



Cornell University
ILR School

Cornell University ILR School
DigitalCommons@ILR

CAHRS Working Paper Series

Center for Advanced Human Resource Studies
(CAHRS)

January 1993

Overeducation

John H. Bishop
Cornell University

Follow this and additional works at: <https://digitalcommons.ilr.cornell.edu/cahrswp>

Thank you for downloading an article from DigitalCommons@ILR.

Support this valuable resource today!

This Article is brought to you for free and open access by the Center for Advanced Human Resource Studies (CAHRS) at DigitalCommons@ILR. It has been accepted for inclusion in CAHRS Working Paper Series by an authorized administrator of DigitalCommons@ILR. For more information, please contact catherwood-dig@cornell.edu.

If you have a disability and are having trouble accessing information on this website or need materials in an alternate format, contact web-accessibility@cornell.edu for assistance.

Overeducation

Abstract

According to manpower requirements economists, "overeducation" occurs when an individual has more schooling than is "required" by their job. Studies have found that men (but not women) who exceed the schooling norm for their job by 4 or more years are more dissatisfied with their current job and more likely to look for a better one, but that they are not more likely to be politically alienated or to support left wing causes. Individuals whose schooling achievement (competence in reading and math) exceeds the norm for their job are significantly more productive than coworkers. This implies that a greater supply of well educated workers will increase productivity even if available jobs do not change.

"Overeducation" also refers to situations where highly educated workers are oversupplied relative to the norms of the past. These periods tend to be temporary because the circumstances which cause them are temporary and because the resulting decline in the wage premium for schooling causes a slowdown in the growth of university attendance which with some lag brings supply and demand back into balance.

The third use of these terms is to refer to a chronic tendency of a society to overinvest (or underinvest) in education relative to some social standard. Those who believe overeducation is chronic apply a "Does your job require it" standard, which reflects a very narrow conception of education. When, however, people's non-pecuniary tastes for higher learning, the tendency of the market to under reward expertise and the spillover benefits generated by scientists and artists trained in university are taken into account, most societies are chronically undereducated not overeducated.

Keywords

manpower, requirement, job, training, education, wage, work, school, market, supply, demand

Comments

This paper was prepared for the 2nd Edition of the International Encyclopedia of Education.

Suggested Citation

Bishop, J. H. (1993). *Overeducation* (CAHRS Working Paper #93-06). Ithaca, NY: Cornell University, School of Industrial and Labor Relations, Center for Advanced Human Resource Studies.
<http://digitalcommons.ilr.cornell.edu/cahrswp/262>

OVEREDUCATION

John H. Bishop
Cornell University

Working Paper # 93-06

Center on the Educational Quality of the Workforce
and
Cornell's Program on Youth and Work
and
University of Warwick's Institute for Employment Research
and
Center for Advanced Human Resource Studies
New York State School of Industrial and Labor Relations
Cornell University
Ithaca, NY 14853-0952
607/255-2742
In the United Kingdom--44-926-53086

This paper was prepared for the 2nd Edition of the International Encyclopedia of Education. Its preparation was funded by a travel grant from the German Marshall Fund, a grant to the Center on the Educational Quality of the Workforce, agreement number R117Q00011-91, as administered by the Office of Educational Research and Improvement, U.S. Department of Education and a grant to Cornell from the Pew Charitable Trust. The findings and opinions expressed in this report do not reflect the position or policies of the Office of Educational Research and Improvement or the U.S. Department of Education. This paper has not undergone formal review or approval of the faculty of the ILR school. It is intended to make results of Center Research, conferences, and projects available to others interested in human resource management in preliminary form to encourage discussion and suggestions.

ABSTRACT

According to manpower requirements economists, "overeducation" occurs when an individual has more schooling than is "required" by their job. Studies have found that men (but not women) who exceed the schooling norm for their job by 4 or more years are more dissatisfied with their current job and more likely to look for a better one, but that they are not more likely to be politically alienated or to support left wing causes. Individuals whose schooling achievement (competence in reading and math) exceeds the norm for their job are significantly more productive than coworkers. This implies that a greater supply of well educated workers will increase productivity even if available jobs do not change.

