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# 1 Overview

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This volume analyzes pay and employment in the public and private sectors. Chapters 2 through 6 consider various aspects of military compensation and employment; the remainder focus on labor issues in other governmental units. We find that (1) military personnel receive relatively high pay compared to their civilian counterparts; (2) the military pension system is an important part of compensation in the armed forces, and it implies an attendant large unfunded liability; (3) military hiring is an important part of youth employment; (4) earnings in the federal civil service are somewhat higher than comparable private earnings, but in general, pay in the public versus private sector varies greatly over time and by level of government; (5) government pensions are typically generous relative to private pensions, and their incentive effects vary dramatically among government units; (6) salaries for public teachers and minimum standards for teacher certification should be considered jointly.

## 1.1 Military versus Civilian Pay and Employment

Several chapters in this volume focus on compensation in the armed forces, its relationship to compensation in the private sector, and the interaction between military employment and private sector employment of youths. In Chapter 2, "Military versus Civilian Pay: A Descriptive Discussion," Douglas Phillips and David Wise compare the compensation of those who follow a career in the military to the com-

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pensation similar individuals could expect if they followed a career in the civilian sector. The chapter first compares the compensation of military enlisted personnel with the compensation of high school graduates in the civilian sector, and then compares the compensation of officers with the compensation of college graduates in the civilian sector.

Until 1967, military pay was much lower than wages or salaries in the private sector. However, the federal Pay Comparability Act of 1967 mandated that basic pay schedules and other elements of regular military compensation be adjusted to increases in wage rates in the private sector. The act states that military wages must be indexed to wage increases in the federal civil service, which in turn are indexed to wages in the private sector. One might conclude that this makes a comparison of military and civilian compensation a tautological exercise. However, the nonsalary components of compensation are very different in the two sectors, even if regular salaries were truly comparable. In addition, an important component of the comparison is the potential earnings of military personnel after retirement from the military service.

The authors emphasize that it is not possible to make precise comparisons of potential earnings of identical individuals in the military versus the private sector. Therefore, the comparisons must be taken only as indications of the order of magnitude of earnings potential in the two sectors. Some sensitivity analysis is undertaken to determine the effect on the comparisons of critical assumptions.

The authors estimate that the total potential lifetime compensation of enlisted career military personnel is between 1.4 and 1.7 times the average lifetime compensation of high school graduates; the total potential compensation of officers is between 1.6 and 1.9 times the lifetime compensation of the average college graduate.

Much of this difference between military and civilian compensation is the result of the very generous military pension system. Before twenty years of service, accrued pension wealth in the military is zero; at twenty years of service it jumps to between $117,000 and $151,000 (in 1978 dollars) for enlisted personnel, depending on rank, and from $260,000 to $277,000 for officers. These amounts are typically between 50 and 60 percent of total earnings during the first twenty years of service. In comparison, the typical high school graduate with a pension plan would have approximately $12,000 in accrued pension wealth after working twenty years.

Many military personnel leave the military and take a civilian job before they retire from the labor force. A large number of them accrue private pension wealth. In addition, military personnel accumulate Social Security wealth. As a consequence, the public plus private pension wealth of career enlisted personnel at age sixty-two is between 1.5 and 2.5 times the pension wealth of the typical high school graduate with

a private pension. At age sixty-two, career *officers* have two to three times the public plus private pension wealth of typical college graduates with private pensions. While Social Security wealth is about the same for military personnel as for civilians, private pension wealth is about twice as high for civilians as for military careerists. Nonetheless, this difference is swamped by the value of the military pension.

Using descriptive data, the authors also conclude that the military pension system provides a strong inducement for those with five or more years of service to remain for twenty years, at which time their pension benefits become available. After that, pension benefits apparently provide a strong incentive for retirement, unless future promotions in the service and resulting increases in pension wealth offset the otherwise foregone benefits.

In chapter 3, entitled "Investing in the Defense Work Force: The Debt and Structure of Military Pensions," Herman Leonard looks at the military retirement system (MRS) and the alternative to it proposed by the Grace Commission. His simulation results focus on the annual cost in accumulated unfunded liabilities of the alternative systems, and on the work incentives that these systems create.

