training Paths and Later Success—Cross Tabulations

In order to examine the economic success of young men with few academic skills and credentials, it is first necessary to identify these young men in the data. They could, for example, be identified by examining arithmetic or verbal test scores at (say) age 17. It would be interesting to know to what extent people with low test scores succeed in avoiding lives of unemployment and low wages. Unfortunately, available panel surveys do not contain sufficient data to implement that idea.[8]

Instead, this project focuses on nongraduates: people who reached their nineteenth birthday without completing 12 years of education. This group essentially starts off on the wrong foot; these nongraduates have less formal education than most people in their age cohort. Some are dropouts and some have been forced to repeat grades. As demonstrated below, most will end up in the lower tail of the income distribution. Of course, not all of these nongraduates are lacking in academic skills. Some may be nongraduates because they suffered an illness. Others may have chosen to not graduate in order to pursue other interests (for example, a career in professional tennis). Still, for purposes of examining the career paths of academic underachievers, nongraduates are a good—albeit not ideal—group to examine.

An examination of economic success also requires criteria for success. Since several alternatives are feasible, the subsequent analysis takes a somewhat eclectic view of criteria for success. The three used here are,

**Success 1:** Annual earnings in excess of the U.S. government's poverty line for a family of four. (In 1992, this was $13,950 per year.) Men with this level of earnings can support a non-working spouse and two children without being in poverty. Attainment of this level of success will usually require a full-time job that pays more than the minimum wage.

**Success 2:** Annual weeks worked greater than or equal to 48, and annual earnings in excess of the U.S. government's poverty line for a

family of four. People that meet this definition have both steady work and above-poverty earnings.

**Success 3:** Annual earnings in excess of $20,000 in 1980. (In 1980, $20,000 was slightly above the median earnings for a full-time year round male worker.)

Since the NLS-Young Men data suffer from sample attrition and missing observations, in most cases annual earnings or annual weeks worked were calculated as averages over the 1978, 1980, and 1981 surveys. If data from one survey was missing, then a two-year average was used. Similarly, if data on two years was missing, then a single year was used. This helps to alleviate problems with missing observations.

Finally, for purposes of analyzing the paths taken to economic success, it is necessary to identify different kinds of training. The NLS-Young Men data are rich in training information. In order to simplify the analysis and to maintain comparability with the NLS-Youth Cohort data, this work focuses on three types of training as reported in the 1967-71 interviews:

**Completed More Years of Schooling:** This variable takes the value one if the respondent completed an additional year of schooling after his nineteenth birthday; otherwise it is zero. The additional schooling could involve completion of high school, a year in a community college, or pursuit of a university degree.

**Obtained Other Training Provided by the Employer:** The NLS-Young Men asked respondents about the source of their longest spell of occupational training in the past year. This variable equals one if a respondent indicated that he obtained training from a company training school; otherwise it is zero. Note that this variable focuses on formal training. It will tend to miss less formal types of on-the-job training, such as that provided by a foreman or by coworkers.

**Obtained Other Training—Miscellaneous:** This variable equals one if a respondent indicates that the source of his longest spell of occupational training is other than a company training school; otherwise it is zero.

Thus, it includes training from business colleges, barber schools, correspondence courses, and so forth.

Table 7 (in the main text) presented data on the training paths chosen by young men who were aged 18-19 in 1966 and did not complete 12 years of schooling by their nineteenth birthday.[9] The most striking result pertains to the absence of additional training: Fully 70 percent completed no additional years of schooling between the years 1966 and 1971, and most of the 70 percent did not obtain any other form of training. In fact, fully 51 percent of the sample report no additional formal or informal training. For those who obtained additional training outside of the school system, there is almost an even split between employer provided and miscellaneous training.

Table 8 presented data on the number of young men in Table 7 who reached SUCCESS 2, i.e., they not only had 1978-81 average earnings above the four person poverty line, but were employed 48 or more weeks during the year. Note that the sample size in this table is 62 percent of that in Table 7 (265,490/426,352 = .62), implying that only 62 percent of the Table 7 workers succeed in obtaining 1978-81 jobs that satisfy SUCCESS 2. The percentages in Table 8 resemble those in Table 7. The bulk of the "successful" people in this population completed no additional years of schooling (66 percent of the sample), and fully half of the successes obtained no other observable form of training.