"Overeducaton" also refers to situations where highly educated workers are oversupplied relative to the norms of the past. These periods tend to be temporary because the circumstances which cause them are temporary and because the resulting decline in the wage premium for schooling causes a slowdown in the growth of university attendance which with some lag brings supply and demand back into balance.

The third use of these terms is to refer to a chronic tendency of a society to overinvest (or underinvest) in education relative to some social standard. Those who believe overeducation is chronic apply a "Does your job require it" standard, which reflects a very narrow conception of education. When, however, people's non-pecuniary tastes for higher learning, the tendency of the market to under reward expertise and the spillover benefits generated by scientists and artists trained in university are taken into account, most societies are chronically undereducated not overeducated.

HF
5549
A2
W92
no. 93-06

OVEREDUCATION

"Overeducation" is a term which implies a judgement that a society (or an individual) has more education than is "required" or desirable. Its not a new idea, it can be found in Ecclesiastes (1:18) "*He that increaseth knowledge, increaseth sorrow,*" and in the vernacular, "he knows more than is good for him." "Undereducation" implies the opposite judgement. This view is also not new; a Chinese proverb says "*The schools of the country are its future in miniature.*" Whether a society is "undereducated," "overeducated" or 'neither of the above' depends, of course, on the standard used to define "required" or desirable. Not surprisingly, analysts operating in the two main research traditions analyzing the economic role of education--manpower requirements and human capital--have different ways of defining "overeducation" and "undereducation."

The Manpower "Requirements" Perspective

In the manpower requirements paradigm, jobs and occupations have specific schooling "requirements" and the occupational skill demands of the economy are driven by forces external to the education sector such as consumer demand and technology. Training for skilled occupations takes many years so supplies of skilled workers cannot quickly adjust to current economic needs. Shifts in relative wage rates are not sufficient to equilibrate supply and demand for educated labor. An oversupply results in many workers having more schooling than is "required" by their job. This is presumed to cause job dissatisfaction, job turnover, lower productivity and political discontent. An undersupply of skilled workers, "undereducation," creates bottlenecks which constrain economic growth. Two research programs unique to the manpower "requirements" paradigm employ this concept of "overeducation:"

- (1) Estimates of the aggregate number of "overeducated" workers are made by counting mismatches between reported occupation and reported schooling.
- (2) The impacts of "overeducation" on wages, productivity, job satisfaction, turnover, political alienation and activism are studied.

1. Counting Aggregate Overeducation

Most studies define "overeducation" objectively as a mismatch between occupation and schooling in which the individual's reported schooling exceeds the amount that is

presumed to be "required" by that job. This approach, however, suffers from two very serious measurement problems.

The coding of occupation and schooling is quite unreliable, so counts of mismatches significantly overstate their true frequency. U.S. Census Bureau studies have found that between 18.3 and 27.3 percent of the individuals recorded as professionals, technicians or managers in one interview, are recorded in a lower occupational category in a later interview. Furthermore, between 5.5 and 9 percent of respondents who are recorded as having 16 years of schooling or more in one interview are recorded as having fewer than 16 years of schooling in a later interview. These measurement problems mean that counts of mismatches between occupation and schooling derived from household survey data can produce truly incredible estimates. Tabulations of U.S. labor force surveys indicate, for example, that 5.4-6.5 percent of the people who claim to be lawyers, physicians and elementary/secondary school teachers also claim not to have completed 16 years of schooling (Bishop and Carter 1991). Given the laws regulating entry into these professions, these estimates of "undereducation" are clearly not credible. Neither are the corresponding estimates of "overeducation." In U.S. labor force surveys conducted during the 1980s about 17 percent of those reporting 16+ years of schooling also said they worked in a retail sales, clerical, service or manual job. Mismatches of this type occur frequently, but they are less common than the 17 percent figure suggests.

The second problem with interpreting mismatches as indicators of "overeducation" is that they might just as easily be the result of the poor quality of the education received by some college graduates. Seventeen percent of young American college graduates read at a level below the typical 11th grader (Bishop and Carter 1991). Isn't a college educated secretary with an 11th grade reading level undereducated not overeducated?