Recently the military pension system has been widely criticized. The Congressional Budget Office, the General Accounting Office, the Office of the Actuary in the Department of Defense, the *Fifth Quadrennial Review of Military Compensation*, the President's Private Sector Survey on Cost Control (the Grace Commission), and countless other public and private researchers have scrutinized the military pension system. All have found that the system imposes a very substantial obligation on taxpayers for future payments. These studies have suggested a wide range of changes in the form, level, availability, timing, and composition of military retirement benefits.

There are two quite different reasons to examine the MRS. First, and most important, it provides fully 30 percent of the total compensation paid to military personnel. Pension rights represent an additional 60 percent increment to basic cash salary payments. Since only about 15 percent of armed forces members actually collect pensions, the pensions component of compensation for those who do collect is an even larger fraction of total pay.

The pensions portion of military compensation is also important because its pattern of accrual over the employee's working life is quite different from the pattern of salaries. Although the MRS provides no regular retirement benefits to those who leave with fewer than twenty years of service, the relatively generous benefits paid to people who work longer than twenty years provide a considerable incentive to stay in the service. The benefits also increase substantially if the career extends beyond twenty years. In that case, however, the annuity is

received for fewer years. Moreover, one's options to work outside the military are reduced because there are fewer years left in which to build a second career. All of this constitutes a complex trade-off, and one of the principal components of the trade is the level and structure of accrual of pension benefits.

The MRS also has a substantial impact on the retention, and, conceivably, the recruitment of military personnel. Indeed, it is fair to observe, as the Office of the Actuary did recently, that "The military retirement system is not an old-age pension system normally found in the private sector. . . . Rather it is a system specifically designed to complement the management of the active force, and is a function of the military pay and allowance compensation structure" (Department of Defense 1983, 1). The MRS is said to be explicitly designed to help the military keep the right people, to minimize the costs of retraining, and to maintain an effective fighting force. What incentives does it truly provide, and at what expense? Leonard emphasizes that alternative proposals should be examined in light of the changes they would induce in the structure of retirement incentives. He shows that the MRS represents a very large public investment in retention of military personnel and asks whether the same funds spent in different ways would have more impact on strengthening the nation's defenses?

A second reason to examine the MRS is that its obligations to provide retirement income are not backed by any financial assets. These obligations are commitments to pay, and they represent a considerable dedication of future tax revenues or other revenues. Since these obligations represent real claims, taxpayers and government officials should know their approximate magnitude, Leonard argues. That knowledge would provide a more accurate picture of the "financial condition" of the government—that is, a more accurate accounting to taxpayers of one of their major future obligations. It might also have an important impact on current decisions. Estimating the current equivalent salary cost of pension promises being rendered would facilitate estimates of the true cost of labor to the armed services. Such estimates, Leonard points out, are also necessary to assess correctly labor-saving capital investment.

Leonard finds that the military retirement system represents an accumulated taxpayer debt of about $525 billion. Its full funding rate is over 40 percent of payroll costs. (In a paper presented elsewhere, Laurence J. Kotlikoff and Wise [1984] find that the funding rate of the typical private pension plan is about 5 percent of payroll cost.) Individuals retiring with twenty years of military service often receive more in pension compensation than they did in wages over the period they worked. In part this is a result of the full cost-of-living indexing of

military pensions. Leonard also emphasizes that the MRS provides an enormous incentive to serve up to the time of retirement eligibility at twenty years, and then a smaller but still significant incentive to serve beyond that time.

The Grace Commission proposes a dramatic reduction in benefits. Pensions would be reduced in size, paid later in life, made shorter in duration, adjusted less than fully to offset inflation, and pegged to nominal salaries at retirement. For many, benefits could be cut by over 90 percent. The funding rate would be reduced by 75 percent, but the unfunded liability would fall only to about $390 billion. Work incentives would be dramatically altered; the reduction in pensions would amount to an overall pay cut of about 25 percent, and vesting would occur at ten years. The retention incentives would be materially reduced.

The Grace Commission proposals are founded on the premise that the MRS has little impact on the retention of armed services members, and therefore even substantial reductions in pension benefits would have little impact on the overall structure of the force. There is little systematic evidence about the responsiveness of retention behavior to pension compensation. Given the dramatic scale of changes contemplated by the Grace Commission proposals, the effects could be substantial, Leonard argues.