Table 9 provided information on success rates for the several paths. The first column uses the same criterion for success that is used in Table 8, that is, earnings above the poverty line and 48 or more weeks of work. Perhaps the most surprising result in this table pertains to nongraduates who pursued no other training between the years 1966 and 1971. Fully 59 percent of these young men ended up working full time with earnings above the poverty line during the years 1978–81. At least in this simple cross-tabulation, there appears to be only a weak link between early training and later success.

B. Multivariate Models

Multivariate statistical models provide another way to examine which training paths have the highest success rate. Unlike the Table 9 cross-tabulation, multivariate methods such as linear regression provide us with an examination of relationships holding other variables constant. Thus, one can examine which training paths were most successful, holding constant race, age, region, and other variables. {For a further econometric analysis of the data and a multivariate model examining the links among industry, occupation, and career success, please refer to Robert M. Hutchens, "Avoiding a Future of Unemployment and Low Wages: What Opportunities are Open to Young Unskilled Workers?," The Jerome Levy Economics Institute of Bard College, Working Paper no. 100, October 1993.}

## Appendix B

### Statistical Comparison of the NLS-Young Men With the NLS-Youth Cohort

A. Early Training Paths and Later Success—Cross Tabulations for Two Cohorts

What looks straightforward in theory can often be difficult in practice. Several complications arise in comparing the 1966 and 1979 data. One complication is due to the different lengths of the two panels. Whereas the 1966 panel spans 15 years (1966 to 1981), at present the 1979 panel only spans 11 years (1979 to 1990). In order to evaluate success over similar time intervals, it is necessary to focus on a nine-to-ten-year period. Thus, for the 1966 cohort, success is evaluated in terms of earnings in 1975-76; for the 1979 cohort, success is evaluated in terms of earnings in 1988-89.[10] Consequently, the results on the 1966 cohort in this section will differ somewhat from those in the previous section.

Given these two samples, success can be measured in much the same way as was done earlier in this paper. In particular:

**Success 1:** Annual earnings in excess of the U.S. government's poverty line for a family of four.

**Success 2:** Annual weeks worked greater than or equal to 48 and annual earnings in excess of the U.S. government's poverty for a family of four.

For the 1966 cohort, annual earnings are measured as average earnings in 1975–76, and the poverty line is measured as of 1976 ($5,334). For the 1979 cohort, annual earnings are measured as average earnings in 1988-89, and the poverty line is measured as of 1989 ($11,662). Since poverty lines are adjusted for inflation, the 1976 and 1989 poverty lines effectively represent the same level of real income.

Success also could be seen in terms of doing better than other members of one's cohort. For example, rather than view success in terms of attaining some level of real earnings, success might be viewed as attaining a level of real earnings higher than half the members of one's cohort. To get at this, I experimented with an alternative definition of success:

**Success 4:** Annual earnings greater than the median money income of males age 30-34.

For the 1966 cohort, median earnings are measured as of 1976 ($13,062) (Bureau of the Census, 1978, Table 46). For the 1979 cohort, median earnings are measured as of 1989 ($23,663) (Bureau of the Census, 1989, Table 26).

Of course, for purposes of comparing early training for the two cohorts, it is important to measure the training variables in similar ways. As before, three types of training are examined:

**Completed More Years of Schooling:** This variable equals one if the respondent completed an additional year of schooling after his nineteenth birthday; otherwise it is zero.

**Obtained Other Training Provided by the Employer:** This variable equals one if a respondent indicated that he obtained occupational training from a company training school of more than four weeks duration in the past year; otherwise it is zero.[11]

**Obtained Other Vocational Training—Miscellaneous:** This variable equals one if a respondent indicated that he obtained occupational training of more than four weeks duration from someplace other than a company training school; otherwise it is zero.

The first variable, **Completed More Years of Schooling** , is identical to that used in the previous section, and there is no real difficulty in obtaining comparable measures for the two cohorts. The other two measures are slightly different from those used in the previous section, and here comparability is more of a challenge.

Whereas the earlier Young Men survey contained information on a respondent's longest spell of occupational training since the last interview, the later Youth Cohort survey did not ask respondents to identify the longest spell of training; rather, questions were asked about the most recent three spells of training since the last interview. In addition, whereas the earlier Young Men survey did not place restrictions on spell length, the later Youth Cohort survey collected data only on spells that lasted four weeks or more. Thus, the data obtained by the two surveys are not strictly comparable. In order to make comparisons, this section focuses on training spells that lasted more than four weeks. Thus, if a respondent to the earlier Young Men survey reported that his longest spell lasted less than four weeks, it was not treated as a spell of training. As a result, this section's data on **Obtained Other Training by the Employer** and **Obtained Other Vocational Training—Miscellaneous:** will differ from the previous data.