Countries outside North America also have quality control problems in higher education and difficulties measuring schooling and occupation, so educational leaders throughout the world need to be skeptical of national estimates of aggregate "undereducation" or "overeducation" based on counts of occupation-schooling mismatches.

2. Effects of Being Overeducated

A number of studies have been conducted of the effects of being "overeducated" on attitudes and wage rates. When you compare people in the same occupation, those with substantially above average schooling (those who are "overeducated" for the job) are

paid more but not as much more as someone with the same level of schooling who has obtained a job that conventionally employs people with greater schooling. This is neither a new nor surprising finding. Essentially the point is that, when people with the same amount of schooling are compared, those who are less successful in gaining access to high status occupations are paid less. This has been a common place of the status attainment literature for two decades.

It has also been hypothesized that "overeducation" causes political alienation, job dissatisfaction and lower productivity. Val Burrell (1983) examined many of these hypotheses and found that while modest levels of overeducation had no effects, the "highly overeducated" (the 3.6 percent of his American sample in which schooling exceeded the norm by at least 3 years) were less satisfied with their job and less likely to affirm an achievement ideology. There was, however, no tendency for highly overeducated workers to be more liberal, to vote Democratic or to be more politically alienated and they were substantially more likely to identify themselves as middle class and to oppose welfare spending.

Tsang, Rumberger and Levin (1991) report finding a tendency for highly overeducated males (but not females) to be more dissatisfied with their job and more likely to plan to leave it for another. They also tested for an effect of overeducation on drinking at work, energy level and health and found none. They appear to believe these results have great significance because they conclude: "This study suggests that such action [increasing the quality and quantity of worker schooling] may be ineffective at best and counterproductive at worst." This statement is completely unjustified. Job satisfaction and plans to quit are not measures of worker productivity and are only weakly correlated with direct measures of productivity. There have been thousands of studies for specific jobs of the relationship between direct measures of productivity--supervisory ratings and work samples--and years of schooling and key outcomes of schooling such as reading and mathematics achievement tests and meta analyses of this literature have established that both of these correlations are positive. Indeed in most jobs, measures of the quality and output of schooling--reading, vocabulary and mathematical achievement test scores--are better predictors of job performance than interviews, references, ratings of training and experience, personality tests and comprehensive background questionnaires (Hunter and Hunter 1984).

This literature further demonstrates that a core assumption of the manpower requirements framework--that specific jobs "require" particular minimum levels of basic reading and mathematical skills and that once those thresholds are reached, further improvements in basic skills yield sharply diminishing productivity benefits--is invalid. The hypothesis of diminishing returns to basic skills has been tested many times and about 95 percent of the time, it has been rejected. A recent test of this hypothesis in data on 31000 workers found significant diminishing returns only for sales clerk jobs (Bishop 1993).

These results imply that the economic case for upgrading the basic skills of the general population does not rest solely on the pace at which high skill jobs replace low skill jobs or the extent to which 'high performance' work systems replace conventional Tayloristic work systems. The fact that employment in high skill occupations grows much faster than employment in low skill occupations and 'high performance' work sites are replacing Tayloristic work sites just strengthens the case for improving the quality of elementary and secondary education.

The Human Capital Perspective

Most research on the economic role of education employs a human capital framework. Human capital theory tends to be more optimistic about the ability of the economy to put additional skill to good use if the price employers must pay for it declines. It focuses instead on what determines the supply of skilled labor. It starts with the premise that investments of the student's time, energy and money in learning yield benefits over many years that are both pecuniary and non-pecuniary. Expected benefits influence the decisions of some students about whether to attend, what to study and how hard to study. When the demand for graduates in a particular field exceeds supply at current wage rates, relative wage rates rise stimulating employers to hire fewer workers trained in the field and attracting students into it and inducing them to accelerate their course of study. These student responses increase future supply and an equilibrium is established with a larger wage premium for the skill. Hence, if students are free to choose their field of study, there will be a tendency for the relative supplies of workers with different kinds of educational credentials to produce wage differentials which translate into rates of return comparable to those on alternative investments.