In "Military Hiring and Youth Employment," David Ellwood and David Wise estimate the effect of military hiring of youth on the civilian employment of youth. One of the most dramatic changes in the 1970s was a substantial reduction in the size and composition of the military. While these changes have been widely noted in popular discussion, they have received surprisingly little attention in the literature on youth employment. The silence may, in part, reflect uncertainty about how to treat the military. Most authors are interested primarily in assessing the performance of the civilian labor market, and data are almost always collected only for those in the civilian population.

Nonetheless, the military is a major employer of men between the ages of eighteen and twenty-four. Obviously, the need for military personnel serves as an additional demand for labor for young men. At the same time, military employment is often regarded as very different from civilian employment. The working conditions, the skills, the commitment, and the risks may indeed differ enormously between the sectors, and the working conditions within the military obviously vary depending on whether the country is at war. Moreover, the nature of the selection process for servicemen changes from year to year. In draft years, the proportion of the eligible population inducted and the rules for deferral or avoidance are quite variable. With a volunteer army, rigid pay rules and working conditions may deter many of the most

able or educated young men, while the military may reject those with comparatively low skills. The vast complexity of the whole issue, coupled with poor data, probably has led most authors to ignore it entirely.

Yet changes in the military over the past several decades have been dramatic and may have had a substantial impact on the youth labor market. There has been a sizable long-term decline in the relative number of young men in the military over the last three decades, interrupted by the Vietnam War. The decline in military manpower in the 1970s effectively increase the civilian labor force among eighteen- to twenty-four-year-olds at least as much as the baby boom did during this decade.

Thus military employment clearly can affect the statistics that help us evaluate youth employment. But if military employment is equivalent to civilian employment, what we have is largely an accounting problem.

However, the reduction in the size of the military may well have a much more fundamental impact on the youth labor market. In the past the military has served as a mechanism for many youths to make the transition from school to work. The military may be an important way to accustom youths to the world of work, and it may provide major vocational training that enhances opportunities in the civilian labor force.

Chapter 4, by Ellwood and Wise, asks, If military employment is increased, does youth employment in the civilian sector decline? Or, conversely, If a youth is employed by the military, is there no decline in civilian employment? That is, does an additional youth employed by the military mean a net increase of one in the total number of youths employed? While we know that counting youths in the military as employed substantially affects perceived trends in youth employment, the question here is more behavioral and requires statistical estimation.

To answer this question, Ellwood and Wise use cross-section time series data by state, covering the period 1972–82. They conclude that if a black youth is hired by the military, the total number of black youths employed is increased by one. That is, there will be no offset in the number of black youths employed in the civilian sector. Thus for black youths, military employment contributes substantially to the total number employed, they conclude. If fewer black youths were hired by the military, their employment picture would be even worse than it is.

For white youths, the results are more ambiguous. The weight of the evidence suggests that military hiring of white youths is partially offset by reduced employment of white youths in the civilian sector. However, the offset is considerably less than one and may be closer to zero.

In a companion chapter, "Uncle Sam Wants You—Sometimes: Military Enlistments and the Youth Labor Market," Ellwood and Wise analyze military enlistments and the youth labor market. There has been little work done on the impact of military enlistment and service on youth labor markets. The research that has been done usually has been from the perspective of the military and has focused on the influence labor market conditions have on military enlistment, particularly on enlistment by so-called high-quality recruits. In this chapter, as well as in the one just discussed, Ellwood and Wise focus on the inverse question, that is, What influence does the military have on youth labor markets?

The military is often viewed as an employer of last resort. For those who meet its standards, the military offers at least one source of employment. In that way, the military adds, on net, to the demand for youth. What is rarely considered, though, is that the military cannot possibly serve as the employer of last resort for all youths. Most authors assume that the military chooses a fixed quota of enlistment needs each year and adjusts the quality of its recruits to fill the quota. This notion implies that when the economy weakens, the military can afford to be more choosy. Thus, while the military may serve as an employer of last resort for highly desirable recruits, it is less likely to be an option for those deemed less desirable during bad economic times. For the "weaker" groups, employment opportunities in the military will tend to dry up just at the times when civilian opportunities do.