Table 10 presented data on the training paths chosen by 18-19 year old nongraduate males in the two surveys.[12] These were nongraduates in the sense that they had not completed 12 years of school by their nineteenth birthday. In both cohorts, the majority of nongraduates completed no additional years of schooling. Indeed, the majority neither completed additional schooling nor pursued any other form of training (57 percent in the 1966 cohort, 66 percent in the 1979 cohort). If one believes these data, nongraduates in 1979 were somewhat less likely to pursue training than those in 1966.

However, a degree of skepticism is necessary here. To understand why, note that while 31 percent of the 1966 cohort went on for additional

schooling, only 26 percent of the 1979 cohort did so. Although this five percent difference is interesting, because of sample attrition it must be viewed with caution. The attrition rate in the 1966 data was 39 percent while that in the 1979 data was only ten percent. Since attrition is probably less likely among people who continue their schooling, the five percent difference may simply reflect different attrition rates.

One can be more confident in the results on employer provided training. Table 10 indicated that in the more recent cohort, fewer of the nongraduates obtained employer provided training. This is true regardless of whether they pursued additional schooling. Since the 1966 numbers for such training are probably too low, it is unlikely that this difference is simply an artifact of sample attrition.[13] Indeed, the same phenomenon arises in a sample of high school graduates.[14] Thus, there is evidence here that for the more recent cohort, young men were less likely to obtain employer provided training.

The research also compares data on success rates (**Success 1** —annual earnings greater than the poverty line for a family of four; **Success 2** — annual earnings greater than the poverty line for a family of four and 48 or more weeks of work during the year) for alternative training paths. Whereas 75 percent of the nongraduates in the 1966 cohort had earnings greater than the poverty line, only 56 percent of the 1979 cohort attained a similar level of success. This presumably reflects the decline in real earnings experienced by low-skill workers in the 1980s.

B. Multivariate Models

Of course, the above cross-tabulations do not control for other variables that may influence success rates. To do that, we need multivariate models. {For a statistical analysis of the effects of early training and industry of employment on career paths, please refer to Robert M. Hutchens, "Avoiding a Future of Unemployment and Low Wages: What Opportunities are Open to Young Unskilled Workers?," The Jerome Levy Economics Institute of Bard College, Working Paper no. 100, October 1993.}

## Endnotes

1. See Blackburn, Bloom, and Freeman (1990) for additional evidence on this point.

2. To obtain their wage data, Bound and Johnson estimated a wage regression in each of their 32 sex, education, and experience cells for each of the three years. They then predict the mean log wage in each period for each cell, holding relevant worker characteristics fixed.

3. See Bassi and Ashenfelter (1986) and Osterman (1992) for useful reviews of the literature.

4. See Manpower Demonstration Research Corporation (1980). An important exception is Job Corps. There is substantial evidence that the benefits of this rather expensive residential program exceed the costs. Yet, according to Osterman (1992), recent efforts at operating a program quite similar to Job Corps (called JobStart) on a larger scale were unsuccessful.

5. See Murnane and Levy (1992) and Glazer (1987) for thoughtful discussions of specific changes that could accomplish this goal.

6. What evidence we have on the generalized equivalency diploma (GED) suggests that it is of little value (see Cameron and Heckman, 1993).

7. See Bulow and Summers (1986) for a theoretical model where such policies improve economic welfare.

8. The Panel Study of Income Dynamics does not contain information on verbal or arithmetic test scores. Although the NLS-Young Men data contains information on IQ tests and the NLS-Youth Cohort contains information on the Armed Services Vocational Aptitude Battery, both surveys have major problems with missing data. Moreover, the tests used in the two surveys are not comparable.

9. These numbers are computed with sample weights. The total number of observations is 155.

10. In order to maintain comparability between the two surveys, the 1990 data were not used. The NLS-Young Men survey did not collect information on earnings in 1977.

11. The NLS-Youth Cohort terms occupational training as vocational or technical training.

12. In addition, the military subsample was excluded from the NLS-Youth Cohort.

13. Since the earlier NLS-Young Men survey reports on only one spell, while the later NLS-Youth Cohort survey reports on three spells, we should, other things equal, observe fewer training spells in the earlier data. Thus, the NLS-Young Men survey data provide an underestimate of what would have been found had the NLS-Youth Cohort measure been used. Lynch (1992b) provides evidence consistent with this.

14. See Leete-Guy (1992) for a similar result. Some of this may be due to the recession that occurred at the beginning of the 1980s.

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