Rates of return will tend to be low if schools are free and easily accessible. If tuition is high, loans unavailable and admission requirements difficult to meet, high rates of return and substantial wage differentials will be necessary to attract enough students into university to supply future needs for college graduate workers. Deviations from this standard occur when large shifts in demand for or supply of graduates push the market into temporary disequilibrium, when barriers to entry (eg. limits on the number of university places) or market failures prevent enrollment decisions from equalizing rates of return and when non-pecuniary benefits are particularly large or small.

Within the human capital paradigm terms like "overeducation", oversupply, "undereducation" and shortage have two quite different meanings. In the first usage these terms are descriptions of the general level of rates of return to schooling relative to historical patterns. The theme of Richard Freeman's 1976 book, The Overeducated American, was that rates of return to university education had fallen below previous levels. The human capital model predicts that periods of oversupply or undersupply will be temporary. There are two reasons for this. First, the circumstances that cause these disequilibria (the baby boom and the Vietnam War in the case of the 1970s oversupply of college graduates in the US) are themselves generally temporary. Secondly, very low [or high] rates of return set in motion a supply response (eg. male college attendance rates in the US fell during the late 1970s) which, with a lag, tends to bring supply and demand back into balance.

Three research programs (which with modifications are shared by manpower "requirements" analysts) are implied by this concern for disequilibria in the balance between the supply and demand for skill:

- (3) Assessments are made of the supply-demand balance for specific fields of study or occupations. (Manpower requirements analysts do this by counting the number of graduates in a field who are "overeducated" for their current job. Researchers operating in the human capital tradition focus on levels and rates of change of wage premiums for skill and rates of return to training.)
- (4) Historical trends in the supply-demand balance for skilled workers are analyzed.
- (5) Planners forecast future skill needs and advise policy makers on how to adjust the supply of training slots to these forecasts.

Each of these research programs will be discussed in turn. Then we will examine the second usage of the terms undereducation and overeducation.

3. The Supply-Demand Balance for Specific Fields of Study

Graduates from different university fields of study are not close substitutes for one another in the labor market. Consequently, there is not one labor market for college graduates, there are hundreds. At any given point in time some of these markets are likely to be oversupplied and others undersupplied.

The best indicators of whether a field is in oversupply or undersupply are the level and rate of change of the relative wages of people trained in that field. Unemployment rates and proportions of graduates from a program who take jobs that do not appear to require a college degree also provide useful information. Table 1 presents U.S. and U.K. data on these indicators of the supply-demand balance by field of study. In both the United States and the United Kingdom, graduates in engineering, physical science, mathematics, health, business and economics fair the best. Unemployment was lower, proportions taking non-professional, non-technical and non-managerial (non-PTM) jobs were lower and earnings premiums were higher than for other fields. These areas of study have two things in common: a substantial mathematics content and employment destinations primarily in the private sector.

Graduates in education have relatively low earnings but they apparently had little difficulty finding work in their field. Rates of unemployment and of taking non-PTM jobs were very low.

Graduates in humanities, social sciences other than economics, psychology and biological sciences fared least well. Recent graduates experienced higher unemployment, higher rates of employment in non-PTM jobs and lower monetary returns to a college degree. Humanities graduates, for example, were clearly in disequilibrium surplus during the 1970s. In 1976 starting pay was 10 percent below the wage of recent high school graduates. As a result, the share of American BA's awarded in English and foreign languages fell from 9 percent in 1971 to 3.7 percent in 1984. Since then, however, the share of BAs awarded in these two fields has risen and in 1990 it was 4.7 percent. This suggests that the non-pecuniary benefits of studying English and foreign languages (and the 34-61 percent wage premium over high school graduates that has prevailed since 1984) may be sufficient to induce 4 to 5 percent of American college students to major in the field even though a third of young humanities graduates are likely to be forced into non-PTM jobs, and earnings over their career are likely to be

only one half of those of graduates in engineering, business and economics.

What are the policy implications of these numbers? A manpower requirements economist would probably say there are still too many humanities majors. She would doubt that most students making this choice are aware that they have less than a one-third chance of getting a job "closely related" to their field of study. The number of jobs which use the writing and language skills developed by majors in these fields is limited, she would argue, so fewer graduates would mean fewer disappointed graduates and no change in the number finding related jobs.