Ellwood and Wise use a model to explore military hiring of various groups over the business cycle. They find that the military does serve as a kind of employer of last resort for youth groups deemed "high quality" by the military. For these groups, military enlistment is highly sensitive (in percentage terms) to economic conditions, but not very sensitive to their total employment, since only small proportions of these groups enlist even in poor economic times. By contrast, military enlistments seem to exaggerate the civilian economic conditions of those on the bottom rung of the military hiring ladder. They are in excess supply to the military, and in poor economic times they tend to be supplanted by more qualified enlistees. The Ellwood-Wise results also imply that an expanding military will disproportionately benefit groups that generally fare less well in the labor market, such as nonwhites and high school dropouts.

The relationship between military service and the subsequent earnings of youth on civilian jobs is the subject of Chapter 6, "Military Service and Civilian Earnings of Youths," by Jon Crane and David Wise. There are at least two reasons why military service could enhance earnings on civilian jobs. Typically, work experience leads to higher

wage rates, and military work experience may substitute for civilian work experience in this respect. In addition, military enlistees might receive special training that is transferable to the private sector and leads to higher wages there. Indeed, recruitment advertisements often emphasize the training that military enlistees receive and that this training will benefit the enlistee in subsequent civilian employment. Advertisements clearly refer both to the investment in human capital and to the certification that the military provides. Enlistees are trained in areas of their choice and often get to work with the latest in high-technology equipment. Moreover, the commercials point out, civilian employers are sure to be impressed with the kind of person who can make it in the military.

The Crane and Wise analysis is based on the National Longitudinal Study of the High School Class of 1972 and on subsequent follow-up surveys conducted in 1973, 1974, 1976, and 1979. The primary advantage of this data set is that it follows the same youths from high school graduation through possible military enlistment and ultimately to jobs in the civilian labor market.

Crane and Wise conclude that among the potential enlistees—individuals with high school degrees and no further education—those who in fact join the military are, by standard measures of quality, very similar to those who do not join. The two groups have similar academic test scores and they performed at approximately the same level in their high school classes. Both groups, however, are quite different from those high school graduates who go on to four-year colleges.

Crane and Wise also find that job experience in the civilian labor market is more valuable than job experience in the military in terms of wage increases in the civilian sector. However, military experience contributes to earnings in the civilian labor market. These results, the authors emphasize, do not mean that earnings in the military sector are lower than those in the private sector. Indeed, the Phillips-Wise chapter suggests just the opposite. Nor do the results imply that military service is a poor choice for those who enlist, even if they ultimately intend to follow career in the civilian sector. Those who enlist in the military before joining the private labor force may have faced relatively poor employment in the private sector upon graduation from high school.

## 1.2 Civil Service versus Civilian Pay and Employment

In chapter 7, Steven Venti analyzes "Wages in the Federal and Private Sectors." He emphasizes that the legal principle of comparability has formally guided federal white-collor wage policy for the last twenty years. The legislation requires "federal pay rates be comparable with private enterprise pay rates for the same levels of work." The principle

has been interpreted and enforced to equalize wages between the federal and private sectors. However, recent evidence suggests that this objective has not been attained. Work by Smith (1976, 1977, 1981) and Quinn (1979) indicates that federal workers may be "overpaid" relative to their private sector counterparts by as much as 15 percent to 20 percent. Inability to "explain" pay differences by measured characteristics is interpreted as evidence that equal pay is not the rule. Unexplained or residual differences in pay are seen as quasi rents to employment to the higher-paying sector.

Venti addresses two interpretations of the unexplained difference between public and private wages. The first is unobserved differences in the productivity of workers in each sector. Despite the availability of large samples and of detailed information in recent microdata files, Venti argues that it is not possible to capture fully all worker-specific differences. If workers are sorted between sectors on the basis of these unobserved factors, then the unexplained component of wage regressions may be individual differences rather than quasi rents. One goal of Venti's analysis is to extend the previous wage regression approach to adjust for the effects of observed and unobserved personal characteristics related to productivity.

The second interpretation of the unexplained difference between public and private sector wages is equalizing (or compensating) wage differences for nonpecuniary job attributes. Workers may perceive fundamental differences between the public and private sectors. Distinguishing features of each sector, which may be viewed either favorably or unfavorably by workers, include stability of employment, opportunity for internal promotion, unique nature of public service, pace of work, the bureaucratic work environment, and so forth. If the return to a job is viewed as a package including both wage and nonwage components, then part of any public-private wage difference may be an equalizing difference for the nonwage job attributes. If workers trade off wages for these job attributes, then a policy of equal wages between sectors may lead to a federal wage scale that neither equalizes overall returns to workers in each sector nor elicits the appropriate supply response.

If wage differences between sectors are, in part, equalizing differences, how can one determine if the federal sector "overpays"? Venti's approach is to judge whether the government overpays based on implicit queues for public sector jobs. If the difference between public and private wage offers exceeds the amount necessary to offset the difference between nonwage aspects of the job, then there will be more individuals who desire government employment than there are jobs in the public sector. The wage differential that exactly eliminates the queue is, in a simple supply sense, the comparable wage differential.

Venti formulates and estimates a model of sectoral attachment, at the individual level, that permits a rough calculation of the length of implicit queues for federal sector jobs. He identifies determinants of worker preferences for federal sector employment and determinants of hiring choices in the federal sector. The separate decisions of employee and employer together determine whether the worker will be employed in the government sector. More important, identifying the separate decisions permits a test for the existence of queues for federal jobs: they reveal excess desired demand for government jobs at a given relative public-private wage.

Venti concludes that, although much of the gross differential in average wages can be explained by differences in individual attributes, the federal sector still pays men about 4 percent more than does the private sector. Women in the public sector earn approximately 22 percent more than their counterparts in the private sector. Venti also attempts to estimate wage rates that would be required to eliminate queues for federal sector jobs. He concludes that in 1982 a 16 percent reduction in federal sector wages paid to men and a 42 percent reduction in wages paid to women would have eliminated queues.

In chapter 8, Richard Freeman asks "How Do Public Sector Wages and Employment Respond to Economic Conditions?" Nearly one in five employees in the United States works for some branch of government; one-fifth of employee earnings are paid by governments. In many labor markets, such as those for school teachers, protective service workers, health sector workers, and white-collar workers in general, government plays an even larger and sometimes predominant role on the demand side.

How do governments act as employers? Are public sector wages and employment unresponsive to changing economic conditions, as is often held? Are government workers generally paid a premium over comparable private sector workers, or do public-private pay differentials vary with economic conditions? What economic forces influence public pay and employment? These questions have rarely been addressed. The Freeman chapter sets out the basic facts about public sector wage and employment patterns in the United States and then develops a relatively simple empirical model to answer them.

Freeman finds that the pay of public sector workers relative to private sector workers varies greatly over time. Contrary to the view that pay in the public sector is inflexible, he finds that variations in relative pay are caused as much by fluctuations in public pay as by fluctuations in private pay.

According to Freeman, the relatively highly paid worker in the public sector in the early 1970s lost much of his or her advantage over otherwise comparable private sector workers within the span of a decade.

The group of public sector workers who tend to be most highly paid relative to private sector workers are blacks and women, suggesting that the public sector may have a stronger equal employment or affirmative action policy than the private sector.

Differentials in public and private sector pay vary greatly depending on the nature of the comparisons. For example, Current Population Survey comparisons of individuals with similar broad human capital show federal employees to be higher paid than private employees; Bureau of Labor Statistics surveys of wage rates in particular occupations show federal workers to be lower paid.

Moreover, public sector employment follows a very different pattern of change from private sector employment. There is less annual variation in public sector than in private sector employment. The rate of growth of state and local employment tends to be countercyclical rather than cyclical; federal employment growth tends to be less procyclic or countercyclical than private employment growth. In terms of demographic composition, the public sector employs relatively more blacks and women than the private sector, reinforcing the belief that the government offers their workers better job opportunities than the private sector.

Not surprisingly, budgets are a major determinant of state and local public sector wages and employment. An increase in the ratio of budgets to GNP raises relative employment by much more than it raises relative wages. Because of differences in the response of the public sector versus the private sector to broad economic developments, public sector employment rises relatively in recessions and falls relatively in booms, while relative wages move in the opposite direction. Moreover, relative employment in the state and local public sector tends to fall in periods of rapid inflation. By contrast, federal wages and employment, which constitute only a small proportion of budgets and which can be paid for by deficit financing, do not exhibit a well-defined relationship to various measures of budget size.