From human capital economists would come a proposal to inform students of the job prospects of different fields of study. Many would also support scholarships for students in fields such as science and engineering which aid competitiveness and technological progress. Most, however, would oppose placing caps on the number of humanities majors. They would be more inclined to think that students are aware of the economic consequences of majoring in English or a foreign language and are entering the field largely for non-pecuniary reasons. Poor as the job prospects may be for humanities BAs, high school graduates have it worse, they would argue. Recent high school graduates had 19 percent unemployment rates in 1987 and almost no chance of getting a job in a humanities field such as writing. To the point that the marginal humanities major will end up in a clerical job not a humanities job, they would respond that even if that is true, job performance will improve somewhat as a result of the college experience.

4. Trends in the Supply-Demand Balance for Highly Educated Labor

The supply of college educated workers has been increasing rapidly all over the world. During the 1970s and 80s the university graduate share of the population of working age grew at an annual rate of 3.34 percent in the United States, 3.55 percent in Japan, 2.75 percent in Germany, 5.6-5.8 percent in Sweden and Norway, 3.07 percent in Belgium and 3.97 percent in Canada (OECD 1989).

Demand has also been growing rapidly. Occupations at the top of the skill continuum such as professionals, technicians and managers (PT&M) jobs have been growing much more rapidly than manual (service, craft, operative, laborer and farm occupations) jobs. For the U.S. the growth rate differential between PTM and manual jobs was 1.6 percent per year during the first half of the 20th century, 1.9 percent per

year between 1950 and 1970, 2.8 percent per year between 1970 and 1981 and 2.46 percent per year during the 1980s. The growth rate advantage of PTM jobs is even more striking in Europe and Japan. Japan's rate was 4.27 percent per year in the 1970s and 3.26 percent per year in the 1980s. Germany's rate was 3.67 percent in the 1970s and 2.53 percent per year in the 1980s (Bishop 1992).

Demand for highly educated workers also grows when employers decide that new hires should have greater amounts of previous training either because:

- * the job has become more complex,
- * quality and job performance targets have increased, or
- * workers with school provided training have become less costly.

Looking over a 70 year period, one can clearly see that most occupations--management, medicine, teaching, engineering, construction, social services, military, financial services and manufacturing--have become more complicated. Only a few occupations--laborers, photographers, musicians, retail sales clerks, and truck drivers--have apparently not increased in complexity.

As sales, transactions and output per worker grow, so do the costs of making mistakes and the benefits of higher quality. This has meant that it pays to strive for higher standards of performance and quality even when tasks remain unchanged. For many years there was controversy about the effect of technological progress on skill demands of specific occupations. Now, however, the predominant view is that complexity, responsibility, abstractness and interdependence have risen in most occupations (Hirschorn 1984).

The third source of increased demand for educated workers is the transfer to schools of training tasks formerly the province of apprenticeships and employer training. The switch of training functions to schools is a natural part of the life cycle of a technology and its associated skills. As a technology matures and its use grows, the technology and its associated skills become standardized (ie. general rather than firm specific), the demand for formal training grows and schools enter the market as training providers. Once skills become standardized, schools have natural advantages as competitors in this market: (a) they offer students flexibility in scheduling and the choice of courses, (b) hourly costs of training are lower because teaching staff are specialized and economies result from spreading the cost of developing courses over many students, (c) school certification of skills makes them more portable, and (d) schools and students

have access to public subsidies not available when training takes place at a firm. When schools become major training providers, barriers to entry into the occupation and the industry fall, the supply of skilled workers grows, the costs of employing people with the skill fall, and expanded use of the technology is facilitated. Almost every medium and high level occupation (eg. typists, computer programmers, lawyers, plumbers) has been through this evolution (Flynn 1990).