Howard Frant and Herman Leonard analyze government pension plans in chapter 9, "Promise Them Anything: The Incentive Structures of Local Public Pension Plans." Public pension systems have been greatly criticized, but there has been relatively little study of their details. While studies of federal pension plans have revealed substantial accumulations of unfunded liabilities facing future taxpayers, both government and private studies of state and local pension plans have indicated that these problems are common, though not universal, in lower-level jurisdictions as well. Some studies have considered the aggregate impacts of these plans, but little attention has been paid to the level and form of the incentives they create. The differences across jurisdictions are frequently dramatic. The evolution of pension arrange-

ments in different jurisdictions appears to have led to a considerable degree of customization—local variations in plan features. The level and timing of pension benefits and of the accrual of pension rights by employees—and the work incentives thereby created—are quite volatile across plans.

Frant and Leonard discuss whether trying to account for these variations using an optimal contracting perspective provides the most plausible explanation. They examine 94 public pension plans for local employees from thirty-three states. Of these, 67 cover general employees or teachers, and 27 cover police or fire employees. Some plans are state administered; most are administered locally. The plans they describe are investigated in Arnold (1983); Frant and Leonard use a subset that has adequate data for their examination. These systems cover more than 2.9 million employees. However, Frant and Leonard emphasize that the plans do not represent a random sample, so the statistics they cite should be taken as roughly indicative rather than precisely descriptive.

They seek to describe the character and variety of public pension plans, to examine the roles played by certain features of these plans, and to assess their relative importance. They focus on the time profile of pension wealth and on wealth accruals. Accrual of pension wealth is the increment to a worker's wealth in a given year as a result of increases in pension rights granted in that year. Accruals of pension wealth are thus an element of total worker compensation; to understand the time profile and consequent incentive effects of public compensation, we need to understand the time profile of pension accruals.

This work closely parallels research by Kotlikoff and Wise (1984) describing private sector plans. But there are two possibly contradictory reasons why we might be interested in looking at public sector plans. First, they may have different labor market properties or be determined by different factors than private sector plans. Second, because these plans are not covered by Employee Retirement Income Security Act (ERISA), they represent a less "constrained" and therefore richer universe of possible features.

Frant and Leonard find substantial variation in the level and form of state and local pension plans across jurisdictions. They conclude that it is hard to believe that the differences can be realistically attributed to optimal contracting. They emphasize that the customization of plan features in some jurisdictions provides incentives so complex as to appear inconsistent with any rational objective. It is possible, they suggest, that the money that provides these incentives is not particularly well spent.

Two alternatives seem worth considering, they say. First, in simpler plans the incentives are easier for workers to comprehend, and they

are less likely to differ across workers in bizarre ways. Complex interactions of early retirement penalties, entitlements to pension rights defined discontinuously in terms of age and service, and other custom features of some public plans create accrual spikes without having any obviously beneficial incentive implications. Simplifying plans that currently have such features might well result in more (or more appropriate) incentives per dollar of required funding.

Second, the incentives would be much clearer if the plans were on a defined contribution basis. Both workers and taxpayers could then see directly both the timing and the magnitude of the incentives provided—as well as their cost.

In short, Frant and Leonard conclude that pension payments are an important component of labor income in the state and local public sector. To fully fund these plans, funding rates would need to average about 15 percent of total compensation. (Comparable private sector funding rates are about 5 percent, according to Kotlikoff and Wise.) The plans differ dramatically across jurisdictions in form, in timing, in level, and in the incentives they provide workers. Some are so complex that their incentive patterns appear to have arisen more by accident than by design. They may also be too complex to be fully understood by workers. This in itself may be a reason to simplify some of the more complicated plans.

In chapter 10, Ronald Ehrenberg and Robert Smith consider "Comparable Worth in the Public Sector." It is common knowledge that, on average, women earn less than men, are distributed across occupations quite differently from men, and that earnings in occupations dominated by women tend to be lower than in those occupations dominated by men, even after controlling for traditional proxies for productivity. The frustrations generated by these outcomes have led to pressure for the adoption of the principle of comparable worth.