In most countries and most historical periods, percentage growth rates of highly educated workers have been higher than the percentage growth rates of high level occupations. Some researchers have attempted to measure other sources of increased demand for highly educated workers and then, comparing their measure of increased demand to the growth of supply, have claimed to have evidence of secular increases in "overeducation"(Rumberger 1981). This exercise is futile, however. There is no way of independently measuring how employer hiring standards are influenced by technical progress and the entry of schools into new training markets. The only way to know what has happened to the supply-demand balance for highly educated workers is to infer it from changes in the rate of return to schooling, relative unemployment rates and proportions of graduates reporting their job does not make use of the skills developed in college. The wage premium for university graduates declined in most European countries during the 1960s and 1970s but has tended to stabilize or rise during the 1980s. At the end of the 1980s the average of the male and female earnings premiums for 45 to 64 year old university graduates was 42 percent in Denmark, 52 percent in Sweden, 66 percent in the United Kingdom, 70-72 percent in Australia and Canada, 81-82 percent in Finland, Netherlands and the United States (OECD 1992).

5. Forecasting the Supply-Demand Balance for Highly Educated Workers

It is extremely difficult to make accurate forecasts of the supply-demand balance for highly educated labor. Small errors in forecasting rates of change of either demand or supply translate into big errors in projections of the gap between supply and demand.

An accurate forecast requires not only accurate predictions of the growth rates of hundreds of occupations, it requires accurate predictions of changes in the hiring standards for these occupations. Innovations such as high performance micro-computers, fiber optic telecommunications, global sourcing of parts and high performance work

systems are bound to influence skill demands in the year 2005. But who knows how big the effects will be?

It should come as no surprise, therefore, that published forecasts of the balance between supply and demand for highly educated workers based on the manpower requirements paradigm have almost always been far off the mark. Seymour Harris's forecast of the U.S. labor market for college graduates was one of the first. He predicted in 1949 that:

a large proportion of the potential college students within the next twenty years are doomed to disappointment after graduation, as the number of coveted openings will be substantially less than the numbers seeking them.

(p. 64)

As predicted the number of college educated workers grew dramatically, but the predicted oversupply failed to materialize because professional-technical share of the workforce grew dramatically as well, from 8.4 percent in 1950 to 13.7 percent in 1970. In fact, demand for college graduates must have grown faster than supply because the wage premium of college graduates with 1-10 years of work experience over high school graduates with similar levels of experience rose from 45 percent to 76 percent.

The U.S. Bureau of Labor Statistics projections of the supply demand balance for college graduates have been similarly flawed. In 1970 they predicted demand and supply would be in balance during the 70s; a surplus ensued and college wage premiums fell. In 1980 they predicted a surplus for the 80s; a shortage ensued and the wage premium for college graduates rose dramatically (Bishop and Carter 1991).

Richard Freeman, an economist whose work reflects the human capital perspective, has a much better forecasting record. He correctly predicted in 1976 that the college wage differential would continue to decline during the 1970s and then turn up during the 1980s (Freeman 1976).

Chronic Undereducation

In the second usage of terms like "undereducation" and "overeducation", a claim is being made that there is a chronic tendency for individuals to underinvest or overinvest in education relative to some social standard. Student decisions are motivated by the expectation of benefits that will accrue to the student and her family, not by

benefits that will accrue to others. Yet we all benefit when those we interact with have real expertise. Not only do such individuals pay more taxes and receive fewer government transfer benefits, they are more likely to make discoveries or innovations which benefit others, more likely to fix the car correctly the first time and less likely to make mistakes which injure coworkers, customers or the public. Economists call social benefits such as these "spillovers" or "externalities." Private decisions will lead to an insufficient quantity and quality of education and training and insufficient achievement by students, unless public agencies subsidize costs or add to the rewards. The optimal amount and character of public intervention in the education market depends on the size and character of these spillover benefits.