Proponents of comparable worth assert that jobs within a firm can be valued in terms of the skill, effort, and responsibility they require, as well as the working conditions they offer. Two jobs would be said to be of comparable worth to a firm if they were comparable in terms of these characteristics. The principle of comparable worth further asserts that, within a firm, jobs of comparable worth should receive equal compensation.

While some efforts to implement comparable worth have taken place in the private sector, the major push for comparable worth has occurred in the state and local government sector. By the mid-1960s over a dozen states had passed comparable worth legislation covering state employees, although these laws were rarely enforced. Starting with a 1974 study in the state of Washington, a number of states have undertaken formal job evaluations to see how their compensation systems mesh

with the principle of comparable worth. In several cases this has led to "voluntary" implementation of comparable worth through the legislative and collective bargaining processes (e.g., Minnesota) or to court-ordered implementation (Washington). By 1984, nine states had begun the process of implementing some form of comparable worth in their employees' compensation systems. Comparable worth initiatives have also been undertaken at the local level. Many of these were in California, Minnesota, and Washington.

Ehrenberg and Smith begin with a discussion of the cases for and against comparable worth, from the perspective of analytical labor economists. They use simple labor market models and stress the key assumptions that influence whether the policy might be considered desirable. Ultimately, they conclude that the debate over comparable worth must involve a consideration of the trade-off between efficiency and equity. They then discuss some of the conceptual and operational problems of implementing such a scheme.

First, they address the attempts by various states to conduct comparable worth job evaluation studies in which wages are related to total job evaluation points and discrimination is inferred if, on average, female-dominated occupations receive lower wages than male-dominated occupations with comparable total evaluation points. The authors ask whether it is reasonable to simply sum up points for the different job evaluation factors (e.g., training, job responsibility, working conditions) to get a total score for each job, for this assumes that employers "value" an additional point of each factor equally. Using a hedonic wage equation approach and data from job evaluation studies conducted in Minnesota, Washington, and Connecticut, they estimate empirically whether the weights these states assign to each factor are equal. If they are not, then how does this affect estimates of male-female comparable worth gaps. They also test whether functional form assumptions affect these estimates.

Ehrenberg and Smith emphasize that total compensation on a job includes opportunities for occupational mobility and subsequent wage growth. The state studies they consider ignore these opportunities, assuming implicitly that male-female current wage differentials for given point scores through job evaluation are not compensated for by opportunities for wage growth. The authors use data on state and local government employees in New York State from the 1970 *Census of Population* to illustrate how one might test this assumption indirectly.

Ehrenberg and Smith point out that to the extent that public employers' employment decisions are sensitive to their employees' wage rates, one would expect to observe relative wage changes leading respectively to (1) the substitution of some male for some female employees within a function-occupation group; (2) the substitution of some

employment in male-dominated occupations for some employment in female-dominated occupations; (3) the substitution of some employment in male-dominated functions for some employment in female-dominated functions; and (4) a decline in the aggregate level of public employment. For all these reasons, comparable worth wage adjustments (CWWA) might be expected to lead to a decline in female employment.

Ehrenberg and Smith find that existing estimates of comparable worth wage gaps in Connecticut, Minnesota, and Washington are relatively insensitive to the functional form of the earnings equation estimated. On the other hand, the authors are highly skeptical about what these job evaluation systems are actually measuring. They conclude that if job evaluation systems are to be used in comparable worth studies, they should be designed more thoughtfully. They also find little evidence that intraoccupational male-female employment ratios are sensitive to intraoccupational male-female wage ratios or that the occupational distribution of employment is sensitive to the occupational distribution of wages.

Ehrenberg and Smith stress that a CWWA policy would have additional repercussions. Some males in the sector would also lose their jobs; if these displaced males and females sought employment in the private sector, then there would be downward pressure on wages there. Indeed, they conclude that if a CWWA policy were confined to the public sector, women as a group might not benefit; the higher wages for women employed in the public sector might be offset at least partially by resulting lower wages for women in the private sector.

In the final chapter, Charles Manski examines "Academic Ability, Earnings, and the Decision to Become a Teacher." Perceived shortcomings in the quality of American education at the elementary and secondary school levels have drawn much public attention recently. In particular, there has been prominent concern with the composition of the teacher force.