The Years Spent in School Margin: By compelling attendance, subsidizing instructional costs, building schools in convenient locations and providing financial aid, society induces students to choose more years of schooling than they would choose on their own. In the absence of such interventions, we would clearly live in a world of chronic underschooling. Is the current level of government support for schooling the correct level? That is much more difficult to say. Some of the spillover benefits of schooling--the tax and social insurance effects--are measureable, most are not. Economists have tackled this issue by calculating a lower bound on the social rate of return to schooling. Lower bound social rates of return are calculated by comparing the impact of schooling on before tax earnings (subtracting that component of the earnings differential actually due to ability and family background advantages) to the total costs (both instructional costs and student time costs) of schooling. Since the benefits of schooling accrue over many years, they must be discounted to the present before they can be compared to costs. The lower bound social rate of return to schooling is the interest rate which exactly equates discounted measureable social benefits and social costs. If this lower bound social rate of return is equal to or above the social rate of return on physical capital, a society might be said to be underschooled. If, on the other hand, the lower bound social rate of return is below the social rate of return on physical capital, we are left uncertain about whether the society is underschooled or overschooled. The answer depends on the importance of the unmeasured spillover benefits of schooling--the discoveries and innovations, greater political, racial and religious tolerance, etc.

The Achievement Margin: Spending too few years in school is only one of the ways students may underinvest in education. How much she learns, how expert she becomes depends as much on the student's study effort, as the number of years spent in school. Society tries to encourage students to study harder by recruiting inspiring teachers, by conditioning access to higher levels of schooling and well paid fields of study on performance in school, by awarding credentials only to those who achieve a minimum level of competency in their field and by providing references for graduates who are entering the labor market. Expertise is notoriously difficult to measure, however, and the credentials that schools award do a poor job of signalling it (particularly the kinds of expertise that employers are seeking). Credentials are well rewarded by the labor market. Holding credentials constant, however, greater expertise is under rewarded. The incentives facing students are thus to put sufficient effort into their studies to get the credential, but to do little more. This is the outcome in the United States where the high school diploma signals time spent in school, not educational achievement. Such an outcome can be legitimately characterized as chronic undereducation.

When educational systems provide finely graded certifications of academic accomplishment but ignore accomplishments relevant to employment such as computer literacy, teamwork and occupational skills, the likely result is chronic miseducation--students studying subjects which schools think are important but the labor market does not. Japan, the United Kingdom and many developing countries suffer from this kind of problem. The German Dual-System and the new French Baccalaureate (with its technical Bacs) should be less subject to these problems. But, it is terribly difficult to keep instruction and credentialing up to date and in line with a nation's economic and social needs, so miseducation and undereducation along some important dimensions can never be banished from an educational system.

The question "What should our youth learn?" inevitably sparks controversy. What is miseducation or overeducation to one individual is "proper regard for our cultural heritage" to another. Those who claim that overeducation is chronic use a "Does your job require that you know it?" standard to judge what should be taught. Even if one were to accept their analysis of economic demand for learning and skills, this would be a very limiting conception of the nature of education. Surely better jobs are not the only reason for getting an education. What about desires to appreciate literature better or

to make a discovery that will improve the lives of others?

The analysis just completed implies that overeducation can occur only when government gets too aggressive in promoting and subsidizing it. In the absence of such subsidies a society will be both underschooled and undereducated. Surely it is possible for governments to make mistakes. But how else is a society to make collective value judgements regarding the importance of spillovers such as discoveries, innovations and political, religious and racial tolerance--other than through democratic political institutions? Those who want to prove that chronic overeducation exists would be well advised, therefore, to focus their efforts on a political theory showing why democratic political systems should have a systematic tendency to overinvest in education. The job requirements theory that has been used in the past appears to be a dead end.

BIBLIOGRAPHY

- Bishop, John. (1993) "Improving job-worker matching in the US labor market: What is the role of the Employment Service?" Brookings Papers on Economic Activity: Microeconomics, edited by Martin Baily and Clifford Winston, Washington, D.C.: The Brookings Institution.
- Bishop, John and Carter, Shani. (1991) "The Worsening Shortage of College Graduate Workers" Educational Evaluation and Policy Analysis, Fall 1991, 221-255.
- Burris, Val. (1983) "The Social and Political Consequences of Overeducation." American Sociological Review, Vol. 48, 454-467.
- Dalton, Peter (1992) "The Market for Qualified Manpower in the UK," Oxford Review of Economic Policy, Vol 8, No.2, 103-129.
- Harris, Seymour. (1949) The Market for College Graduates, (Cambridge, Mass.: Harvard University Press)
- Hunter, John and Hunter, R. F. (1984) "Validity and Utility of Alternative Predictors of Job Performance." Psychological Bulletin. Vol 96, 72-98.
- Kominski, Robert. (1990) Whats its Worth?, Educational Background and Economic Status: Spring 1987. U.S. Bureau of the Census, Current Population Reports, P-70, No. 21.
- National Center for Educational Statistics, Digest of Educational Statistics: 1993, (Washington, D.C.: Department of Education, 1993)
- Organization of Economic Cooperation and Development, (1989) OECD Employment Outlook July 1989, (Paris: OECD)
- Organization of Economic Cooperation and Development, (1992) Education at a Glance: OECD Indicators (Paris: OECD)
- Rumberger, Russell. (1981) "The Changing Skill Requirements of Jobs in the US Economy," Industrial and Labor Relations Review, Vol 34, July 1981, 578-590.
- Tsang, Mun, Rumberger, Russell and Levin, Henry. (1991) "The Impact of Surplus Schooling on Worker Productivity." Industrial Relations, Vol. 30, No. 2, 209-228.