This concern presumably arises out of the juxtaposition of three factors: First, it is generally accepted that educational achievement is influenced by the ability of the teachers who guide the learning process. (Of course, there is much less agreement about how educational achievement and teacher ability should be measured.) Second, there is often an expressed dissatisfaction with the distribution of ability within the present teaching force. Third, there is a common perception that feasible changes in public policy can generate a shift in the distribution of ability of the supply of teachers. In particular, it is asserted that merit pay, general increases in teacher salaries, and/or subsidization of the college education of prospective teachers would induce more college students of high ability to select teaching as a career.

We can only assess the various proposals for increasing the attractiveness of teaching in an informed way if we forecast the extent to which they would influence the decisions about the occupational choice of high-ability young adults if enacted. Until now, there has been no basis for such forecasts. In the absence of empirical analysis, we can only guess at the impact of changes in teacher salaries on the quality of the teaching force.

Manski examines the relationship between academic ability, earnings, and the decision to become a teacher through analysis of data from a national sample of college graduates. The National Longitudinal Study of the High School Class of 1972 (NLS72) surveyed 22,652 high school seniors in the spring of 1972 and has subsequently followed this panel as its members have progressed through postsecondary education and into the labor force. The most recent survey took place in October 1979. At that time, 18,630 members of the panel were successfully contacted. Of these, 3,502 reported having completed a bachelor's degree in 1976 or 1977. Of this group, 2,952 reported they were working in October 1979. Of these, 510 reported that they were employed as teachers.

From these data Manski finds that among the working NLS72 respondents who have received a bachelor's degree, the frequency of choice of teaching as an occupation is inversely related to academic ability. This finding is true whether academic ability is measured by SAT score or by high school class rank. Holding SAT scores constant, though, the frequency of choice of teaching does not vary with class rank.

For a given sex and level of academic ability, teacher's earnings are much lower, on average, than those of other working college graduates. For women alone, or men alone, the earnings of teachers tend to rise only slightly, if at all, with academic ability. In other occupations, a relationship between earnings and ability is more noticeable, but is still weak. In fact, academic ability explains only a small part of the observed variation in earnings with the cohort of NLS72 college graduates.

For a given level of academic ability and a given occupation, males consistently have higher earnings than females. The sex differential in earnings is relatively small in teaching, but quite pronounced in other occupations. The rate at which earnings rise with ability is very similar for males and females.

To evaluate policy proposals intended to influence the composition of the teaching force, we must go beyond the descriptive analysis. The NLS72 data allow us to estimate an econometric model that explains occupational choice as a function of the earnings and nonmonetary characteristics associated with alternative occupations. With this model it is possible to forecast the consequences of policies that combine

increases in teacher salaries with the institution of minimum academic ability standards for teacher certification.

Manski's forecasts suggest the following: In the absence of a minimum ability standard, increases in teacher earnings would yield substantial growth in the size of the teaching force but minimal improvement in the average academic ability of teachers. Under present conditions, the aggregate wage elasticity of the supply of teachers appears to be in the range of two to three. As wages increase, both high- and low-ability students are attracted into teaching, so the ability composition of the teaching force changes little.

If teacher salaries are not increased, institution of a minimum ability standard improves the average ability of the teaching force but reduces its size. Establishment of a standard sufficient to raise the average academic ability of teachers to the average of all college graduates may reduce the size of the teaching force by 20 percent.

The average ability of the teaching force can be improved while the size of the teaching force is maintained if minimum ability standards are combined with sufficient salary increases. It appears that the average academic ability of teachers can be raised to the average of all college graduates if a minimum SAT score (verbal plus math) of 800 is required for teacher certification and if teacher salaries are raised by about 10 percent over their present levels. To achieve further improvements in average teacher ability without reducing the size of the teaching force would require a higher minimum ability standard combined with a larger salary increase.

Manski emphasizes that the indicators of ability available in the NLS72 panel and which he used in his research are very specific measures of academic success, namely SAT scores and high school class rank. It seems reasonable to assume that these variables are positively associated with performance as a teacher, but formal evidence for this proposition is lacking. The relevance of his analysis to the debate over the quality of the teacher force therefore depends on the extent to which academic ability and teaching ability coincide.

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