Recommended Readings

Bishop, John. (1992) "Schooling, Learning and Worker Productivity." Human Capital and Scandinavian Labor Markets, edited by Rita Asplund, Elinkeinoelaman Tutkimuslaitos Naringslivets Forskningsinstitut (ETLA), Helsinki, Finland.

Patricia Flynn, (1988) Facilitating Technological Change: The Human Resource Challenge. Cambridge, Mass.: Ballinger

Richard Freeman, (1976) The Overeducated American, New York, N.Y.: Academic Press.

Larry Hirschorn. (1984) Beyond Mechanization. Cambridge, Mass.: MIT Press.

Wage Premiums and Underemployment of University Graduates
by Field of Study
in the U.S. and the U.K.

<u>University Major</u>	<u>United States</u>					<u>United Kingdom</u>			
	<u>1986,90 BA Recipients</u>		<u>BA Full Time Starting Earnings</u>			<u>Premium of Univ. Grad</u>			
	<u>Unempl- ment Rate 1987,91</u>	<u>Empl. FT in non-Prof- Tech-Manag 1987,91</u>	<u>Salary HS Grads with 1-5 of Exper. 1991</u>	<u>Premium over wkg FT 1987</u>	<u>Earnings Premium BAs over HS Grads 1976</u>	<u>Premium BAs over HS Grads 1984,87</u>	<u>Salary 5 yrs after Graduation over Aver. Earnings all Wkrs</u>		
			<u>Fem. M&F</u>	<u>M&F</u>		<u>1986</u>	<u>1976</u>	<u>1966</u>	
Engineering	4/3%	6/7%	165%	130%	89%	180%	49%	41%	102%
Physical Science & Mathematics	4/5%	12/10%	124%	95%	8%	120%	48%	30%	91%
Health	2/2%	4/4%	172%	96%	33%	45%	36%	40%	64%
Business Management & Accounting	4/5%	20/28%	105%	83%	57%	155%	54%	57%	--
Law (7 yr deg in US)	---	--	--	--	--	(313%)	62%	27%	124%
Social Science Economics	8/5%	28/31%	76%	76%	3%	72% 184%	26% 65%	25% 44%	-- 108%
Biological Science	7/4%	26/16%	79%	42%	0%	81%	28%	23%	74%
Psychology	6/6%	29/28%	66%	50%	--	81%	22%	14%	53%
Humanities	8/6%	32/33%	61%	40%	-10%	34%	25%	23%	56%
Education	3/2%	13/11%	63%	37%	-3%	24%	6%	13%	37%

Source: Column 1-5 were calculated from National Center for Educational Statistics (1993) Tables 371, 372, & 375. Column 1 is the percent of those in the labor force who were unemployed (1987 data is left of the slash mark; 1991 data is right of the slash mark). Column 2 is the share of graduates with fulltime jobs who were employed outside of professional, technical and managerial occupations and who report they did not need a college degree to get their job. Column 3, 4 and 5 are the percentage by which the salary of Bachelors degree recipients one year after graduation exceeded that of high school graduates with 1-5 years of work experience. Column 6 is derived from Robert Kominski (1990) Table A & B. Column's 7-9 are from Table 1 of Dalton (1992).